DRAFT ENVIRONMENTAL IMPACT REPORT
VOLUME 1 OF 2

ASPEN VIII AND IX MINING USE PERMIT

Control Number: PLNP2014-00201
State Clearinghouse Number: 2015022062
Date: May 27, 2016

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

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Prepared By

Sacramento County Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento, CA 95814

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This Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Department requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
COUNTY OF SACRAMENTO DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

Department of
Community Development
Michael J. Penrose,
Acting Director

Divisions
Administrative Services
Building Permits & Inspection
Code Enforcement
County Engineering
Economic Development & Marketing
Planning & Environmental Review

May 27, 2016

TO: All Interested Parties

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT FOR ASPEN VIII AND IX (CONTROL NUMBER: PLNP2014-00201)

The subject Draft Environmental Impact Report (DEIR) is attached for your review and comment. The DEIR can also be reviewed at:

https://planningdocuments.saccounty.net/ViewProjectDetails.aspx?ControlNum=PLNP2014-00201

Reviewers should focus on the sufficiency of the DEIR in discussing possible impacts upon the environment, ways in which adverse effects might be minimized, and alternatives to the proposed project. Reviewers who wish to comment on the adequacy of this DEIR are urged to submit written or emailed comments to the Sacramento County Department of Community Development by close of business on July 11, 2016 at the address below:

Catherine Hack, Environmental Coordinator
Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225, Sacramento, CA 95814
or via e-mail at: CEQA@saccounty.net.

A public hearing on the Aspen VIII and IX project will be held by the Sacramento County Planning Commission at the Board of Supervisors Chambers, at 700 H Street in Sacramento. A notice of the date and time of the public hearing will be provided by the hearing body authorized to conduct the public hearing for the proposed project. Interested individuals may check the materials for upcoming hearings on the website of the Planning Commission at:

http://www.sccob.saccounty.net/Pages/CCPCPublicMeetings.aspx

For questions about the project, please contact Mark Michelini of this office at (916) 874-5648 or michelinim@sacccounty.net.

Sincerely,

[Original Signature on File]

Catherine Hack,
Environmental Coordinator

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1 EXECUTIVE SUMMARY AND MITIGATION MEASURES

The subject of this Environmental Impact Report (EIR) is a project known as Aspen VIII and Aspen IX. The Aspen VIII and Aspen IX project site is located in the Vineyard community of unincorporated Sacramento County. The project site is located approximately one-half mile east of Bradshaw Road and south of Jackson Road (Hwy-16) with Elder Creek bisecting the project area.

The following environmental impact and mitigation summary table (*Table ES-1: Executive Summary of Impacts and Mitigation on page 1-2*) briefly describes the project impacts and the mitigation measures recommended to eliminate or reduce the impacts. The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent support data, can be found in the specific topic sections in the remainder of this report.

This report has identified project-related impacts associated with agricultural resources, aesthetics, public services, air quality, noise, hydrology, geology and soils, biology, cultural resources and hazardous materials as significant or potentially significant, which could be reduced to a less than significant level through inclusion of recommended mitigation measures.

This report identifies significant and unavoidable impacts related to aesthetics regarding an irreversible change to the landform and air quality for NOx emissions.

Impacts associated with land use, population and housing, airport compatibility, traffic/transportation, and greenhouse emissions **are considered less than significant**.

Table ES-1: Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
LAND USE/POPULATION AND HOUSING			
The project conforms to all applicable land use plans with the rezone approval and the use permit approval.	LS	None Recommended	LS
The project site contains three homes. Implementation of the project will remove two of the homes. The housing loss is not considered substantial.	LS	None Recommended	LS
There are no established communities near the project site. Hence, the project will not divide an established community.	LS	None Recommended	LS
The project does not propose any new housing nor will it remove any barriers to growth.	LS	None Recommended	LS
AGRICULTURAL RESOURCES			
The project will convert 355 acres of farmland (39 acres of prime farmland, 225 acres of farmland of	S	AG-1: Agricultural Farmland Impacts Mitigation Measure	LS

[1] PS = Potentially Significant S = Significant SU = Significant and Unavoidable LS = Less Than Significant

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
statewide importance, and 91 acres of local importance). General Plan Policy AG-5 requires mitigation for conversions of over 50 acres. Therefore, mitigation has been proposed to reduce the farmland impacts on 355 acres.		Prior to approval of the Work Authorization Permit, grant an agricultural easement to an accredited land conservancy that is acceptable to the County, for not less than 39 acres of prime farmland, 225 acres of statewide importance farmland, and 91 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions: • Statement of purpose, including that the land is to remain in productive agricultural and/or open space use • List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property • Annual monitoring program • Enforcement procedures • Statement of perpetual duration	
The proposed project is not in a Williamson Act contract.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project as proposed will introduce mining uses to agriculturally zoned property. The mining facility upon completion of mining will be reclaimed to open space grassland; open space grassland uses would not conflict with the surrounding agricultural uses.	LS	None Recommended	LS
AESTHETICS			
The project will degrade the visual character of the project site. The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. Therefore, the aesthetic impacts are significant.	S	AE-1: Viewsheds Mitigation Measure A. Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (Quercus lobata) and interior live oak (Quercus wislizenii); and the following shrubs; western redbud (Cercis occidentalis), toyon (Heteromeles arbutifolia), hoary coffeeberry (Rhamnus tomentella), snowdrop bush (Styrax officinalis), and Howard McMinn' manzanita (Arctostaphylus densiflora). The placement of landscaping shall be as show in Plate AE-7. The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height. B. Additional berms and landscaping shall	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		be placed to screen the view of the mining pit for the residence at 9895 Elder Creek Road, on accessor's parcel number 063-0180-022, and west of Aspen VIII. This shall consist of a berm and landscaping combination to the satisfaction of the Department of Community Development with input from the resident of 9895 Elder Creek Road.	
The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. But nonetheless the project has the potential to impact neighboring properties.	PS	AE-2: Reducing Impacts Associated with Lighting Mitigation Measure Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.	LS
The project site does not occur in the vicinity of any scenic highway, corridors, or vistas.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
AIRPORT COMPATIBILITY			
Noise Pursuant to General Plan Policy NO-2, mining and quarrying are compatible uses where aircraft noise levels are less than 70 CNEL. By virtue of the project's location, the surface mining use is compatible with the airport noise standards of the General Plan.	LS	None Recommended	LS
Navigable Airspace The project does not propose to construct any structure that will exceed the height limits near an airport. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. . The project has the potential for impacts associated with bird strikes on aircraft. The net effect of the proposed project is to reduce the potential for bird aircraft collisions. Therefore, the project's impacts would not result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Hazards The project site is located at the outer edge of the Overflight Zone with most of the project area completely out of the Overflight Zone. Mining is a compatible use within the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport.	LS	None Recommended	LS
Safety There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks.	LS	None Recommended	LS
PUBLIC SERVICES			
The project will not result in an increased demand for water supply at build out because the end use of the mine is open space grassland. The proposed project will utilize water from the on-site wells for the water needs.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities.	LS	None Recommended	LS
The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030.	LS	None Recommended	LS
The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Additionally, the Sacramento Area Sewer District has reviewed the proposed project and determined the project does not impact future sewer projects.	LS	None Recommended	LS
The implementation of the proposed project will add new stormwater facilities to the project site. The applicant is proposing to construct stormwater detention ponds to serve as on-site stormwater detention basins for the mining pits. The stormwater detention basins will be	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
approximately 14.2 acres in size and at least one stormwater detention basin will be at each of the proposed mine pits. The facilities are expected to adequately handle the drainage needs of the project without resulting in substantial adverse physical impacts.			
Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project, two of the homes will be removed. The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system.	LS	None Recommended	LS
The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project will not require the use of public school services.	LS	None Recommended	LS
The excavation of mining pits at the site could preclude Southgate's ability to provide a planned multi-use trail for the area. This impact is considered potentially significant. Although a trail easement is already proposed as part of the project's reclamation plans, mitigation is recommended to ensure that the easement is in place prior to any on-site excavation and that the area within the easement is structurally appropriate for future trail use after reclamation of the site.	PS	PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure A. Prior to issuance of Work Authorization Permit, the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District. B. Prior to signoff of the reclamation plan the applicant shall install a 20-foot wide suitably compacted base rock foundation for the multi-use trail along Elder Creek, the grade and slopes of which shall be designed to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be to the satisfaction of Southgate Recreation and Park District.	LS
TRANSPORTATION/TRAFFIC			
The project is a surface mining operation and no new parking facilities are required. There will be a limited number of mine employees and parking for employee vehicles may be near the temporary	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
employee and security trailers. A purpose built permanent parking lot is not required for this project.			
There are no conflicts with adopted policies, plans, or programs supporting alternative transportation that have been identified.	LS	None Recommended	LS
The project will not substantially impact public safety on the roadway. The small amount of increased employee traffic should not pose a safety threat on the public roads. The aggregate materials will be removed from the site via an electric conveyor system. The heavy equipment may be brought to the site via public roads and in some cases; the heavy equipment will be transferred to the site via internal access roads and not on the public roadway. The overburden haul trucks will not operate upon the County roadway system to haul overburden.	LS	None Recommended	LS
It is anticipated that ten employees will report to the project site for work. The new peak hour trips generated from ten employees will be less than 100, and therefore would not necessitate a traffic study. The amount of traffic generated by the ten employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The excavation of the mining pits at the project site could preclude Sacramento County Department of Transportation's ability to provide a planned roadway extension (Knox/Vineyard Road). Although a roadway easement is currently shown on the project's site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation.	PS	TT-1: Knox/Vineyard Road Mitigation Measure A. Prior to issuance of Work Authorization Permit, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements the applicant shall dedicated for the future easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation. B. Prior to signoff of the reclamation plan the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of Transportation. The applicant shall return-to-grade and rough grade an area	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek Road to the satisfaction of Sacramento County Department of Transportation.	
AIR QUALITY			
Sacramento Metropolitan Air Quality Management District provides a screening methodology to determine project impacts from localized Carbon monoxide (CO) emissions. This screening methodology was utilized and the CO emissions impacts were screened out.	LS	None Recommended	LS
The project's maximum daily emissions for ROG is 72.3 pounds per day which is over the threshold of 65 pounds per day. The average daily emission for ROG is 27.2 pounds per day which is under the threshold of 65 pounds per day. The maximum daily emissions of ROG generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Mitigation will reduce the impacts to less than significant.	S	AQ-1.1: Reducing ROG and NOx Mitigation Measure To mitigate construction-related ozone precursor emissions, the following shall apply: A. The project shall provide a plan for approval by the District demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction. B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The District and/or other officials may conduct periodic site	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations. C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination. D. To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.	
The project's maximum daily emissions for NOx is 861.3 pounds per day which is substantially above the 65 pound per day threshold and the average daily emissions for NOX is 317.1 pounds per day which is also	S	Same as above	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
substantially above the 65 pound per day threshold. The emissions of NOx generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Even with mitigation the impacts are significant and unavoidable.			
The project's maximum daily emissions for PM_{10} are 79.6 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 32.3 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and $PM_{2.5}$ average daily emission is 14.7 pounds per day. These emissions exceed the SMAQMD significance threshold of zero emissions for both types of particulates. However, the district's significance thresholds increase to 80 pounds per day for PM_{10} and 82 pounds per day for $PM_{2.5}$ if all feasible Best Available Control Technology (BACT) and Best Management Practices (BMPs) are applied. Therefore, mitigation has been added to implement BACT and BMP's to the project.	S	AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions Mitigation Measure Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including: • Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated. Implement Enhanced Fugitive PM Dust Control Practices including: SOIL DISTURBANCE AREAS	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		• Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site. • Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph. • Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. • Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established. UNPAVED ROADS (ENTRAINED ROAD DUST) • Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site. • Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads. • Post a publicly visible sign with the	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.	
Because of the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, combined with the limitation on heavy equipment usage in the vicinity of nearby residences, it is not anticipated that mining related toxic air contaminant emissions would expose nearby, off-site sensitive receptors to an incremental increase in cancer, chronic, and acute risk that exceeds applicable thresholds.	LS	None Recommended	LS
Mining activities could result in odorous diesel exhaust emissions. These types of odorous emissions, however, would be temporary and would not be generated at any one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Mining activities utilizing off-road equipment will not result in the frequent exposure of objectionable odorous emissions.	LS	None Recommended	LS
NOISE			

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The General Plan standard of 75 dB Lmax would be satisfied at each of the nearest residences. Furthermore, the General Plan standard of 55 dB L50 for outside areas would be satisfied at each of the nearest residences with the exception of Residence 3. Residence 3 is located 250 feet from the proposed excavation and the predicted median hourly outside noise level is 57 dB which would exceed the County's outside or exterior noise standard by 2 dB. With noise mitigation the project's impacts are less than significant.	S	NO-1: Median Noise Levels Mitigation Measure A. One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time. B. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers. C. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.	LS
The ambient noise measurement for Site A (45-46 dB) is combined with the predicted noise level at residence 3 (57 dB), the resulting total is approximately 57 dB (existing ambient noise and project noise) which is an increase of approximately 11 dB to ambient noise. With noise mitigation the project's impacts are less than	S	Same as above	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
significant.			
HYDROLOGY AND WATER QUALITY			
Based on analysis, the proposed project will not substantially alter the existing drainage patterns of the project area and/or increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site.	LS	None Recommended	LS
Although the project is in a 100-year floodplain, it does not propose any development within the floodplain.	LS	None Recommended	LS
Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, slit fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.	LS	None Recommended	LS
The mining operation will not excavate to a depth that will interfere with groundwater recharge. The proposed project will not substantially interfere with groundwater recharge. The project does not construct or propose any	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
impervious surfaces that would limit water percolation.			
The project is not proposing any type of structures that impede or redirect flood flows within the floodplain.	LS	None Recommended	LS
The mining operation will have only limited structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather.	LS	None Recommended	LS
The project would not contribute runoff to the stormwater system. The mine is a pit in the ground that would collect water and will not add to the existing stormwater system.	LS	None Recommended	LS
GEOLOGY AND SOILS			
The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are potentially significant but with mitigation the impacts are less than significant.	PS	GS-1: Reclamation Slopes and Berms Mitigation Measure A. Reclamation slopes shall be constructed at 2H:1V or flatter. B. To increase stability, reduce	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		underseepage potential, and provide a stable foundation for the embankment/berm located around the perimeter of the mine operation, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources. C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes,	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources. D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes. E. At the beginning of each year (in the month of January) a written maintenance plan that specifies specific actions that ensure the slopes are in good repair, stable and safe shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. The report shall also include an	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		evaluation of the prior year recommended actions to ensure that the actions have gone into effect and how the actions corrected any deficiencies. This report shall be prepared by a registered and licensed civil engineer in good standing. F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.	
The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil handling measures in that plan is therefore recommended to mitigate this potentially significant impact.	PS	GS-2: Topsoil Management Mitigation Measures Comply with the topsoil handing and stockpiling measures contained in Section 6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.	LS
The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. The mitigation for unanticipated cultural discoveries includes provisions for paleontological resources and will prevent the direct or indirect destruction of a unique paleontological resource or site.	PS	GS-3: Paleontological Resources Unanticipated Discoveries Mitigation Measures GS-3 Comply with Mitigation Measure CR-2.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
There are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to know earthquake faults and seismic hazards are minimal.	LS	None Recommended	LS
The proposed project is a surface mine that will extract mineral resources from the site and will not result in a loss of mineral resources.	LS	None Recommended	LS
The proposed project has soils capable of supporting septic tanks and wastewater disposal systems and the proposed project will not construct any septic tanks or wastewater disposal systems.	LS	None Recommended	LS
BIOLOGICAL RESOURCES			
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to Sanford's arrowhead.	S	BR-1.1: Sanford's Arrowhead Mitigation Measure A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a portion of Elder Creek that is within 2 miles of the project site. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		plants. B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to Invertebrates.	S	BR-1.2: Invertebrates Mitigation Measure Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods" (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall: A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Game. B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento County Environmental Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation. C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		approval of the Environmental Coordinator. D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction. E. Prior to issuance of Work Authorization Permit, all areas designated within the project area as Avoided shall be placed within a permanent conservation easement, which shall be reviewed and approved by the Environmental Coordinator. At a minimum, the permanent conservation easements must cover all areas which are required to be preserved as part of the Section 404 and Section 401 wetland permits.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western spadefoot toad.	PS	BR-1.3: Western Spadefoot Toad Mitigation Measure A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat. C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western pond turtle.	PS	BR1.4: Western Pond Turtle Mitigation Measure A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat. C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.	
The implementation of the proposed project would result	PS	BR-1.5: Nesting White-Tailed Kite, Swainson's	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
in temporary, direct, and/or indirect impacts to nesting white-tailed kite, Swainson's hawk, northern harrier, and other raptors.		Hawk, Northern Harrier and Other Raptors Mitigation Measure A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction. B. The survey shall include a focused survey for Swainson's hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction. C. If no active nests are found in the survey area, no further mitigation is necessary. D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		the start of construction activity. E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting or roosting burrowing owl.	PS	BR1.6: Nesting or Roosting Burrowing Owl Mitigation Measure A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14. The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet). The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows. Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting birds protected under the Migratory Bird Treaty Act.	PS	BR1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist. B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found. C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to the loss of foraging habitat for white-tailed kite and Swainson's hawk.	S	BR-1.8: Loss of Foraging Habitat for White-Tailed Kite and Swainson's Hawk Mitigation Measure Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat. A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code). B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of white-tailed kite and Swainson's hawk foraging habitat. C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.	
The implementation of the proposed project will not result in impacts to the loss of winter foraging habitat for merlin and Ferruginous hawk.	LS	None Recommended	LS
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting loggerhead shrike.	PS	BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible. Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving. If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		initiated within 100 feet of an active nest once nesting has begun.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting or roosting yellow billed magpie.	PS	BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting tricolored blackbird.	S	BR-1.11: Disturbance to Nesting Tricolored Blackbird Mitigation Measure To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible. Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving. If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun.	
The project site does not contain sensitive natural communities that may be impacted by the project being implemented. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified mostly likely due to agricultural activities and now lacks substantial amounts of trees and shrubs that make a vibrant habitat.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The proposed project will result in substantial impacts to 5.373 acres of federally jurisdictional Water of the U.S., including wetlands. The impacts will also constitute an adverse effect on Waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Mitigation will lessen the impact to less than significant.	S	BR-3: Wetlands and Water of the U.S. Mitigation Measure To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife: A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods, subject to the approval of the Environmental Coordinator. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		1:1 mitigation, no further compensation is required. B. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.	
The project site contains a total of 102 trees and there are three valley oak and nine California black walnut trees that will be removed as part of the project. In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. There are 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. Mitigation has been included to reduce the impact to less than significant.	S	BR-4: Native Tree and Tree Canopy Protection Mitigation Measure The removal of 23 inches dbh of valley oak trees shall be compensated for by planting oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning in kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		this compensation requirement. Native trees include: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus), California sycamore (Platanus racemosa), California black walnut (Juglans californica, which is also a List 1B plant), Oregon ash (Fraxinus latifolia), western redbud (Cercis occidentalis), gray pine (Pinus sabiniana), California white alder (Alnus rhombifolia), boxelder (Acer negundo), California buckeye (Aesculus californica), narrowleaf willow (Salix exigua), Gooding's willow (Salix gooddingii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), shining willow (Salix lucida), Pacific willow (Salix lasiandra), and dusky willow (Salix melanopsis). Replacement tree planting shall be completed prior to approval of Work Authorization Permit. A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation. Equivalent compensation based on the following ratio is required: • one preserved native tree < 6 inches dbh on-site = 1 inch dbh • one D-pot seedling (40 cubic inches or	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		larger) = 1 inch dbh • one 15-gallon tree = 1 inch dbh • one 24-inch box tree = 2 inches dbh • one 36-inch box tree = 3 inches dbh Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements: 1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved 2. Method of irrigation 3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage 4. Planting, irrigation, and maintenance schedules; 5. Identification of the maintenance entity	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period. 6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site. No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians. Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings,	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval. If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made. Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento County Tree Foundation).	
The proposed project does conflict with some local policies and ordinances that protect biological resources. The proposed project also conflicts with several General Plan Policies that protect biological resources. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local polices and ordinances to less than significant.	PS	BR-5: Local Policies Protecting Biological Resources Mitigation Measure Comply with mitigation measures BR-1.1 through BR 1.11, BR-3 and BR-4	LS
The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife or migratory fish. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish.	LS	None Recommended	LS
The project site is not located in any adopted habitat conservation plan.	LS	None Recommended	LS
CULTURAL RESOURCES			

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.	LS	None Recommended	LS
Field surveys were conducted on the site and a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project. The historical sites in the project area are not eligible for the National Register of Historic Places or for the California Register.	PS	CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources. If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met. In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	
The site was surveyed for subsurface anomalies and	PS	CR-3: Unintended Discovery Mitigation Measure	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site.		CR-2 Cultural Resources Unanticipated Discoveries	
HAZARDOUS MATERIALS			
The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has indicted no storage or disposal of hazardous materials will occur at the project site, mitigation measure are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all applicable standards.	PS	HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities. B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff. C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.	
The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Compliance with Environmental Management Department (EMD) regulations will ensure the impacts are less than significant.	LS	None Recommended	LS
The project site is not located within ¼ mile of an existing or proposed school.	LS	None Recommended	LS
The project is not located on a known hazardous materials site.	LS	None Recommended	LS
The proposed project does not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan. There is no known adopted emergency response or	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
emergency evacuation plan near the project site.			
GREENHOUSE GAS EMISSIONS			
The project would result in the emission of approximately 6,321 metric tons of CO_2e per year. . The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. .	LS	None Recommended	LS

TERMINOLOGY USED IN THIS EIR

This Draft EIR uses the following terminology to describe environmental effects of the project.

Significance Criteria. A set of criteria used by the lead agency to determine at what level, or "threshold," an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.

Less-than-Significant Impact. A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less-than-significant impacts.

Potentially Significant Impact. A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.

Significant Unavoidable Impact. A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.

Cumulative Significant Impact. A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.

Mitigation. Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

a) Avoiding the impact altogether by not taking a certain action or parts of an action.

b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

e) Compensating for the impact by replacing or providing substitute resources or environments.

2 PROJECT DESCRIPTION

INTRODUCTION

The proposed project is a surface mining project located in unincorporated Sacramento County. The project site encompasses 683 acres and will excavate approximately 353 acres for sand and gravel. The project has two mining pits, Aspen VIII and Aspen IX. The Aspen VIII pit is approximately 255 acres and the Aspen IX pit is approximately 98 acres. The project includes an extension of Knox/Vineyard Road that runs north and south through the project site. The project will include the installation of a box culvert under Elder Creek Road and installation of landscaping along Elder Creek Road. The mine, as proposed will operated for 15 years after which time the mining site will be reclaimed to open space grassland.

PROJECT LOCATION

The project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road. The property is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community. The project is located within Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series Carmichael, California quadrangles. The latitude and longitude are 38º30’39” North and -121º19’03” West Plate PD-1 and Plate PD-2).

ASSESSOR’S PARCEL NUMBERS

Aspen VIII; 063-0180-005, 063-0180-006, and 063-0160-001

Aspen IX; 066-0020-006, 066-0030-001, and 066-0050-003

Conveyor extension to Aspen V South; 063-0190-027

Existing conveyor system; 063-0040-067, 063-0040-018, 063-0040-034, 063-0040,016, 063-0040-030, 063-0190-029, 063-0190-028, 063-0190-015, 063-0190-014, 063-0030-016, 063-0030-017, 063-0060-048, 063-0060-037, 063-0060-032, 063-0060-050, 063-0060-040, 063-0052-018, 063-0013-017, 063-0013-012, 063-0012-012, 063-0012-007, 063-0012-011, 063-0012-017, 063-0014-002, and 078-0201-008

Plate PD-1: Regional Location Map

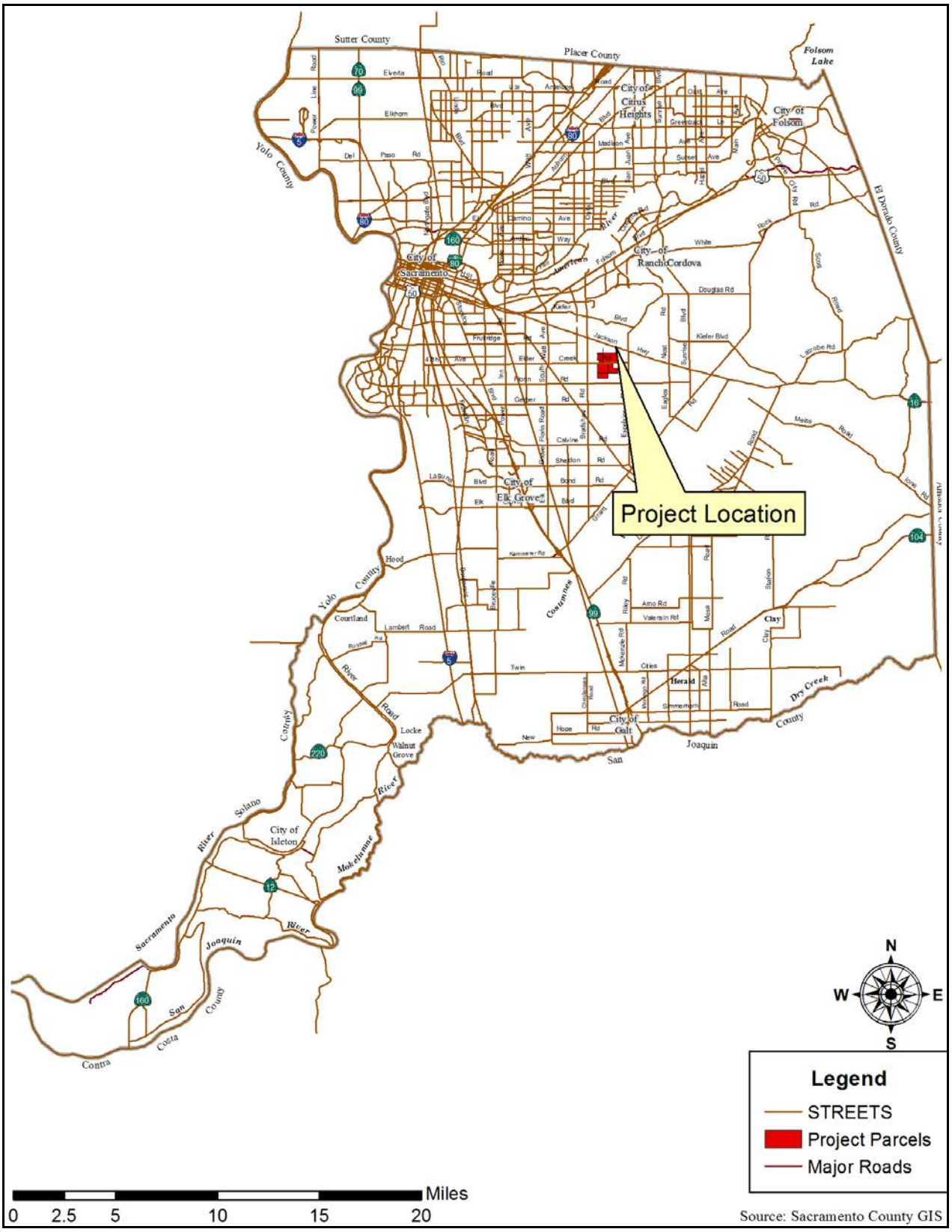
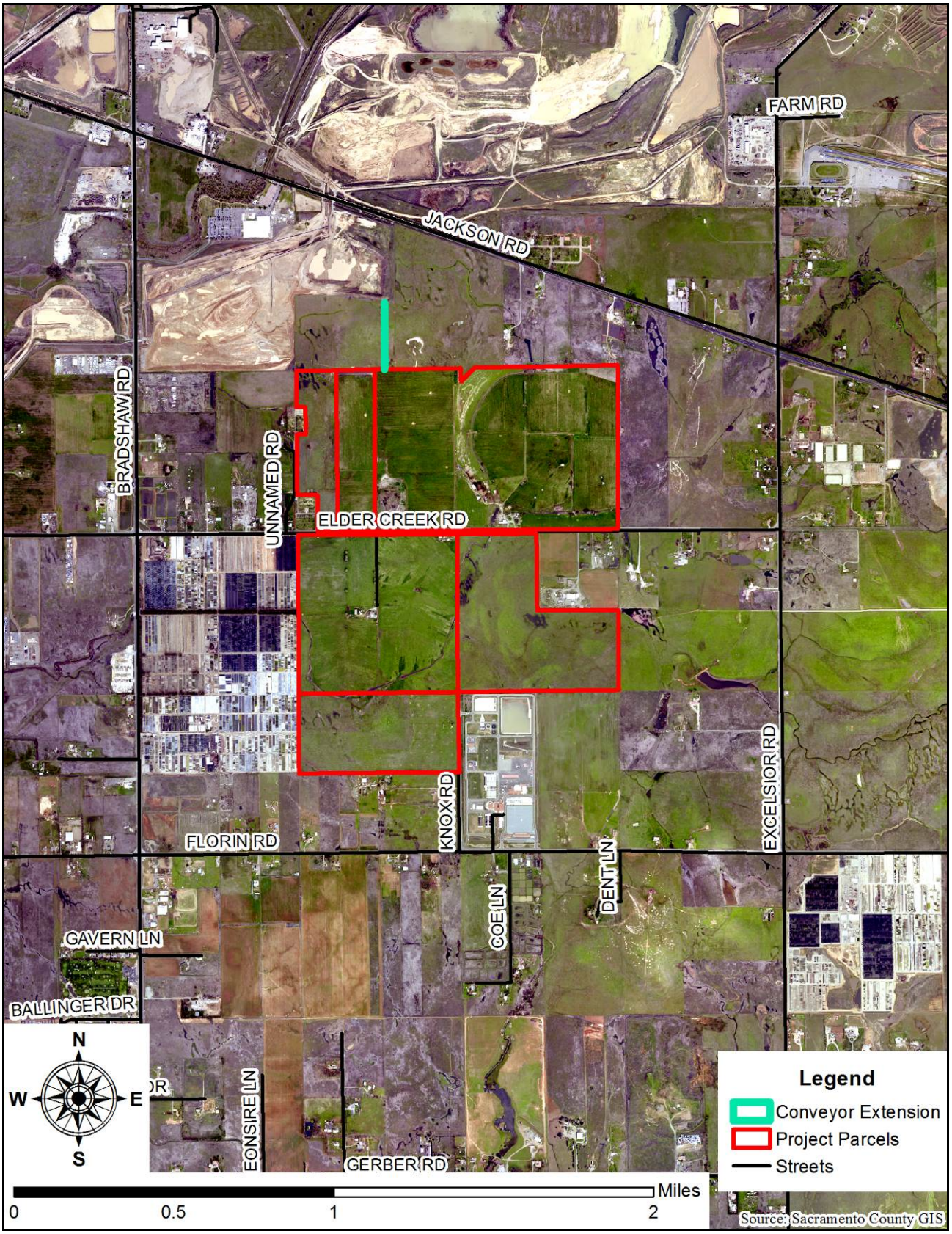


Plate PD-2: Project Location Map



PROJECT PROPOSAL

The Aspen VIII and IX Mining Use Permit, Community Plan Amendment and Rezone, Reclamation Plan, and Development Agreement project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site, with Aspen VIII to the north and Aspen IX to the south of Elder Creek Road. The project site is in the Vineyard community of unincorporated Sacramento County (Plate PD-1 and Plate PD-2).

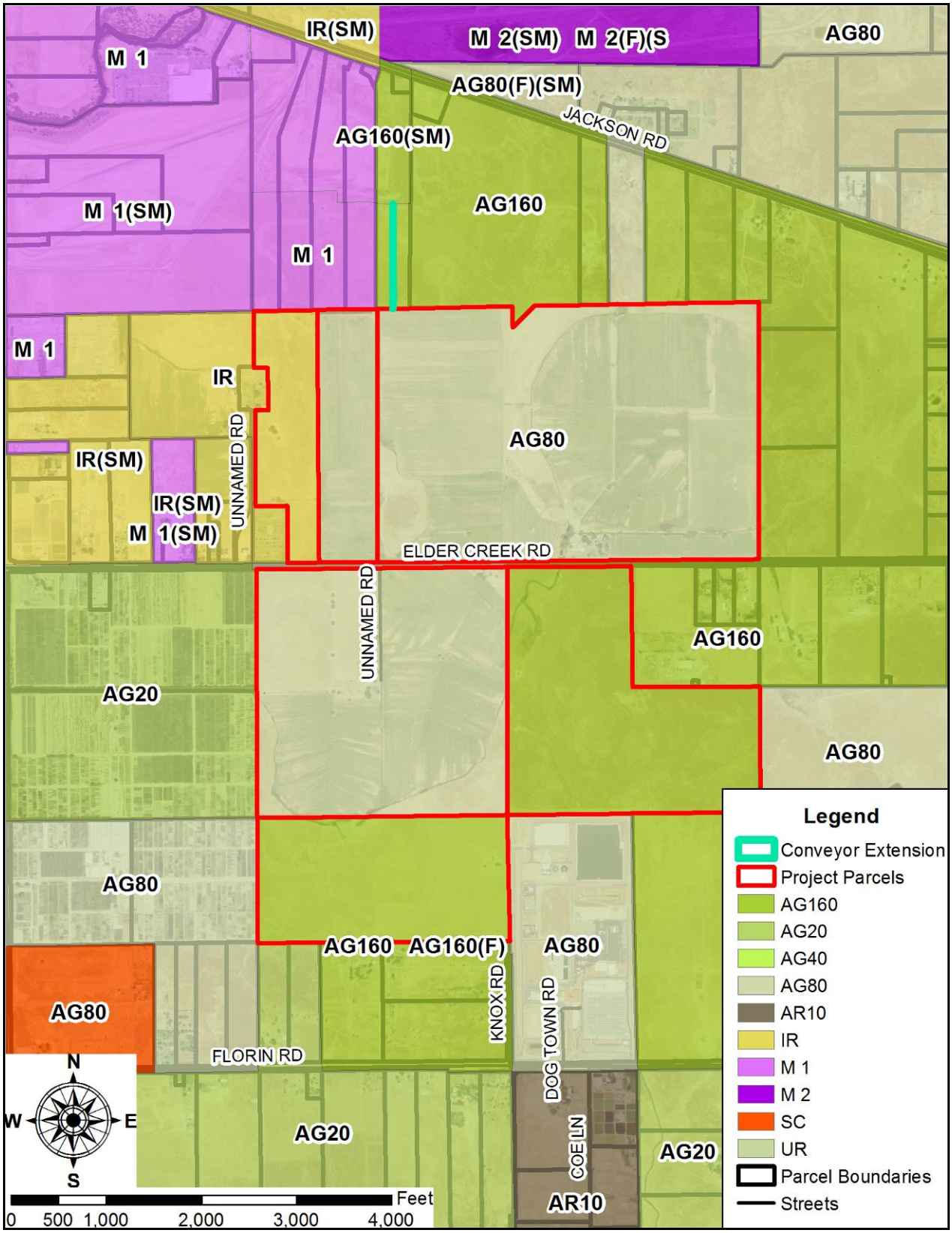
The project site is currently zoned IR (Industrial Reserve), AG-80, AG-80 Flood (F), AG-160 and AG-160 (F) (Plate PD-3). The applicant is requesting to rezone 682[1] acres of the 683 acre project site with the Surface Mining Combining Zone (SM) (Plate PD-4) and a use permit to mine aggregate material (sand and gravel) from two mining pits (Plate PD-5 and Plate PD-6), Aspen VIII and Aspen IX. Mining on Aspen VIII is proposed in two phases (Plate PD-7), Areas A & B. Area A is proposed to be approximately 133 acres while Area B is proposed to be approximately 122 acres. The total for phases A & B on Aspen VIII is approximately 255 acers. Mining on Aspen IX will be in phase C (Plate PD-8) and is proposed to be approximately 98 acres. Thus the total for all the mining pits is approximately 353 acres.

A use permit to allow the extension and continued use of an electric conveyor system to transport mined material across other parcels to the existing off-site Perkins processing plant (Plate PD-9) is also being requested as well as a reclamation plan that specifies open space grassland as the end use of the mine. The reclamation plan proposes alignments for a future right-of-way through the mining pit on Aspen VIII and along the eastern pit boundary on Aspen IX as well as a graded easement for a future multi-use trail adjacent to the mine boundary and Elder Creek (Plate PD-10 and Plate PD-11), and it specifies slope standards, roadway details and cross sections (Plate PD-12, Plate PD-13, Plate PD-14, and Plate PD-15).

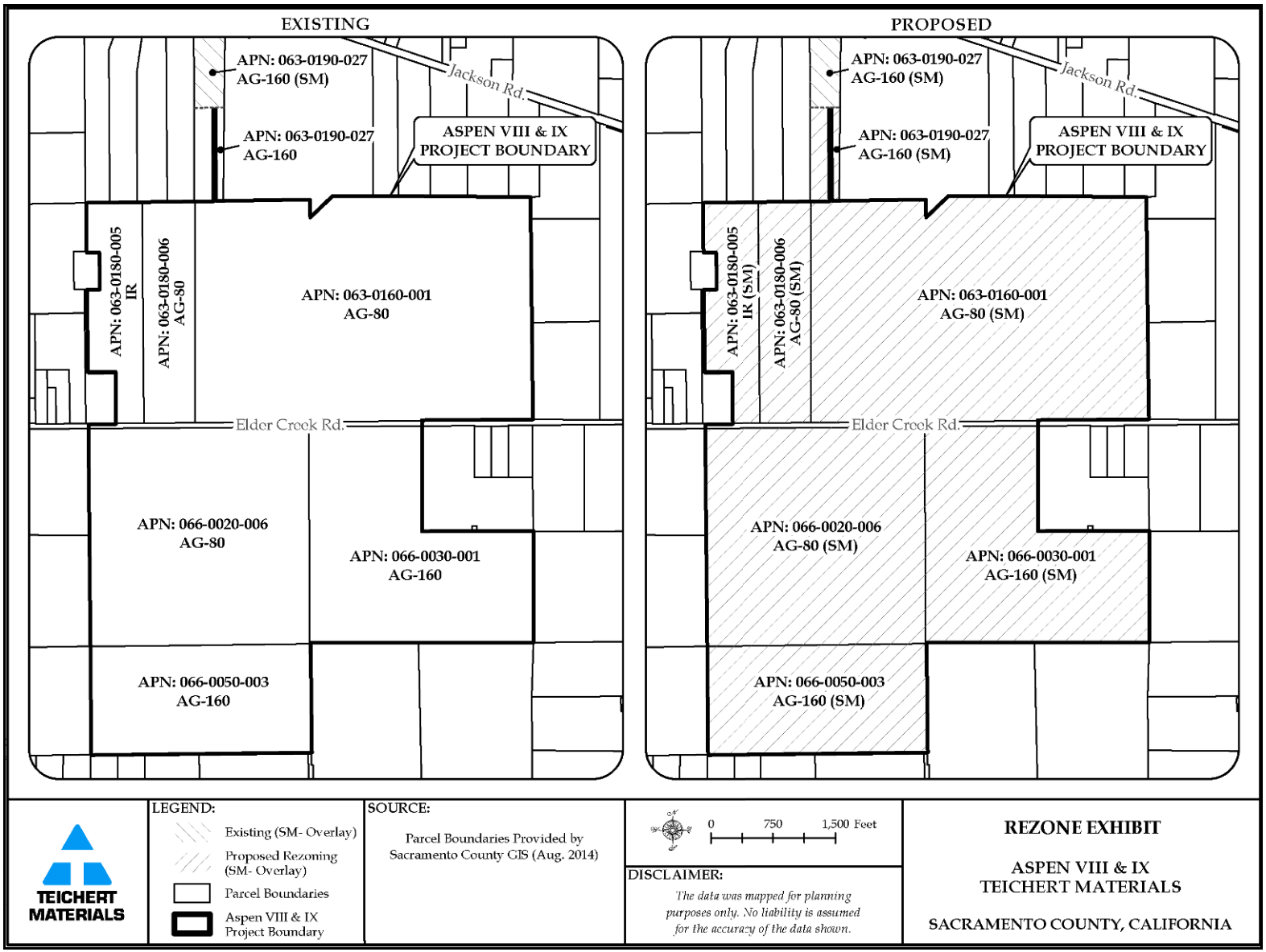
The topsoil will be salvaged and stored on-site to be used in reclamation. Originally the applicant sought to use haul trucks to remove up to 1,000,000 cubic yards of overburden off-site via County public roadways. However, based on discussions with the County of Sacramento about the environmental and fiscal impacts, the applicant determined not to remove overburden from the site via public County roads. Instead, the applicant will remove up to 500,000 cubic yards of overburden from Aspen VIII via haul trucks on internal access roads and no overburden haul trucks will enter the public roadway system. The up to 500,000 cubic yards of overburden will be trucked off-site approximately 4,600 feet along internal access roads to Aspen V South which is located directly north of Aspen VIII.

[1] Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.

Plate PD-3: Project's Current Zoning



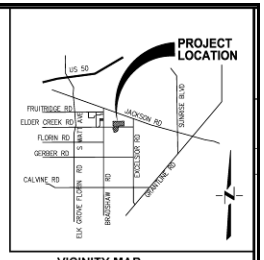
P□□□ PD□□□ R□□□□□ M□□


EXISTING
APN: 063-0190-027
AG-160 (SM)
APN: 063-0190-027
AG-160
Jackson Rd.
ASPEN VIII & IX
PROJECT BOUNDARY
APN: 063-0180-005
IR
APN: 063-0180-006
AG-80
APN: 063-0160-001
AG-80
Elder Creek Rd.
APN: 066-0020-006
AG-80
APN: 066-0030-001
AG-160
APN: 066-0050-003
AG-160
PROPOSED
APN: 063-0190-027
AG-160 (SM)
APN: 063-0190-027
AG-160 (SM)
Jackson Rd.
ASPEN VIII & IX
PROJECT BOUNDARY
APN: 063-0180-005
IR (SM)
APN: 063-0180-006
AG-80 (SM)
APN: 063-0160-001
AG-80 (SM)
Elder Creek Rd.
APN: 066-0020-006
AG-80 (SM)
APN: 066-0030-001
AG-160 (SM)
APN: 066-0050-003
AG-160 (SM)
TEICHERT MATERIALS
LEGEND:
Existing (SM- Overlay)
Proposed Rezoning (SM- Overlay)
Parcel Boundaries
Aspen VIII & IX Project Boundary
SOURCE:
Parcel Boundaries Provided by Sacramento County GIS (Aug. 2014)
0 750 1,500 Feet
DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.
REZONE EXHIBIT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

P PD S P

IMPROVEMENT PLANS
FOR
TEICHERT AGGREGATES
RECLAMATION PLANS FOR
ASPEN VIII & IX

SACRAMENTO COUNTY, CALIFORNIA
FEBRUARY 2016



VICINITY MAP
N.T.S.

ABBREVIATIONS:

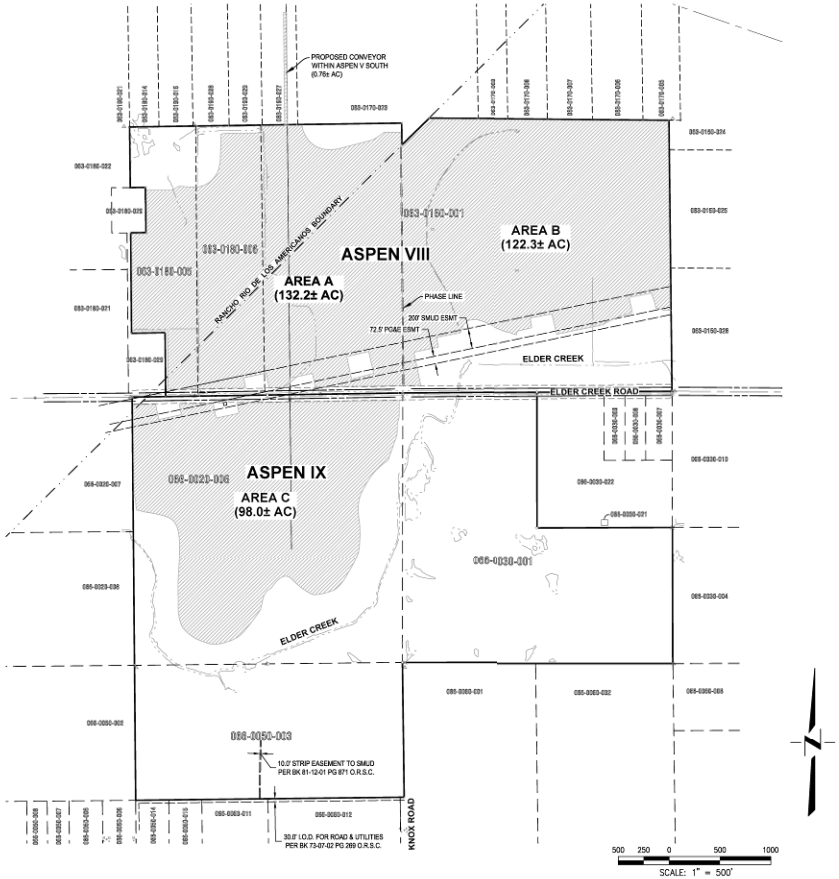
AC	ACRES
APN	ASSESSOR'S PARCEL NUMBER
AVG	AVERAGE
CL	CENTER LINE
CY	CUBIC YARDS
ESMT	EASEMENT
FL	FLOW LINE
FT	FEET
FUT	FUTURE
MAX	MAXIMUM
MIN	MINIMUM
MW	MONITOR WELL
N.T.S.	NOT TO SCALE
NO.	NUMBER
PL	PROPERTY LINE
R	RADIUS
RD	ROAD
R/W	RIGHT-OF-WAY
TYP	TYPICAL
YR	YEAR

LEGEND:

FOUND MONUMENTS AS SHOWN
AERIAL TARGET
VERTICAL CONTROL
BENCHMARK
POWER POLE
EXISTING EDGE OF ROAD
WATER
EXISTING GROUND CONTOUR
CROSS SECTION NUMBER AND SHEET LOCATION
EXISTING ELEV.
PROPOSED ELEV.
HORIZONTAL TO VERTICAL SLOPE
WATER SURFACE
PROPERTY BOUNDARY
RIGHT-OF-WAY
PARCEL LINE
EASEMENT LINE
LIMITS OF MINING
SLOPE
TOP OF SLOPE
TOE OF SLOPE
EXISTING WATER WELL
BERM
WETLAND
FUTURE SOUTHGATE TRAIL EASEMENT

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.



SHEET INDEX:

C01 - TITLE SHEET
C02 - EXISTING SITE
C03 - ASPEN VIII-MINING PLAN
C04 - ASPEN IX-MINING PLAN
C05 - ASPEN VIII-RECLAMATION PLAN
C06 - ASPEN IX-RECLAMATION PLAN
C07 - CROSS SECTIONS 8A, 8B & 8C
C08 - CROSS SECTIONS 8D, 8E, 8F & 8G
C09 - CROSS SECTIONS 8H, 8H ALTERNATE
C10 - CROSS SECTIONS 9A, 9B, 9C & 9D
C11 - FUTURE ROAD CENTERLINE PROFILE
C12 - CIVIL DETAILS
C13 - CIVIL & LANDSCAPE DETAILS

PROPERTY OWNER:

TEICHERT LAND CO.
P.O. BOX 13308
SACRAMENTO, CA 95813

APPLICANT:

TEICHERT AGGREGATES
P.O. BOX 15002
SACRAMENTO, CA 95851

CIVIL ENGINEER:

CUNNINGHAM ENGINEERING
2940 SPAFFORD STREET, SUITE 200
DAVIS, CALIFORNIA 95618
(530) 758-2026
ATTN: STEVEN GREENFIELD

ASSESSOR'S PARCEL NUMBERS:

063-0180-005, 063-0180-006, 063-0160-001, 063-0190-027
066-0020-006, 066-0030-001, 066-0050-003

PROJECT MINING AREA:

ASPEN VIII
AREA A: 132.2± ACRES
AREA B: 122.3± ACRES

ASPEN IX
AREA C: 98.0± ACRES

TOTAL MINING AREA: 352.5± ACRES

PROPOSED CONVEYOR WITHIN ASPEN V SOUTH: 0.76± ACRES

PROPERTY ZONING:

INDUSTRIAL RESERVE:
063-0180-005

AGRICULTURE:
063-0180-006, 063-0160-001, 063-0190-027,
066-0020-006, 066-0030-001, 066-0050-003

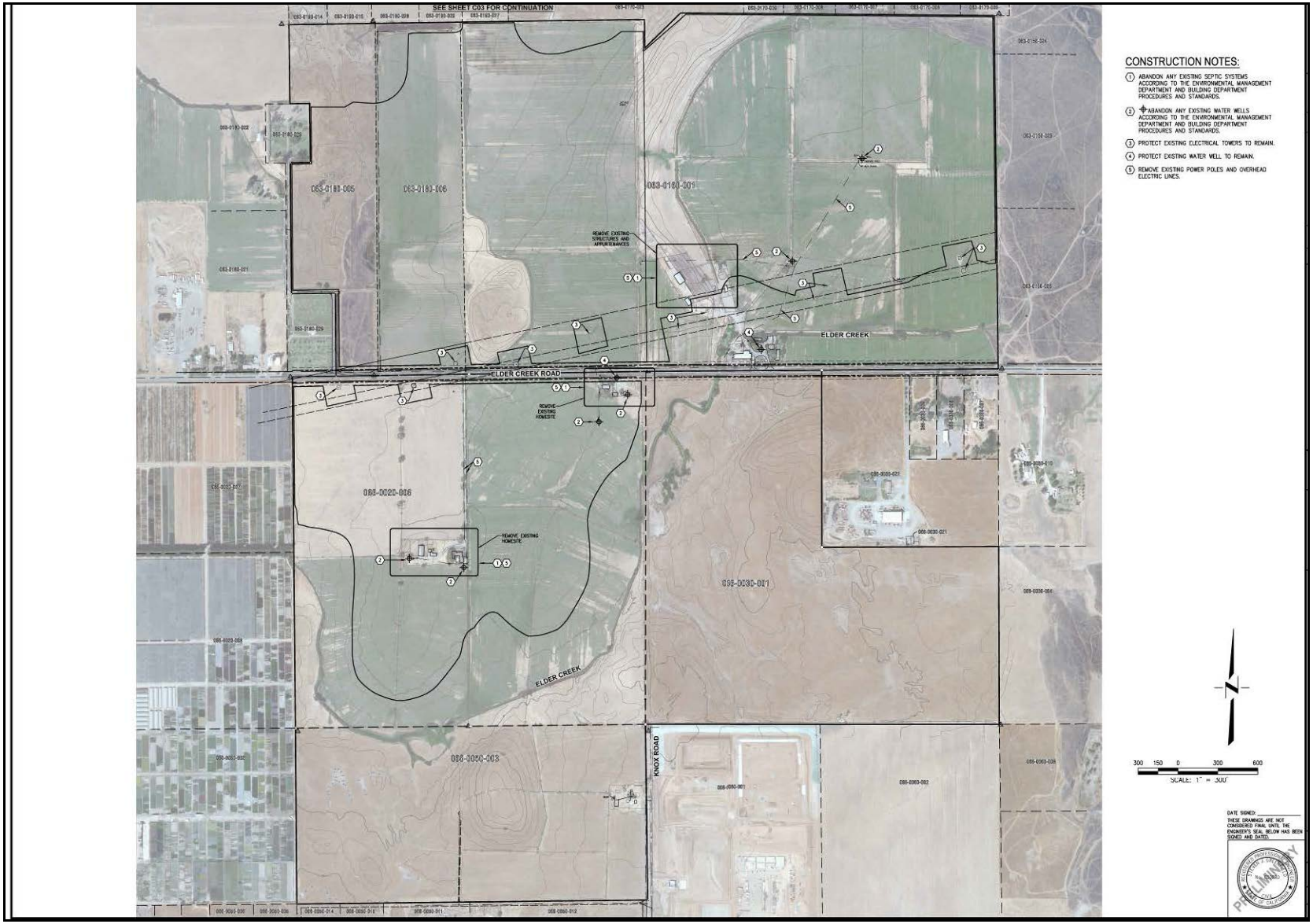
BENCHMARK:

EXISTING TOPOGRAPHY SHOWN BASED ON AERIAL TOPOGRAPHY FLOWN IN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
HORIZONTAL DATUM: NAD27
VERTICAL DATUM: NGVD29

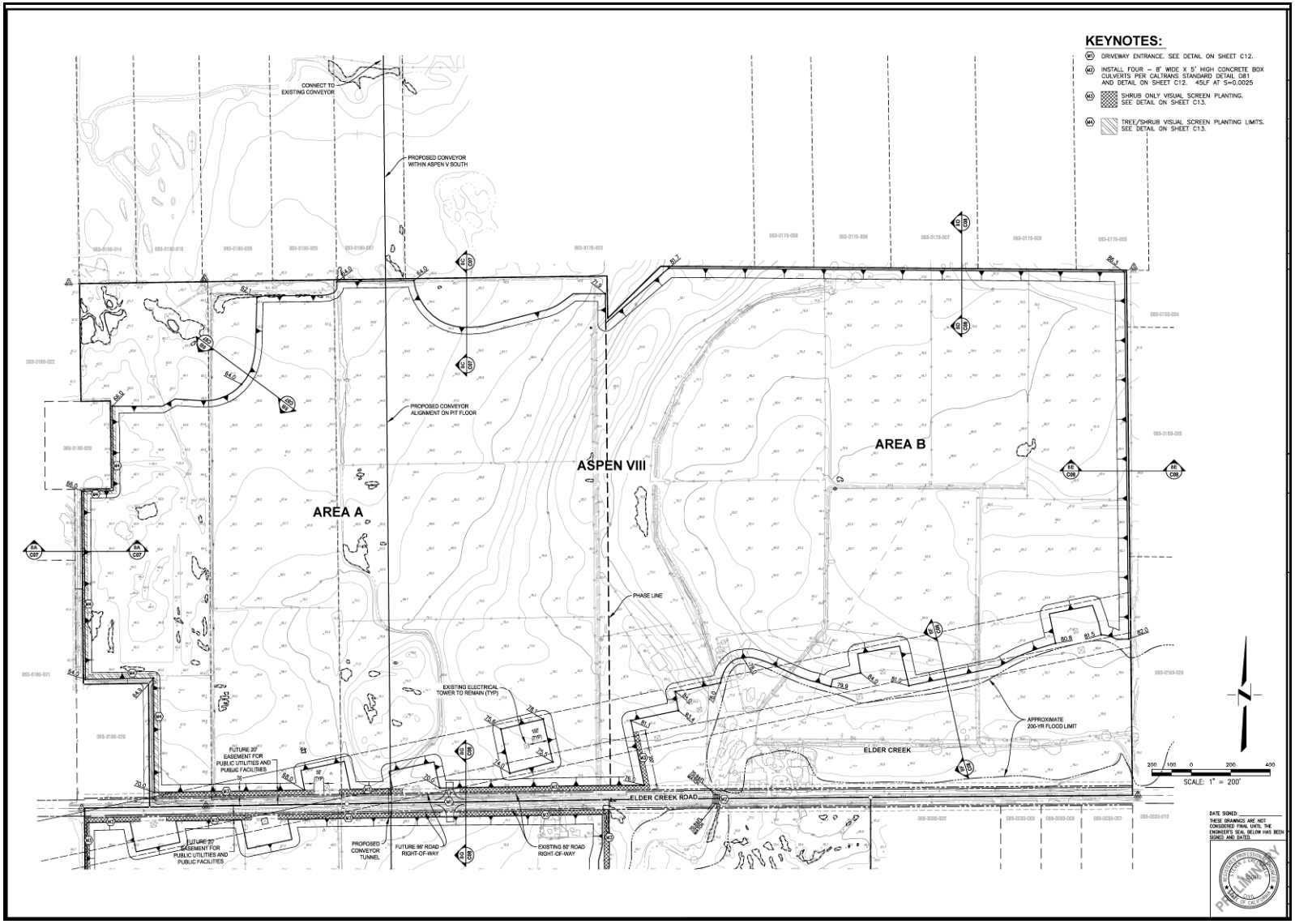
DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

PRELIMINARY

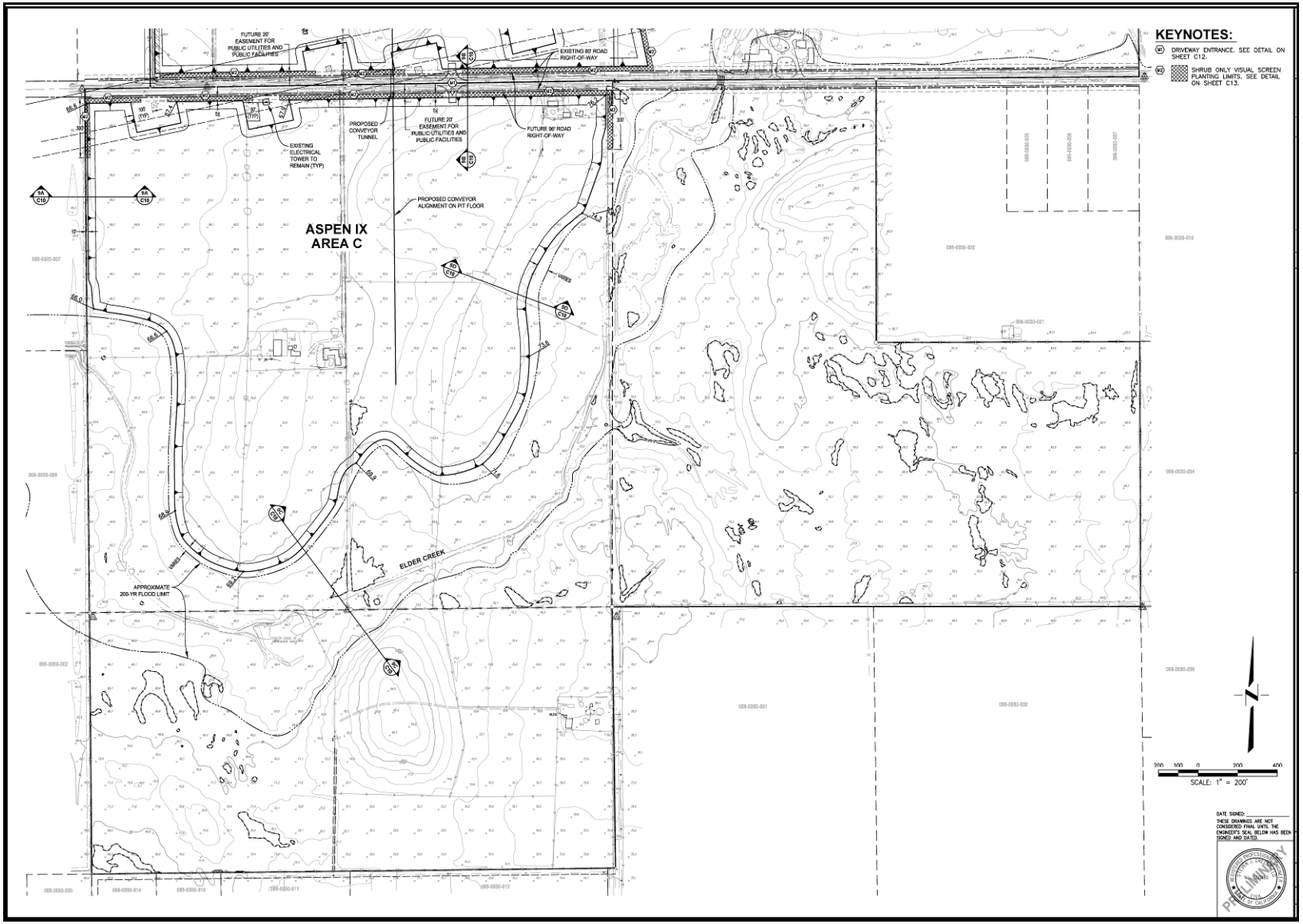
P PD E S


SEE SHEET C03 FOR CONTINUATION
CONSTRUCTION NOTES:
1 ABANDON ANY EXISTING SEPTIC SYSTEMS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
2 ABANDON ANY EXISTING WATER WELLS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
3 PROTECT EXISTING ELECTRICAL TOWERS TO REMAIN.
4 PROTECT EXISTING WATER WELL TO REMAIN.
5 REMOVE EXISTING POWER POLES AND OVERHEAD ELECTRIC LINES.
083-0183-005
083-0183-006
083-0183-001
REMOVE EXISTING STRUCTURES AND APPURTENANCES
ELDER CREEK
ELDER CREEK ROAD
REMOVE EXISTING HOMESITE
086-0020-016
REMOVE EXISTING HOMESITE
086-0030-021
ELDER CREEK
086-0050-003
KNOX ROAD
SCALE: 1" = 300'
DATE SIGNED:
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.
PRELIMINARY

P□□□ PD□□□ A□□□□ VIII


KEYNOTES:
M1 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.
M2 INSTALL FOUR – 8' WIDE X 5' HIGH CONCRETE BOX CULVERTS PER CALTRANS STANDARD DETAIL D81 AND DETAIL ON SHEET C12. 45LF AT S=0.0025
M3 SHRUB ONLY VISUAL SCREEN PLANTING. SEE DETAIL ON SHEET C13.
M4 TREE/SHRUB VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.
CONNECT TO EXISTING CONVEYOR
PROPOSED CONVEYOR WITHIN ASPEN V SOUTH
PROPOSED CONVEYOR ALIGNMENT ON PIT FLOOR
AREA A
ASPEN VIII
AREA B
PHASE LINE
EXISTING ELECTRICAL TOWER TO REMAIN (TYP)
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
ELDER CREEK ROAD
PROPOSED CONVEYOR TUNNEL
FUTURE 99' ROAD RIGHT-OF-WAY
EXISTING 80' ROAD RIGHT-OF-WAY
ELDER CREEK
APPROXIMATE 200-YR FLOOD LIMIT
SCALE: 1" = 200'
DATE SIGNED: ___
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.
PRELIMINARY

P□□□ PD□□□ A□□□□ IX


KEYNOTES:
M7 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.
M2 SHRUB ONLY VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
EXISTING 80' ROAD RIGHT-OF-WAY
PROPOSED CONVEYOR TUNNEL
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
FUTURE 96' ROAD RIGHT-OF-WAY
EXISTING ELECTRICAL TOWER TO REMAIN (TYP)
PROPOSED CONVEYOR ALIGNMENT ON PIT FLOOR
ASPEN IX
AREA C
ELDER CREEK
APPROXIMATE 200-YR FLOOD LIMIT
SCALE: 1" = 200'
DATE SIGNED:
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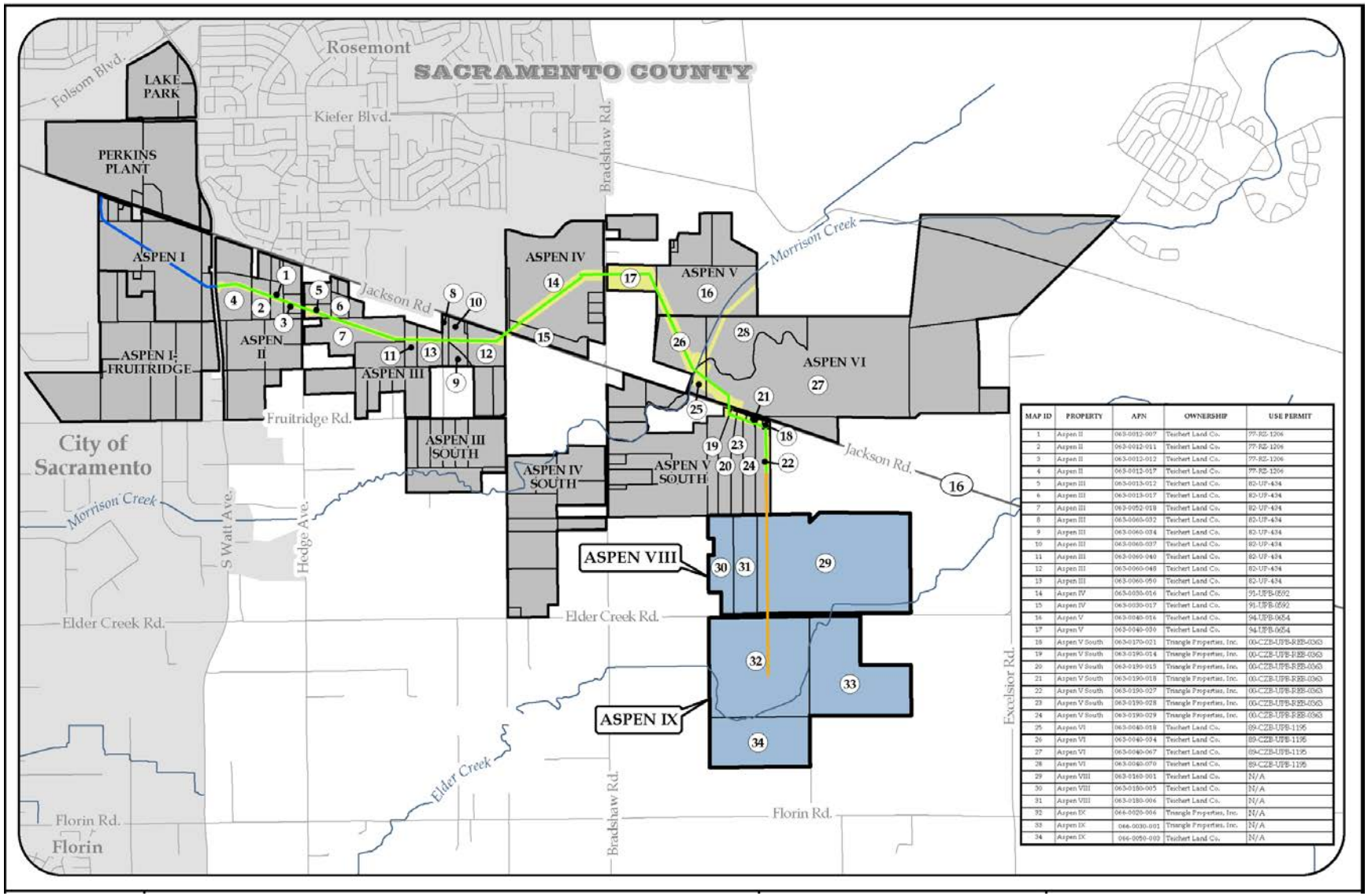
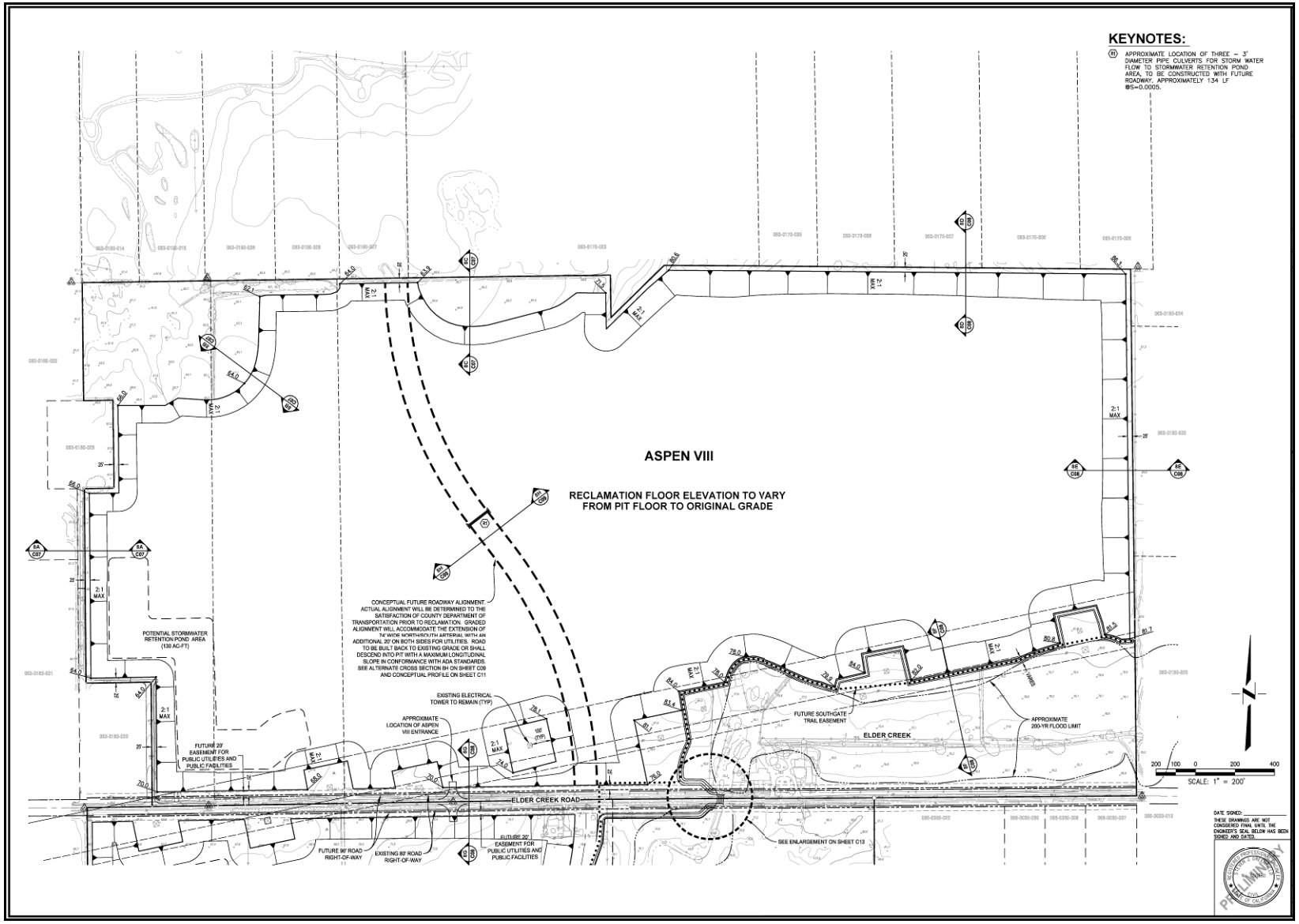
PRELIMINARY

Plate PD-9: Existing/Proposed Conveyor Route

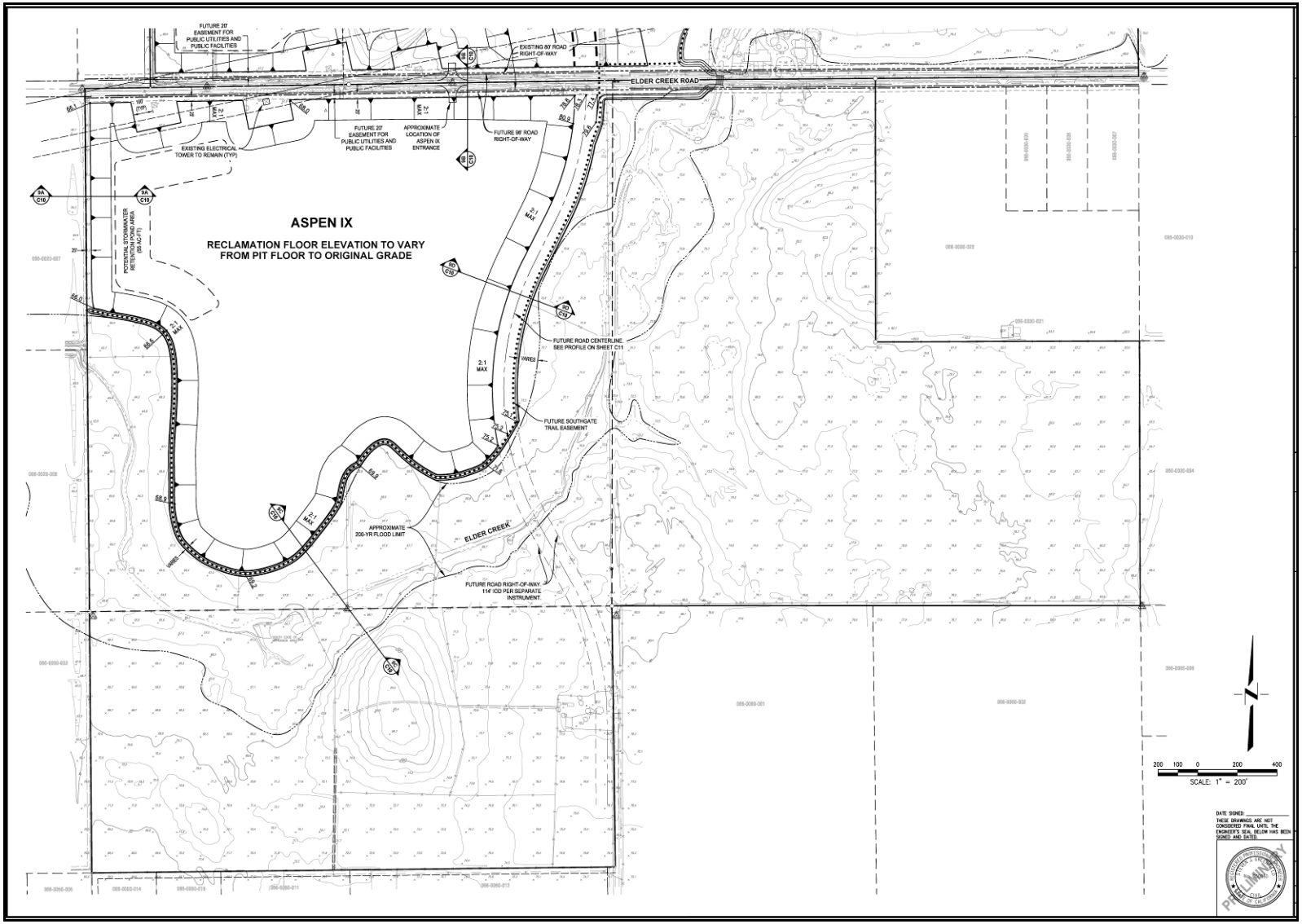


MAP ID	PROPERTY	APN	OWNERSHIP	USE PERMIT
1	Aspen II	063-0012-007	Teichert Land Co.	77-RZ-1206
2	Aspen II	063-0012-011	Teichert Land Co.	77-RZ-1206
3	Aspen II	063-0012-012	Teichert Land Co.	77-RZ-1206
4	Aspen II	063-0012-017	Teichert Land Co.	77-RZ-1206
5	Aspen III	063-0013-012	Teichert Land Co.	82-UP-434
6	Aspen III	063-0013-017	Teichert Land Co.	82-UP-434
7	Aspen III	063-0052-018	Teichert Land Co.	82-UP-434
8	Aspen III	063-0060-032	Teichert Land Co.	82-UP-434
9	Aspen III	063-0060-034	Teichert Land Co.	82-UP-434
10	Aspen III	063-0060-037	Teichert Land Co.	82-UP-434
11	Aspen III	063-0060-040	Teichert Land Co.	82-UP-434
12	Aspen III	063-0060-048	Teichert Land Co.	82-UP-434
13	Aspen III	063-0060-050	Teichert Land Co.	82-UP-434
14	Aspen IV	063-0030-016	Teichert Land Co.	91-UPB-0592
15	Aspen IV	063-0030-017	Teichert Land Co.	91-UPB-0592
16	Aspen V	063-0040-016	Teichert Land Co.	94-UPB-0654
17	Aspen V	063-0040-030	Teichert Land Co.	94-UPB-0654
18	Aspen V South	063-0170-021	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
19	Aspen V South	063-0190-014	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
20	Aspen V South	063-0190-015	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
21	Aspen V South	063-0190-018	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
22	Aspen V South	063-0190-027	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
23	Aspen V South	063-0190-028	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
24	Aspen V South	063-0190-029	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
25	Aspen VI	063-0040-018	Teichert Land Co.	89-CZB-UPB-1195
26	Aspen VI	063-0040-034	Teichert Land Co.	89-CZB-UPB-1195
27	Aspen VI	063-0040-067	Teichert Land Co.	89-CZB-UPB-1195
28	Aspen VI	063-0040-070	Teichert Land Co.	89-CZB-UPB-1195
29	Aspen VIII	063-0180-001	Teichert Land Co.	N/A
30	Aspen VIII	063-0180-005	Teichert Land Co.	N/A
31	Aspen VIII	063-0180-006	Teichert Land Co.	N/A
32	Aspen IX	066-0020-006	Triangle Properties, Inc.	N/A
33	Aspen IX	066-0030-001	Triangle Properties, Inc.	N/A
34	Aspen IX	066-0050-003	Teichert Land Co.	N/A

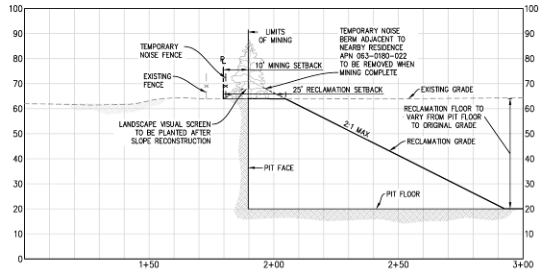
P□□□ PD□□□□ A□□□□ VIII R□□d □□d M□□□U□□ Tr□□P□□□



P□□□ PD□□□□ A□□□□ IX R□□d □□d M□□□□U□□ Tr□□P□□□

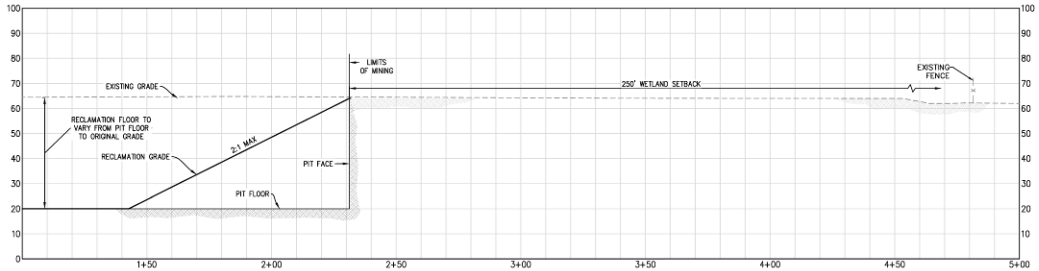


P□□□ PD□□□□A□□□□ VIII D□□□□□ P□□□□ A



SECTION 8A

SCALE= 1" = 20'



SECTION 8B

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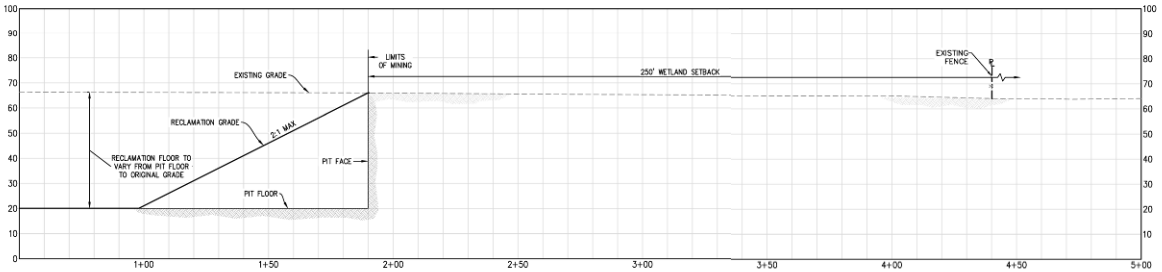


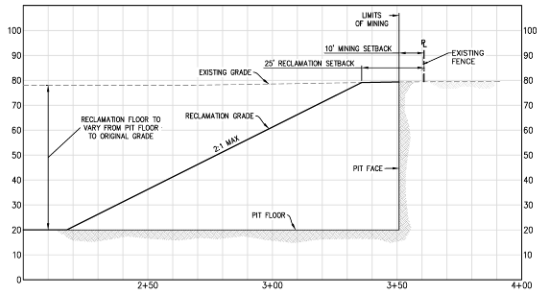
SECTION 8C

SCALE= 1" = 20'

DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

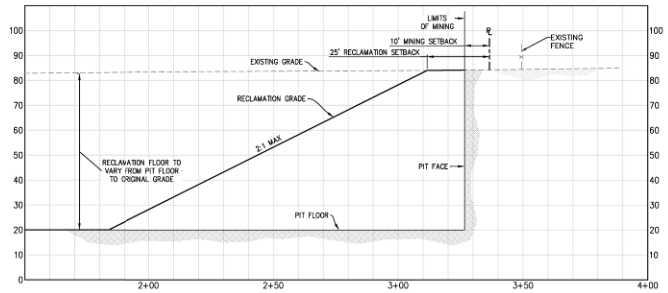
PRELIMINARY

P□□□ PD□□□ A□□□ VIII D□□□□ P□□□ B



SECTION 8D

SCALE= 1" = 20'



SECTION 8E

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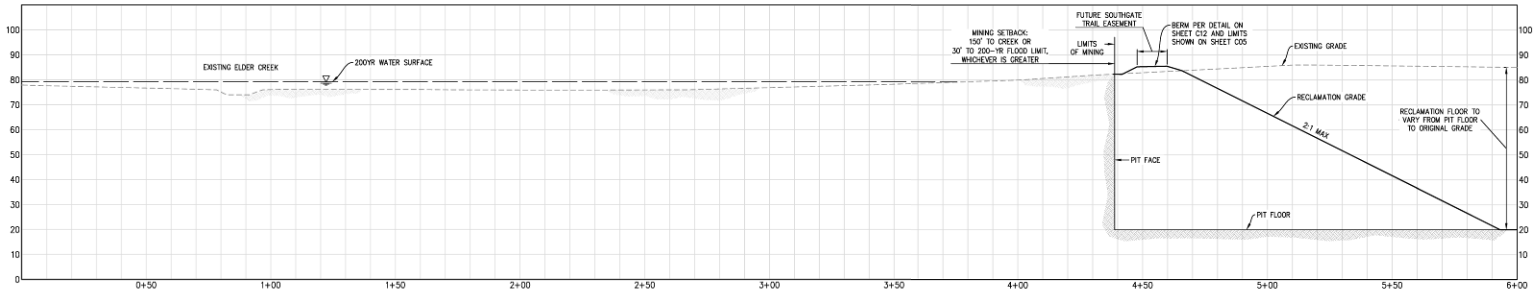
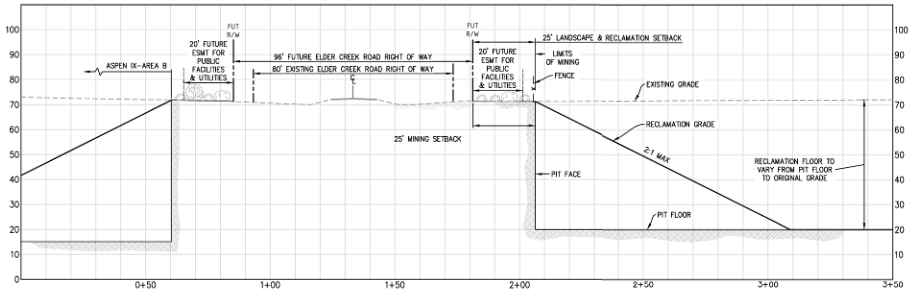


SECTION 8F

SCALE= 1" = 20'



SECTION 8G

SCALE= 1" = 20'

DATE SIGNED: _____
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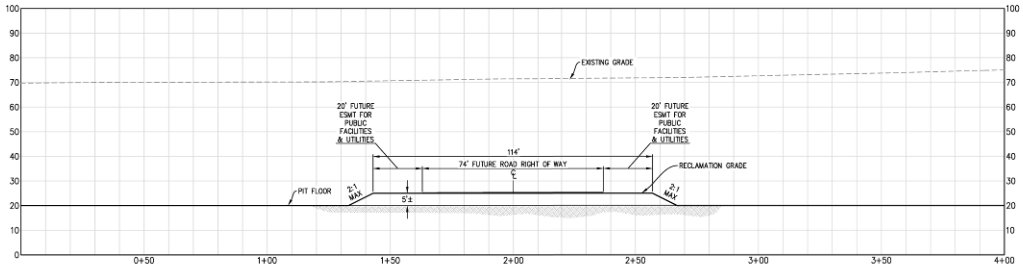
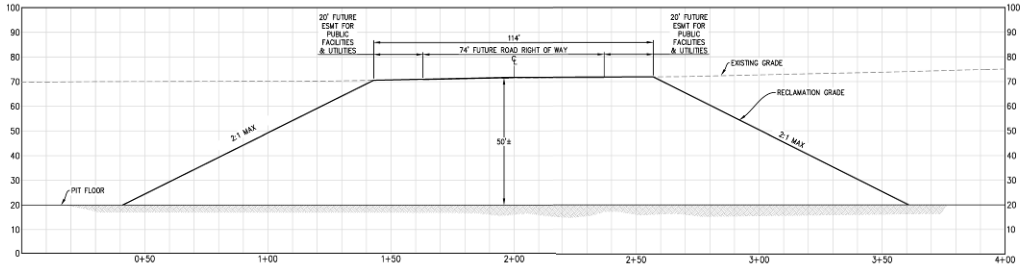
PRELIMINARY

P□□□ PD□□□□ A□□□□ VIII R□□d D□□□□□



SECTION 8H - ROAD AT PIT BOTTOM

SCALE= 1" = 20'



SECTION 8H ALTERNATE - ROAD AT EXISTING GRADE

SCALE= 1" = 20'

DATE SIGNED: _____
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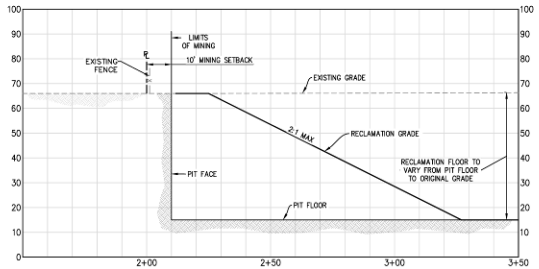
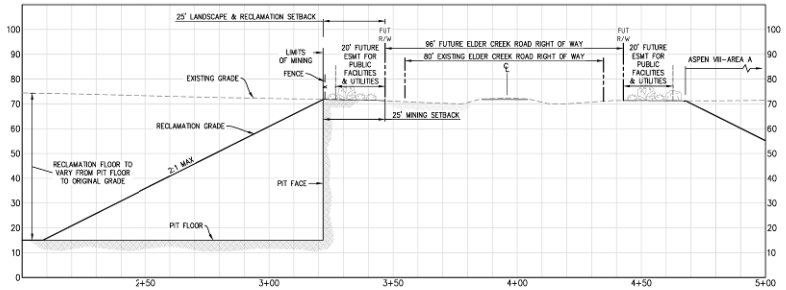
P□□□□ PD□□□□ A□□□□ IX D□□□□□□ P□□□□ C



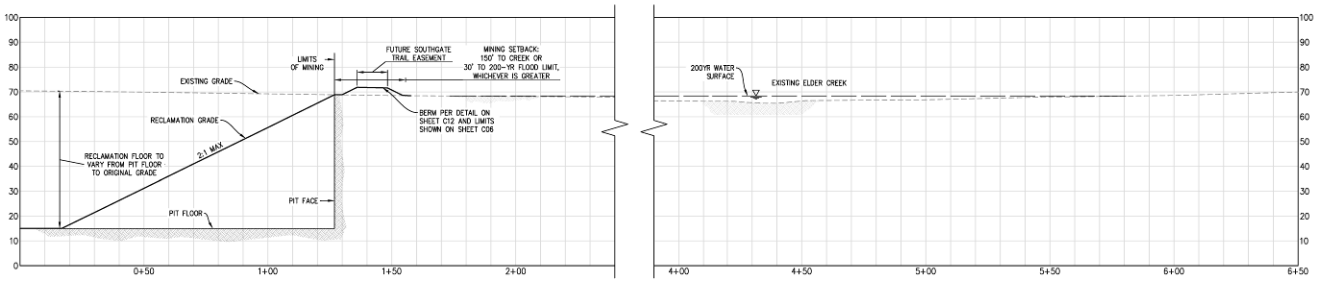
SECTION 9A

SCALE= 1" = 20'



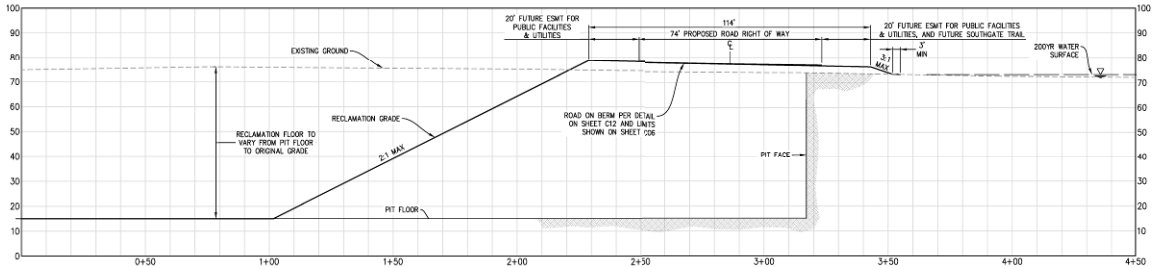
SECTION 9B

SCALE= 1" = 20'



SECTION 9C

SCALE= 1" = 20'



SECTION 9D

SCALE= 1" = 20'

DATE SIGNED: _____
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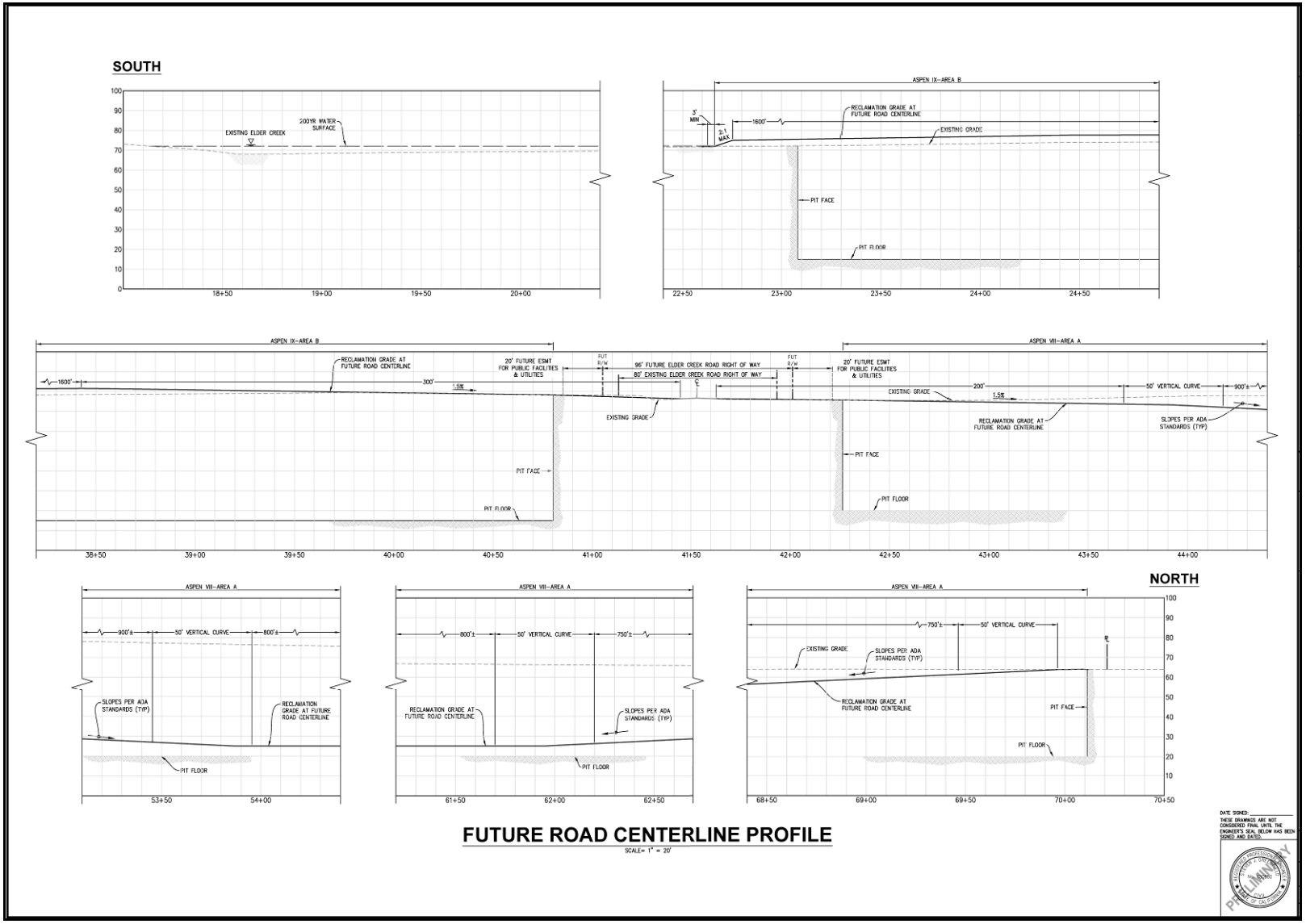
PRELIMINARY

P□□□□ PD□□□□ R□□d Pr□□□□


SOUTH
EXISTING ELDER CREEK
200YR WATER SURFACE
ASPEN IX-AREA B
RECLAMATION GRADE AT FUTURE ROAD CENTERLINE
EXISTING GRADE
PIT FACE
PIT FLOOR
ASPEN VIII-AREA A
20' FUTURE ESMT FOR PUBLIC FACILITIES & UTILITIES
96' FUTURE ELDER CREEK ROAD RIGHT OF WAY
80' EXISTING ELDER CREEK ROAD RIGHT OF WAY
50' VERTICAL CURVE
SLOPES PER ADA STANDARDS (TYP)
NORTH
FUTURE ROAD CENTERLINE PROFILE
SCALE= 1" = 20'
PRELIMINARY

The applicant is proposing to construct a sinuous, paved exit ramp from Aspen VIII to control track out of dirt from employee, maintenance and service vehicle trips. The applicant is also proposing to upgrade the culvert under Elder Creek Road (Plate PD-17).

No overburden will be removed from Aspen IX. Aggregate from both pits will be conveyed off the site via an electric conveyor system to the existing off-site Perkins processing plant. The applicant is also requesting to install native landscaping as part of visual screening of the mining pits. Native landscaping is proposed along Elder Creek Road and along the boundary separating the project site from Bellevue and Arlington Cemeteries (Quiet Haven Memorial Park) to the west (Plate PD-18). Furthermore, the applicant is proposing to install berms to help attenuate noise and to act as a visual screen at the residence near the west side of Aspen VIII and at the northwest corner of Aspen IX.

REQUESTED ENTITLEMENTS:

1. A **Use Permit** to allow surface mining on approximately 353 acres of a 683-acre project site.

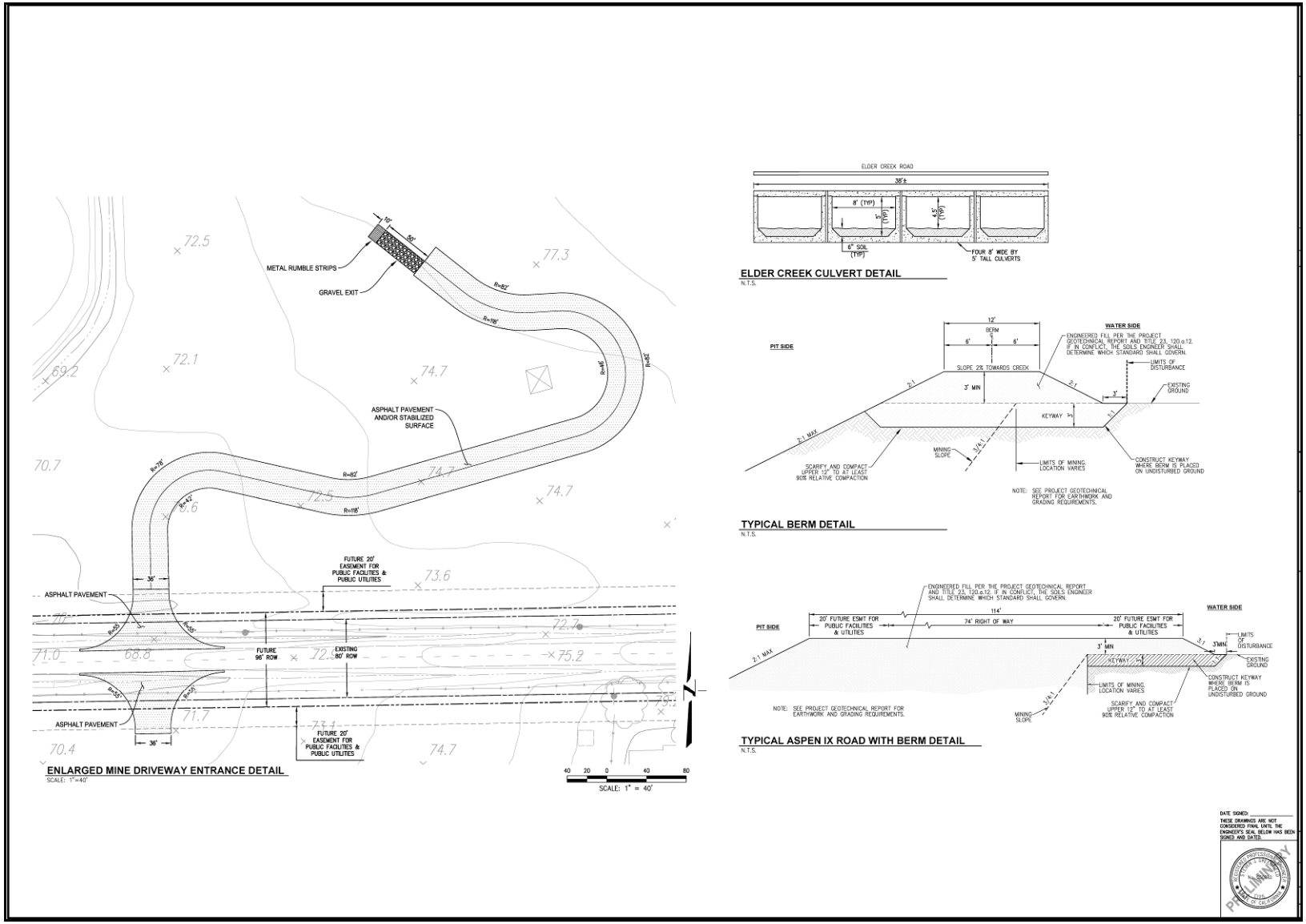
2. A **Use Permit** to allow for the extension and continued use of an electric conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.

3. A **Community Plan Amendment** and **Rezone** to add the Surface Mining Combining Zone (SM) to 682 acres of IR, AG-80, AG-80 (F), AG-160 and AG-160 (F) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.

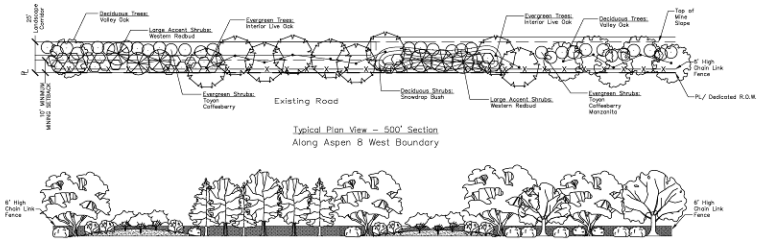
4. A **Reclamation Plan** to include open space grasslands as the end use of the mine.

5. A **Development Agreement** between the applicant and the County of Sacramento.

P□□□□ PD□□□□A□□□□ VIII Dr□□□□ □□ □□d C□□□□r□D□□□□□

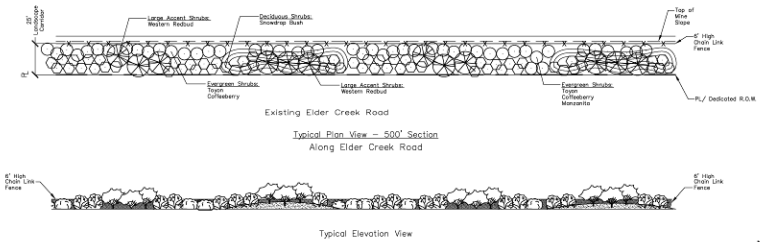


P□□□ PD□□□□ L□□d□□□□□□□ □□d C□□□r□D□□□□



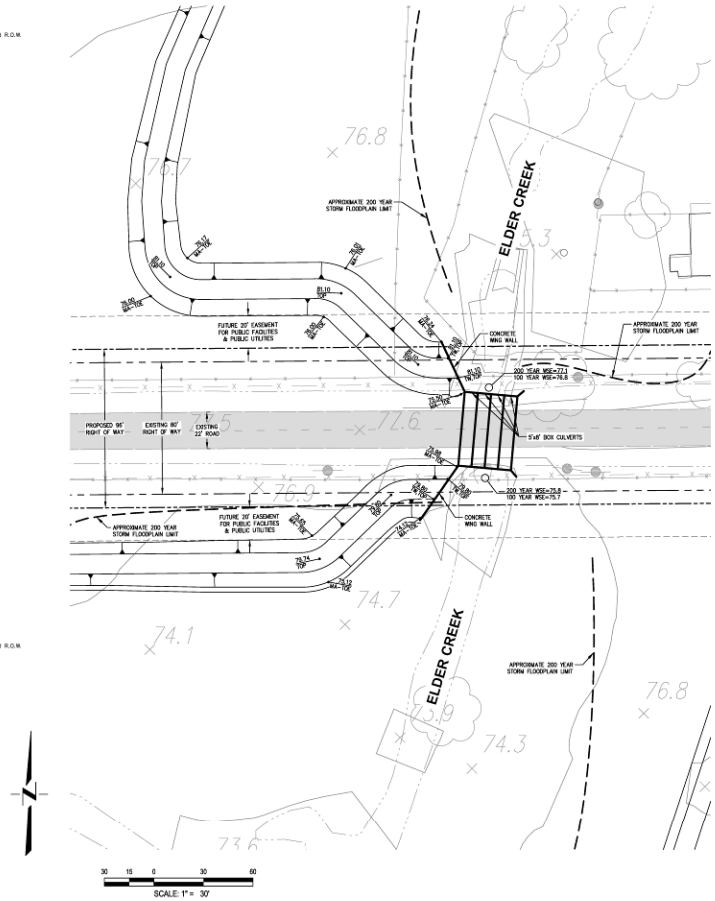
Botanical Name	Common Name	Type	Mature Height
Large Trees:			
Quercus lobata	Valley Oak	Deciduous	60–100'
Quercus wislizenii	Interior Live Oak	Evergreen	30–70'
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	"Howard McMinn" Manzanita	Evergreen	8–12'

TREE/SHRUB VISUAL SCREEN CORRIDOR



Botanical Name	Common Name	Type	Mature Height
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	"Howard McMinn" Manzanita	Evergreen	8–12'

SHRUB ONLY VISUAL SCREEN CORRIDOR



DATE SIGNED: ____
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PRELIMINARY

PROJECT PROPONENTS

APPLICANTS

Teichert Materials
3500 American River Drive
Sacramento, CA 95864
Attention: John Lane

OWNERS

Teichert Land Company and
Triangle Properties
3500 American River Drive
Sacramento, CA 95684
Attention: Ron Gatto

ENGINEER

Cunningham Engineering
2940 Spafford Street, Suite 200
Davis, CA 95618
Attention: Steve Greenfield

PROJECT OBJECTIVE

The applicant has provided the following project objectives:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).
2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.
3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.
4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.
5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.

6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.

7. To minimize impacts to wetlands and other protected habitat from mining operations.

To ensure the responsible reclamation of mined lands and the removal of all associated equipment upon the completion of mining operations.

Project Justification Statement

The County of Sacramento is experiencing a high demand for aggregate products. According to a recent study by the California Geological Survey, the 50-year demand for aggregates within the Sacramento County Aggregate Study Area[2] is approximately 670 million tons. However, as of 2011, the year the study was completed, only 42 million tons (6% of the demand) were permitted for extraction. (California Geological Survey, Map Sheet 52: Aggregate Sustainability in California (2012), p. 7.) This equates to less than ten years' worth of reserves. (*Id*.). At the same time, projections indicate that the County's population will increase by close to 500,000 people over the next 25 years. (California Dept. of Finance, Demographic Research Unit, "Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-Year Increments (January 2013).) In recognition of the importance of aggregate material, Sacramento County's General Plan protects known mineral resources from land uses that would preclude or inhibit timely mineral extraction to meet market demand. In order to provide homes, jobs and other services for the current and future residents of the County, as well as to maintain necessary infrastructure, it is imperative that the region continue to identify reliable, cost-effective sources of aggregate material. The Project is one such source. The Site contains a large quantity of aggregate material which is suitable to make construction products in high demand, including Portland Cement concrete (PCC) and asphalt-ready products.

The mining and reclamation of the Project have been planned to minimize impacts on the natural environment. The Site is located in close proximity to Teichert's Perkins Plant, enabling the mined aggregate material to be transported to the Plant via an extension of the existing conveyor belt system. This method results in substantially less air quality and traffic impacts than the alternative: using haul trucks to transport material. Teichert is also taking affirmative steps as part of its Project to ensure that any vehicles leaving the Site will not "track out" dirt or other sediment onto County roadways and create additional air quality or water quality impacts. In addition, Teichert's proposal to replace the existing Elder Creek culverts under Elder Creek Road

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[2] According to the CGS Report, "Aggregate study areas follow either a Production-Consumption (P-C) region boundary or a county boundary. A P-C region includes one or more aggregate production districts and the market area those districts serve. Aggregate resources are evaluated within the boundaries of the P-C Region. County studies evaluate all aggregate resources within the county boundary." (CGS,p. 7, Note 1.)

will reduce flooding risks. The larger culverts will ensure that flows generated by a 200-year event will be able to easily pass beneath Elder Creek Road, thereby avoiding the water quality and safety implications of allowing storm water to flow across Elder Creek Road. Finally, Teichert will consult with all appropriate regulatory agencies to ensure that all impacts to protected habitat and species will be properly authorized and mitigated.

Lastly, the granting of a use permit for the Project, and a rezone of the various parcels comprising these sites in order to include a SM-overlay, will not be detrimental to the health, safety, comfort or general welfare of persons living or working in the vicinity of the proposed project. As mentioned above, most of the current land uses of surrounding properties are non-residential in nature (grassland, cemeteries, nurseries, etc.) and provide a sufficient buffer from urban uses. Also as mentioned above, the Project has been designed to minimize impacts to the environment to the maximum extent practicable. To further ensure compliance with all applicable County Code provisions, the Project also incorporates the existing conveyor system, which is a previously approved and operational mining use, to ensure that all aspects of the Aspens VIII and IX mining operation are appropriately permitted and, upon completion of mining, satisfactorily reclaimed. Finally, Teichert will comply with all conditions of approval and mitigation measures identified by the County to ensure that these projects operate in a safe, responsible manner.

For the forgoing reasons, the proposed Project is justified.

Environmental Setting

The 683 acre project site currently consists of fields for cattle grazing, three residences, buildings associated with grazing and agriculture, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west. Existing habitat includes annual grasslands and irrigated farmland, scattered wetlands and other waters, including Elder Creek. The majority of the site is used as rangeland for livestock and irrigated pasture for forage production. The surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries (a.k.a. Quiet Haven Memorial Park), a nursery (Village Nurseries), and a water treatment facility (Vineyard Surface Water Treatment Plant).

Areas of Known Controversy

There are no known areas of controversy associated with environmental impacts for the proposed project.

INTENDED USES OF THE EIR

The EIR will be used by the Sacramento County Planning Commission and Board of Supervisors in evaluating the proposed project and rendering a recommendation or decision to approve or deny the proposed project. In addition, the EIR will be used as an informational document by the public and by other responsible agencies including, but not limited to: the California Department of Fish and Wildlife, Regional Water Quality Control Board, U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service.

3 ALTERNATIVES TO THE PROPOSED PROJECT

CEQA REQUIREMENTS

CEQA requires that if a project will have a significant impact on the environment, alternatives must be considered that will avoid or lessen the impacts including alternative site locations. Section 15126.6 of the CEQA Guidelines states that an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives.

INTRODUCTION

Development of the project as proposed would result in significant impacts related to agricultural resources, aesthetics, public services, air quality, noise, geology, biological resources, cultural resources, and hazardous materials. Furthermore, even with the mitigation measures proposed, the aesthetics and air quality impacts cannot be reduced to a less than significant level.

PROJECT OBJECTIVES

Consistent with CEQA requirements, primary consideration was given to alternatives that could reduce impacts, while still meeting most of the project's objectives. The applicant has indicated that the overall objective of the project is to develop the maximum known aggregate reserves that can feasibly be mined within the current project area. Specific project objectives as provided by the applicant include:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).
2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.
3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.
4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.

5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.
6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.
7. To minimize impacts to wetlands and other protected habitat from mining operations.
8. To ensure the responsible reclamation of mined lands and the removal of all associated equipment upon the completion of mining operations.

RANGE OF ALTERNATIVES

The purpose of this section is to identify alternative project designs that would mitigate, lessen, or avoid the significant effects of the Project. To foster meaningful public discussion and informed decision-making, a range of reasonable alternatives to the Project is provided. This range includes the "no project" alternative, the purpose of which is to allow the hearing body to compare the impacts of approving the Project to the impacts of not approving the Project. The "no project" alternative describes what would happen if the existing land use designations remained in effect.

The "no project" alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant unless it is identical to the existing environmental setting analysis which does establish the baseline. The EIR must also identify the environmentally superior alternative. If the "no project" alternative is the environmentally superior alternative, the EIR must identify an environmentally superior alternative from among the other alternatives (Guidelines § 15126.6(e)(2)). An EIR need not evaluate an alternative that is considered speculative, theoretical, or unreasonable (Guidelines § 15126.6(f)(3)). Not every potentially feasible alternative need be considered; rather, the relevant test is whether a "reasonable range" of feasible alternatives is considered for that particular project (Guidelines § 15126.6(a)).

A range of alternatives that could possibly reduce or eliminate some of the project's significant impacts were considered. Some of the alternatives considered were infeasible and rejected without detailed analysis. Other feasible alternatives are discussed with further detail below. The significant and unavoidable impacts that the alternatives are focused on include aesthetics and air quality impacts. Aesthetic impacts that degrade the visual character of the area and air quality impacts for NO_x emissions are significant and unavoidable impacts even after mitigation measures have been applied. The alternatives will also consider some of the project's other impacts

that are not significant and unavoidable such as agricultural resources, public services, noise, cultural resources, and biological resources.

DESCRIPTION OF ALTERNATIVES CONSIDERED BUT REJECTED

ALTERNATIVE FOOTPRINT

Use of a modified mine footprint (reduced area or modified shape) is sometimes considered for mining projects as a method of reducing the area affected or avoiding important environmental resources at the surface such as cultural sites, endangered species habitats or certain aesthetic impacts.

The proposed project has been designed to avoid the most sensitive biological areas on the site. Further, the project site contains no known cultural sites to be avoided. Due to the nature of open-pit aggregate mining, an alternative footprint would not eliminate the aesthetic impact of a large hole in the ground. A modified footprint also would not change the air quality impacts of the project as they are related to the equipment used and the intensity of the mining and not the physical location or layout of the mining pit. Therefore, it is for these reasons that an alternative footprint is not further analyzed.

REDUCED MINING DEPTH

A reduced mining depth alternative is sometimes considered for mining projects as a method of lessening impacts to aesthetic or hydrologic impacts. This proposed project does not have significant hydrologic impacts related to mine depth and is not expected to encounter ground water. The significant aesthetic impacts come from the resulting large hole in the ground left from open pit mining. While a reduced depth may be perceived as less of an impact, due to the overall, irreversible change to the landform it would not substantially lessen the impact.

Additionally, reducing the mining depth would leave existing aggregate resources in place and not utilized. This would not support the logical and orderly extraction of mineral resources. Furthermore, reducing the mining depth could result in expansion of the mine footprint in order to extract sufficient aggregate materials, thus impacts associated with aesthetics, agricultural resources, noise, air quality and biological resources may be greater under this alternative because to compensate for the lack of depth, the operator may have mine a larger area in order to achieve their project objectives and/or supply aggregate to the local market. This alternative does not lessen the significant impacts and may even result in additional significant impacts beyond the proposed project. It is for these reasons that this alternative is not further analyzed.

ALTERNATIVE LOCATION

Many factors are considered in the selection of an aggregate mine, including quality and quantity of the resource, its location and distance to the market consumption area, roadway accessibility, availability of the land, a willing lessor or seller, mining economics (such as the amount of overburden that must be removed), and other factors. In fact, the CEQA Guidelines (Section 15126.6(f)(2)(b)) recognize mining projects to be an example of why evaluation of an alternative location may not be feasible, due to the fact that location of the mineral resource is fixed to the site.

Furthermore, if the mining site was changed to another location, the significant and unavoidable impacts associated with the mine would most likely remain the same or potentially increase. This is because wherever an open-pit alluvial aggregate mine is located, it will result in a large hole in the ground which has been determined to be a significant impact due to the irreversible change to the landform. Similarly, regardless of location, heavy equipment is needed to mine and will usually result in a significant impact. Furthermore, a mine located farther away from either the processing plant or market area would result in increased air quality (and possibly traffic) impact due to aggregate hauling. The current location is near the market area and allows extension of the existing electric conveyor to send raw aggregate material to the existing permitted processing plant. Thus, this alternative would not reduce significant impacts and could even result in some additional impacts. Therefore, this alternative was not further analyzed.

DESCRIPTION OF ALTERNATIVES CONSIDERED

The alternatives considered for further evaluation include the following:

NO PROJECT

In the No Project Alternative no mining would occurr at the site. Furthermore, the No Project Alternative assumes that the General Plan designation and zoning for the site would not change. The project site would remain in its present state and be used for grazing and other agricultural uses permitted under the existing General Plan designation and zoning.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative is designed to address the project's significant air quality (NO_x) impacts by reducing the number pieces of heavy equipment operating at any one time. This could be accomplished through a specific restriction on the number of pieces of equipment or by prohibiting the operator from conducting multiple operations at the same time, such as overburden hauling combined with aggregate extraction.

IMPACT ANALYSIS

The following section analyzes the impacts identified for each topical section of the EIR for the proposed project and how each alternative compares to the proposed project.

AGRICULTURAL RESOURCES

PROPOSED PROJECT

The project as proposed will convert prime farmland and farmland of statewide importance to mining uses and then the land will be reclaimed to open space grassland. The project will convert 39 acres of prime farmland, 225 acres of farmland of statewide importance and 91 acres of farmland of local importance totaling 355 acres of farmland impacts. With mitigation the impact to agricultural resources are less than significant.

NO PROJECT

The No Project Alternative would not result in the conversion of farmland. No mining would occur on the property and agricultural uses would continue.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative would not lessen the impacts associated with agricultural resources. The reduced production rate would only limit the amount of heavy equipment working at the mine or the timing of particular mine phases such as overburden hauling. The same loss of agricultural resources will occur at a rate proportional to the mining.

AESTHETICS

PROPOSED PROJECT

Aesthetic impacts of the proposed project were determined to be significant and unavoidable. Aesthetic impacts are based on changes to the existing landform associated with two large mining pits.

NO PROJECT

The significant and unavoidable impacts of the proposed project would not occur under the No Project Alternative. The site would continue with agricultural uses as before. There would be no permanent alteration of the landform associated with mining pits.

Reduced Production Rate

Under the Reduced Production Rate Alternative, there would still be two large mining pits that would alter the land form. This alternative would only slow the rate of excavation and not eliminate the aesthetic impacts because the two mining pits would still be excavated.

Public service

Proposed Project

The public service impacts for the project where evaluated and found to be less than significant except for the impacts associated with provisions of park and recreation services. These impacts are potentially significant in that the mining pits will limit where a planned multi-use trail can be located. Public service impacts are potentially significant but with mitigation the impacts are less than significant.

No Project

The No Project Alternative would have no impacts on public services and would not affect the planned location of the multi-use trail.

Reduced Production Rate

The Reduced Production Rate Alternative will slow the rate of production but not stop the site from being excavated. This alternative would have similar impacts on public services as the proposed project and could therefore, affect the planned location of the multi-use trail on the project site.

Air Quality

Proposed Project

The proposed project would have significant and unavoidable air quality impact for NOx emissions. The project's emission of ROG and PM are considered significant but with mitigation the impacts are reduced to less than significant.

No Project

The significant and unavoidable impacts associated with air quality for the proposed project would not occur under the No Project Alternative.

Reduced Production Rate

The Reduced Production Rate Alternative is designed to reduce the air quality impacts (No_x) of the project. This alternative limits the number of pieces of heavy-equipment used at the site and by using less equipment the air quality impacts are expected to be reduced. On the other hand, in order for the operator to mine the same amount of material, the mine will have to operate for a longer time in order to fulfill the projects objectives.

Noise

Proposed Project

The proposed project would have a significant impact for noise levels that are in excess of standards established by the noise ordinance and ambient noise. The project would result in noise in excess of median (L50) noise levels at the residence located west of the proposed Aspen VIII pit. Furthermore, the ambient noise level exceeds the standard at the same residence as above. With mitigation, noise impacts are reduced to less than significant.

No Project

The No Project Alternative doesn't result in the noise impacts identified for the propose project.

Reduced Production Rate

The Reduced Production Rate Alternative may reduce some of the noise at the project site by reducing the amount of heavy-equipment used on the site. The noise from the project has the most significant impacts to the residence to the west of the site and if the equipment used within 850 feet was reduced to one piece then the noise impacts would be reduced to less than significant.

Geology and Soils

Proposed Project

There is the potential for the reclaimed slopes and berms to become unstable. Mitigation will reduce the impacts to the reclaimed slopes and berms to less than significant. The project also has the potential for soil erosion from wind and rain, but once again mitigation will reduce the impact to less than significant. Finally the

proposed project could disturb paleontological resources but mitigation will reduce the impact to less than significant.

No Project

The No Project Alternative would have no impacts on geology and soils.

Reduced Production Rate

The Reduced Production Rate Alternative could still create unstable soil conditions for the slopes and berms. This alternative would not lessen the impacts associated with geology and soils because the mine will still excavate the same area but only with less equipment and therefore, at a slower rate. In other words, the excavated area will have the same footprint as before but the equipment used will be reduced.

Biological Resources

Proposed Project

The project will result in significant impacts related to various special status species. The impacts with mitigation are reduced to less than significant. The project will also result in significant impacts related to jurisdictional wetlands and Waters of the U.S. Specifically the project will impact 5.373 acres of vernal pools, wetlands, swales, marches, streams, ponds and ditches. Mitigation measures have been included to reduce the impacts to less than significant. Finally, the project will result in the removal of native trees and tree canopy. Mitigation for the native trees and tree canopy will lessen the impacts to less than significant.

No Project

The No Project Alternative would create no new impacts to biological resources because the existing use of the site would continue and no mining would occur at the site.

Reduced Production Rate

The Reduced Production Rate Alternative impacts to biological resources will be similar to those of the proposed project. This is because the mine will excavate the same amount of area as the proposed project. The only difference is the amount of heavy equipment used to excavate the site will be reduced. This alternative will just slow the rate of excavation but the mining footprint is the same as the proposed project. Therefore, all the impacts associated with biological resources will remain.

CULTURAL RESOURCES

PROPOSED PROJECT

The proposed project would result in potentially significant impacts to undiscovered prehistoric resources and human remains.

NO PROJECT

Under the No Project Alternative, the potential for cultural resource impacts are lessened. The site would continue to be used for agricultural uses. Agricultural use have the potential to disturb soils and expose unknown resources, although, the impacts are unlikely because the historic use of the site will continue and discoveries are not expected to occur. There is a low probability that this would change in the future.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative may not lessen the impacts associated with cultural resources. The site will still be excavated but with less heavy equipment and at a slower rate. Consequently the impacts to cultural resources would remain the same as the propose project.

HAZARDOUS MATERIALS

PROPOSED PROJECT

The proposed project will utilize a small amount of hazardous materials associated with maintenance of the heavy equipment used at the site. There will be no on-site storage of hazardous materials. Mitigation measures have been added to lessen the impacts to less than significant.

NO PROJECT

The No Project Alternative does not propose any on-site construction. The site would continue to operate as a farm with agricultural uses. Farming practices could involve the use of pesticides, fertilizer and maintenance and overhauling of farm equipment. Since agricultural uses don’t receive the same level of scrutiny as mining projects; the agricultural uses on the site could have greater hazardous materials impacts than the proposed project.

Reduced Production Rate

The Reduced Production Rate Alternative has the potential to reduce the amount of equipment used at the site. Less heavy equipment used at the mining site may result in fewer impacts associated with hazardous materials.

Consistency with Project Objectives

No Project

The No Project Alternative would not achieve any of the project objectives except for the minimization of impacts to wetland and other protected habitats.

Reduced Production Rate

The Reduced Production Rate Alternative would meet all project objectives but at a slower rate than the proposed project. This alterative would produce the same amount of material but it would take a longer period of time. While not specifically stated in the project objectives, this alternative may not meet the needs of the applicant to supply a certain percentage of the local aggregate market. The ramifications of this are discussed in the discussion of the environmentally superior alternative below.

Summary of Comparison of Alternative

For comparison purposes, Table ALT 1 provides the impacts of the proposed Project, the No Project Alternative and the Reduced Production Rate Alternative.

- LS Indicates the project's impact is Less than Significant
- PS Indicates the project's impact is Potentially Significant
- S Indicates the project's impact is Significant
- + Indicates the impact is greater than the proposed project.
- - Indicates the impact is less than the proposed project.
- = Indicates the impact is equal to the proposed project.

Table ALT 1: Comparison of Alternatives to the Proposed Project

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	LS	=	=
Displaces substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere.	LS	=	=
Physically divides an established community.	LS	=	=
Induces substantial unplanned population growth in an area either directly or indirectly.	LS	=	=
Converts Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production.	S	-	=
Conflicts with any existing Williamson Act contract.	LS	=	=
Introduces incompatible uses in the vicinity of existing agricultural uses	LS	=	=
Substantially degrades the existing visual character or quality of the site and its surrounding.	S	-	=
Creates a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the	S	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
area.			
Substantially alters existing viewsheds such as scenic highways, corridors or vistas.	LS	=	=
Exposes people residing or working in the project area to aircraft noise levels in excess of applicable standards.	LS	=	=
Results in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft.	LS	=	=
Results in a safety hazard for people residing or working in the vicinity of an airport/airstrip.	LS	=	=
Results in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	LS	=	=
Has an adequate water supply for full buildout of the project.	LS	=	=
Have adequate wastewater treatment and disposal facilities for full buildout of the project.	LS	=	=
Is served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	LS	=	=
Results in substantial adverse physical impacts associated with the construction of new water	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
supply or wastewater treatment and disposal facilities or expansion of existing facilities.			
Results in substantial adverse physical impacts associated with the provision of storm water drainage facilities.	LS	=	=
Results in substantial adverse physical impacts associated with the provisions of electric or natural gas service.	LS	=	=
Results in substantial adverse physical impacts associated with the provision of emergency services.	LS	=	=
Results in substantial adverse physical impacts associated with the provisions of public school services.	LS	=	=
Interfere with adopted plans associated with Interferes with adopted plans or results in substantial adverse physical impacts associated with the provision of park and recreation services.	PS	-	=
Results in substantial adverse impact due to inadequate parking capacity.	LS	=	=
Conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Results in a substantial adverse impact to public safety on area roadways.	LS	=	=
Results in a substantial increase in peak hour vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County.	LS	=	=
Results in a substantial adverse impact to access and/or circulation.	LS	=	=
Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.	S	-	-
Exposes sensitive receptors to pollutant concentrations in excess of standards.	LS	=	=
Creates objectionable odors affecting a substantial number of people.	LS	=	=
Results in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies.	S	-	-
Results in a substantial temporary increase in ambient noise levels in the project vicinity.	S	-	-
Substantially alters the existing drainage pattern of the project area	S	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
and/or increases the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site.			
Develops within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard.	LS	=	=
Creates substantial sources of polluted runoff or otherwise substantially degrades ground or surface water quality.	LS	=	=
Substantially depletes groundwater supplies or substantially interferes with groundwater recharge.	LS	=	=
Places structures that would impede or redirect flood flows within a 100-year floodplain.	LS	=	=
Exposes people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.	LS	=	=
Creates or contributes runoff that would exceed the capacity of existing or planned stormwater systems.	LS	=	=
Is located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction,	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
or collapse.			
Results in substantial soil erosion or the loss of topsoil.	PS	-	=
Directly or indirectly destroy a unique paleontological resource or site.	PS	=	=
Exposes people or structures to substantial risk of loss, injury or death involving ruptured of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.	LS	=	=
Results in a substantial loss of an important mineral resource.	LS	=	=
Has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available.	LS	=	=
Has a substantial adverse effect on any special status species. Sanford's Arrowhead	S	-	=
Has a substantial adverse effect on any special status species. Invertebrates	S	-	=
Has a substantial adverse effect on any special status species.	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Western Spadefoot Toad			
Has a substantial adverse effect on any special status species. Western Pond Turtle	PS	-	=
Has a substantial adverse effect on any special status species. Nesting White-Tailed Kite or Swainson's Hawk	PS	-	=
Has a substantial adverse effect on any special status species. Nesting Northern Harrier	PS	-	=
Has a substantial adverse effect on any special status species. Nesting Raptors	PS	-	=
Has a substantial adverse effect on any special status species. Nesting or Roosting Burrowing Owl	PS	-	=
Has a substantial adverse effect on any special status species. Nesting birds protected under the Migratory Bird Treaty Act	PS	-	=
Has a substantial adverse effect on any special status species. Loss of foraging habitat for White-Tailed Kite and Swainson's Hawk	S	-	=
Has a substantial adverse effect on	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
any special status species. Disturbance to nesting Loggerhead Shrike			
Has a substantial adverse effect on any special status species. Disturbance to nesting or roosting Yellow-Billed Magpie	PS	-	=
Has a substantial adverse effect on any special status species. Disturbance to nesting Tricolored Blackbird	S	-	=
Has a substantial adverse effect on any riparian habitat or other sensitive natural community.	LS	-	=
Has a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act.	S	-	=
Adversely affects or results in the removal of native or landmark trees.	S	-	=
Conflicts with any local policies or ordinances protecting biological recourses.	LS	=	=
Has a substantial adverse effect on the movement of any native resident of migratory fish or wildlife species.	LS	=	=
Conflicts with the provisions of an adopted Habitat Conservation Plan or other approved local, regional,	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
state or federal plan for the conservation of habitat.			
Causes a substantial adverse change in the significance of a historical resource.	PS	=	=
Has a substantial adverse effect on an archaeological resource.	PS	=	=
Disturbs any human remains, including those interred outside of formal cemeteries.	PS	=	=
Creates a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	PS	-	=
Exposes the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials.	LS	=	=
Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.	LS	=	=
Is located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 resulting in a substantial hazard to the public or the environment.	LS	=	=
Impairs the implementation of or physically interferes with an adopted emergency response or	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
emergency evacuation plan.			
Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	LS	=	=

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The “No Project” alternative has the fewest environmental impacts but does not meet the project objectives. The CEQA Guidelines require that a “No Project” alternative be evaluated and although the “No Project” alternative could be considered the environmentally superior alternative, when the “No Project” alternative is the environmentally superior alternative, another environmentally superior alternative must be identified (CEQA Guidelines §15126(d)).

The reduced processing rate alternative appears to result in lessened air quality and noise impacts compared to the proposed project and it meets the stated project objectives. However, the objectives do not specify a minimum extraction rate or mining time-frame, therefore what is not captured is that a restriction on the amount of mining equipment may not meet the applicant’s needs to provide a steady supply of aggregate to the market at a rate commensurate with their existing processing plant. Additionally, because aggregate is an inflexible commodity, meaning it will be supplied to the market regardless of price and because there are other permitted mines in the market area, if the reduced production rate alternative were imposed, the market would adapt by supplying more aggregate from other mines in the area or even by importing aggregate from outside the area.

Because the other mines are in the same air basin, the average cumulative air quality impacts would be about the same if other mines ramped up production to make up for artificial restrictions on the proposed project’s production. Similarly, if other mines ramp up production, their noise impacts would increase. If aggregate was imported, noise and air quality impacts would increase as well as traffic impacts from the extra on-road heavy truck hauling needed to bring the material in from other areas such as the Yuba Goldfields. There could also be additional impacts if other mines built new processing plants and/or capacity to serve the market. Since the proposed project would be served by an existing, permitted processing plant with an existing conveyor system and existing capacity, it is environmentally superior to a reduced processing rate alternative that

could restrict the applicant's ability to capture as much market share and thus result in additional impacts from other mines ramping up, building additional capacity or from aggregate import outside the area.

Although the Reduced Production Alternative would have reductions in impacts related to air quality and noise locally, when considering the air basin as a whole and the inherent cumulative nature of air quality analysis, and that increased mining elsewhere or the import of aggregate for outside the areas would add additional air quality, noise and possible traffic impacts, the alternative would be no better than the proposed project. It may even result in greater impacts if other mines built additional processing capacity or aggregate was imported from other markets. For these reasons, the proposed project is considered the environmentally superior alternative. It results in the fewest impacts while still meeting the full objectives of the applicant.

4 LAND USE/POPULATION AND HOUSING

REGULATORY CONTEXT

SURFACE MINING AND RECLAMATION ACT (SMARA)

The Surface Mining and Reclamation Act of 1975 (SMARA) is administered by the State of California, Department of Conservation, Office of Mining and Reclamation. SMARA provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The reclamation plans required by SMARA and County Code define the basis for achieving safe and usable end land uses for mines. Furthermore, SMARA encourages the production, conservation, and protection of the State's mineral resources, Public Resources Code Section 2207 provides an annual reporting requirement of all mines in the State, under which the State Mining and Geology Board is also granted authority and obligations.

Sacramento County is the SMARA Lead Agency on all mines that operate in the unincorporated County of Sacramento. The County of Sacramento, Department of Community Development is charged with regulating mines in accordance with SMARA, County Code, General Plan, and Zoning Code regulations. Mine operators are required to post a financial assurance (e.g. performance bond, certificate of deposit, or letter of credit) in an amount that will reclaim the mine in accordance with the approved reclamation plan in the event that the operator fails to do so. The County of Sacramento, as the Lead Agency conducts annual reviews to assure financial assurances remain adequate based on the condition of the mine in relation to the approved reclamation plan. In addition, the Department of Community Development conducts annual inspections of all mines within the unincorporated county to insure compliance with SMARA and use permit conditions.

SACRAMENTO COUNTY CODE

The Sacramento County Code (SCC) is the codification and compilation of general ordinances adopted by the Board of Supervisors. For surface mining projects, SCC Title 20 regulates surface mining and reclamation.

Sacramento County recognizes that the extraction of minerals is essential to the continued economic well-being of the County and to the needs of society and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety. Sacramento County also recognizes that surface mining takes place in diverse

areas where the geologic, topographic, climatic, biological, and social conditions are substantially different and that final reclamation and the specifications therefore may vary accordingly.

The purpose and intent of the surface mining and reclamation chapter of the County Code is to ensure the continued availability of important mineral resources, while regulating surface mining operations as required by SMARA to ensure that:

- Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.
- The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.
- Residual hazards to the public health and safety are eliminated.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to land use/population and housing that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

Policy CO-39:

> Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

Policy CO-40:

> Extractive uses and associated processing uses and facilities shall maintain adequate minimum setbacks to protect adjoining land uses.

Policy CO-41:

> Surface mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

Policy CO-57:

> In areas where topsoil mining is permitted, it shall be done so as to maintain the long-term productivity of the soil.

Sacramento County Zoning Code

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

The applicant is requesting a use permit to allow surface mining and use of an existing electric conveyor system to transport the mined material off-site. This can be allowed pursuant to Zoning Code section 4.8.4.A, which states, “All mining operations are permitted in the Surface Mining Combining Zone subject to approval of a conditional use permit by the Board of Supervisors after receipt of a recommendation by the Planning Commission and upon approval of a reclamation plan and financial assurances.”

In addition to the general information required for use permit applications as set forth in the Zoning Code section 6.4.1, an application for a mining use permit is also subject to Zoning Code section 4.8.11. This section requires the following additional information: a mining plan; a reclamation plan; soil, geologic and hydrologic data; a traffic and parking plan; air pollution control measures; noise data; waste data; a drainage plan; a hazardous materials plan; a landscaping plan; a lighting plan and a regional analysis of ancillary uses.

All aggregate mining operations, including sand and gravel mines, hard rock quarries and dredger tailing mining operations shall be subject to Zoning Code section 4.8.12, operating standards for aggregate mining operations. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways.

Surface Mining (SM) Combining Zone

The applicant is requesting a community plan amendment and rezone from IR, AG-80, AG-80(F), AG-160, and AG-160(F) to IR(SM), AG-80(SM), AG-80(F)(SM), AG-160(SM), and AG-160(F)(SM) for the approximately 682 acres of the 683-acre project site. Concurrent with the rezone request, is a use permit request to allow surface mining on an approximately 357 acre portion of the project site, a use permit to allow an existing electric conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant, a reclamation plan that includes agricultural uses as the end use of the mine, and a development agreement between the applicant and the County of Sacramento. According to Zoning Code section 4.8.1, the purpose of the surface mining (SM) combining zone is as follows:

> The (SM) Surface Mining Combining Zone is designed to protect the mineral resources of Sacramento County from incompatible land use; to manage the mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use. The goals to be pursued by establishment of this zone include:

a) That mineral resource areas be protected from preclusive and incompatible land uses;

b) That surface mining be controlled to provide for protection of the environment;

c) That surface mining be controlled to protect the public health, safety, welfare, and property values of residents living near surface mining operations;

d) That provisions be made for the reclamation of mined lands.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate LU-1). Elder Creek Road bisects the project site, with Aspen 8 north of Elder Creek Road and Aspen 9 south of Elder Creek Road. The project is located in the Vineyard Community and the majority of the project site is currently used as irrigated pasture and rangeland for livestock. The project site has three residences; two of the three residences will be removed as part of this project. The home located along Elder Creek Road (10151 Elder Creek Road) will remain on the project site. Plate LU-2 shows the location of the six nearest residences to the project site. This excludes the two residences that will be removed as a result of this project.

Plate LU-1 Zoning and Location Map

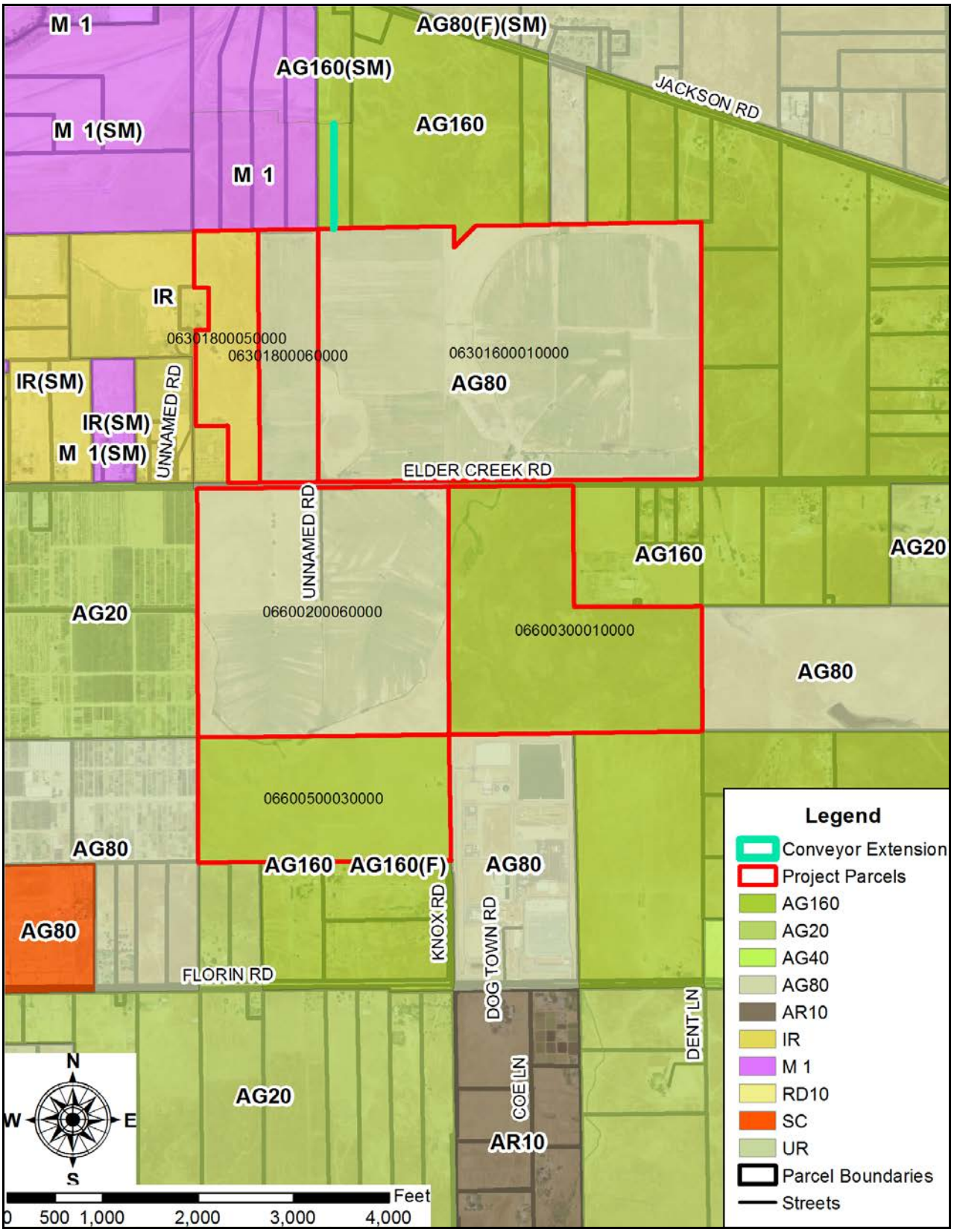
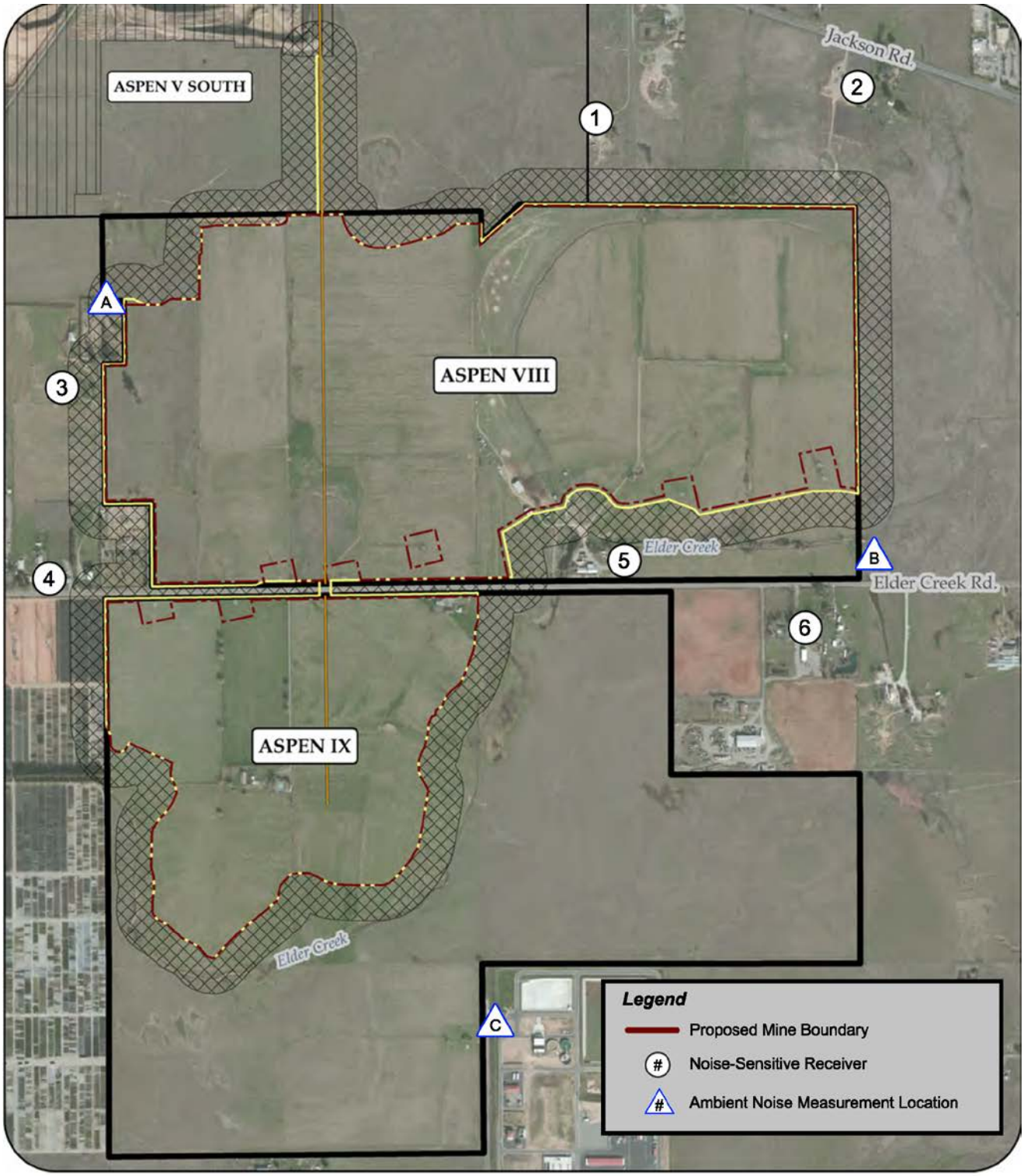


Plate LU-2 Nearby Residences



BOLLARD
Acoustical Consultants

Scale (feet)
0 500 1,000

Proposed land uses

The applicant is proposing to develop two surface mining pits that will allow extraction of sand and gravel aggregate material. The applicant anticipates the mining to last 15 years and after 15 years the site will be reclaimed to open space. The project will consist of site preparation activities, mining operations, and end with reclamation. Site activities include the installation of native landscaping along both the north and south sides of Elder Creek Road and adjacent to Aspen VIII's western most parcel (063-0180-005-0000), the replacement of undersized culverts under Elder Creek Road, the installation of entrance driveways, and connection to the existing electric conveyor system. The conveyor system is currently in place and utilized on the property to the north of Aspen VIII at the permitted Aspen V south mine. The applicant is proposing to tie in a new electric conveyor system that will be placed on Aspen VIII and IX with this exiting electric conveyor to the north. This will allow the mined materials to be transported to the Perkins processing plant located off-site. Mining operations consist of topsoil management, overburden removal and transport, and aggregate removal. Reclamation entails converting the mining pits back to open space uses. The applicant is requesting approval of a community plan amendment and rezone (Plate LU-3), a use permit to allow surface mining, a use permit to allow an existing electric conveyor system to transport the mined materials to an off-site processing plant, a reclamation plan to convert the mining pits back to open space uses and a development agreement with the County of Sacramento.

Existing Land Use and Zoning Designations

The land use diagram of the General Plan designates the project site as General Agriculture and Extensive Industrial (Plate LU-4). The zoning of the project site is IR (Industrial Reserve), AG-80 (Agricultural), AG-80 (Agricultural) (F) Flood, AG-160 (Agricultural), and AG-160 (Agricultural) (F) Flood (Plate LU-1). The (F) Combining Zone is intended to encompass all land in the Federal Emergency Management Agency (FEMA) 100-year flood zone in Sacramento County. The IR (Industrial Reserve) land use zone has a minimum parcel size of 20 acres and the permitted uses are general agriculture. The AG-80 and AG-80(F) land use zones have a minimum lot area of 80 acres and the permitted uses are general agriculture; while the AG-160 and AG-160(F) land use zones have a minimum lot area of 160 acres and the permitted uses are general agriculture. The properties to the east, south, and west of the project site are used mostly for agriculture. To the north and northwest, the properties are used for surface mining.

Plate LU-3 Rezone Map

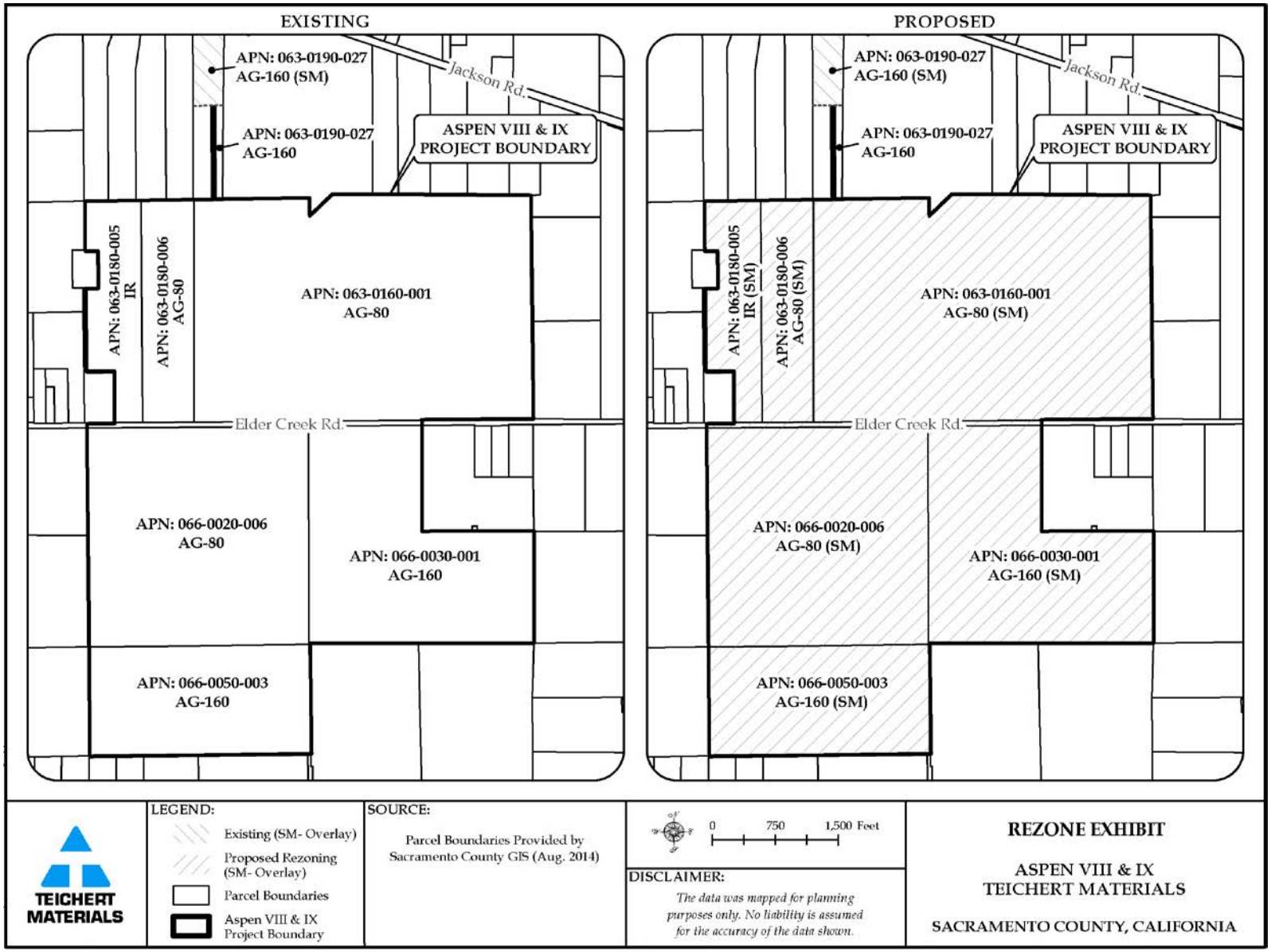
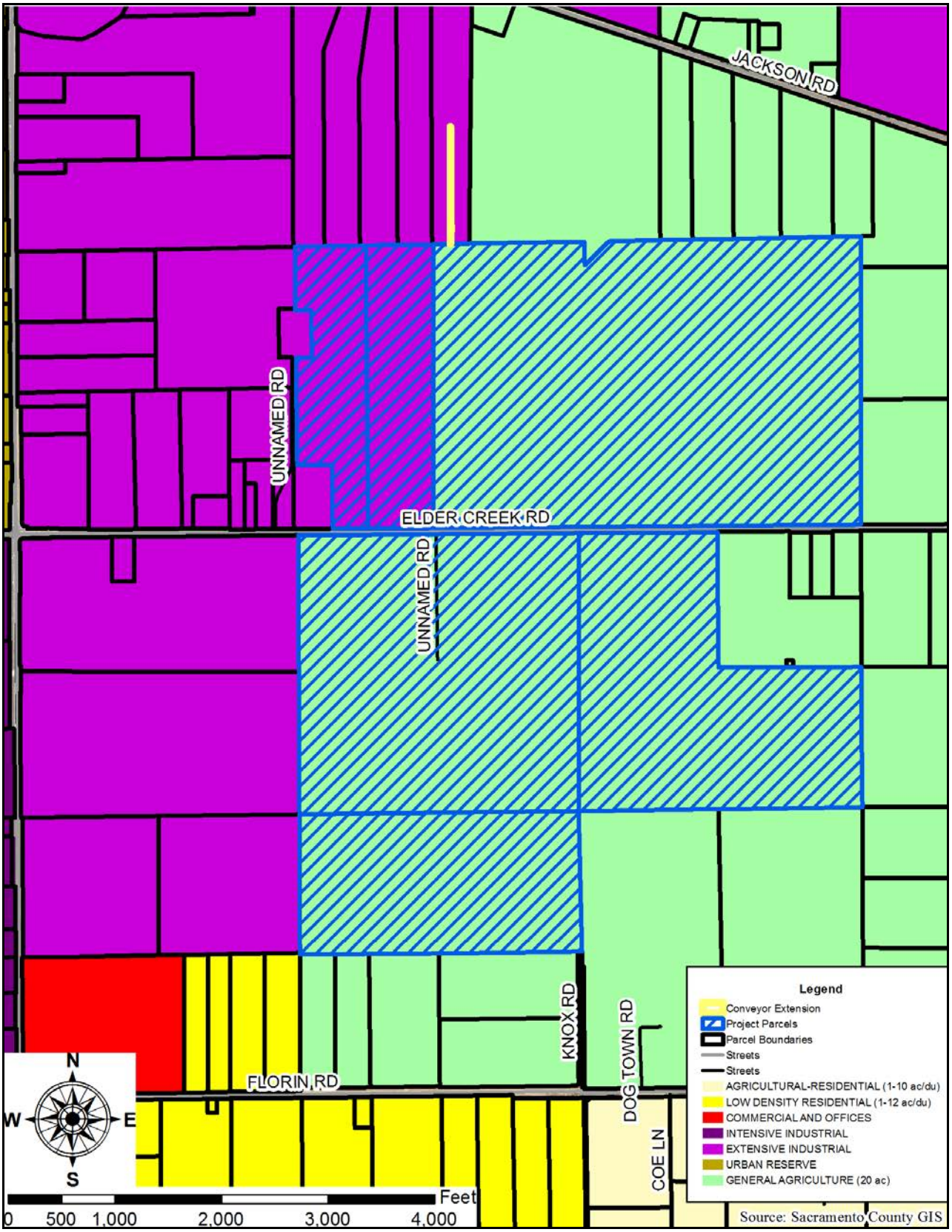


Plate LU-4 General Plan Designations



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Land Use/Population and Housing the proposed project would have a significant impact if it:

LU/PH-1: Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

LU/PH-2: Displaces substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere; or

LU/PH-3: Physically divides an established community; or

LU/PH-4: Induces substantial unplanned population growth in an area either directly or indirectly.

There are no established communities near the project site. The nearest established residential neighborhood is located over two miles away to the northwest. The project does not propose any new housing nor will it remove any barrier to growth. Therefore, LU/PH-3 and 4 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation LU/PH-1: Does the project conflict with any land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Through the application process, the County has reviewed the project's reclamation plan and financial assurance cost estimate (FACE) and required all necessary changes for SMARA compliance. The County has determined that the project as proposed complies with SMARA.

The proposed project does not conflict with the Surface Mining chapter of the County Code (Title 20, Chapter 20.04) which regulates surface mining in unincorporated Sacramento County.

The proposed project is consistent with General Plan Policy CO-39 in that, mitigation measures are included as appropriate in this Environmental Impact Report (EIR) which has been prepared in accordance with CEQA. Additionally, pursuant to CEQA the

Board of Supervisors, should they choose to approve the project, will adopt appropriate findings and overrides for any impact determined to be significant and unavoidable.

The proposed project is consistent with General Plan Policy CO-40. The project's mining pits are proposed to be set back a minimum of 10 feet from property lines in accordance with Zoning Code section 4.8.12.F.2. Furthermore, the project complies with the Zoning Code requirement for at least a 25-foot setback from the public right-of-way. Included in this setback along Elder Creek, the applicant is proposing to install native landscaping. The one residence that will remain on the mining project site will be set back over 400 feet from the mining pits; Zoning Code section 4.8.12.F.2 requires the residence be set back a minimum of 50 feet.

The proposed project is consistent with General Plan Policy CO-41. The project has a reclamation plan that will be approved by the California State Office of Mine Reclamation and the Sacramento County Board of Supervisors. This approved reclamation plan is based on the mine being reclaimed to open space grassland. The post mining use is consistent with the zoning of the site. Furthermore, the post mine use is consistent with General Plan policies for Sacramento County.

The proposed project is consistent with General Plan Policy CO-57. The project's topsoil will be salvaged in accordance with the approved reclamation plan. The topsoil will be used for reclamation of the mined area to open space grassland. The topsoil will be added back to the ground of the mined area to insure the long term production of the land.

The applicant requests a rezone to add the Surface Mining combining zone to the project area. The Surface Mining combining zone would allow mining with approval of the requested conditional use permit. The project application conforms to Zoning Code section 4.8.11 which specifies the required data to be included in the project application. Furthermore, the proposed project conforms to the operating standards of Zoning Code section 4.8.12. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways. Upon approval of the requested community plan amendment, rezone, use permits, and reclamation plan, the project will be consistent with the Zoning Code.

Level of Significance: Less than Significant – No Mitigation Required

<u>Impact Evaluation LU/PH-2: Does the project displace substantial amounts of exiting housing, necessitating the construction of replacement housing elsewhere?</u>

There are three single-family residences located on the project site. Implementation of the proposed project would remove two of the three residences. The home at 10151 Elder Creek Road will remain. The project site is 683 acres in size and the loss of two homes is not substantial. Furthermore, the project site is closely located to the developing communities of North Vineyard Station, Florin-Vineyard Gap and Vineyard

Springs which provide a source of readily available housing stock to meet the demand associated with the loss of two residences.

Level of Significance: Less than Significant – No Mitigation Required

5 AGRICULTURAL RESOURCES

REGULATORY CONTEXT

SURFACE MINING AND RECLAMATION ACT (SMARA)

The Surface Mining and Reclamation Act of 1975 (SMARA) is administered by the State of California, Department of Conservation, Office of Mining and Reclamation. SMARA provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The reclamation plans required by SMARA and County Code define the basis for achieving safe and usable end land uses for mines.

For prime agricultural land there are the following SMARA regulations: SMARA regulation section 3707 (a), Performance Standards for Prime Agricultural Land Reclamation states, “mining operations which will operate on prime agricultural lands, as defined by the U.S. Soil Conservation Service, shall return all disturbed areas to a fertility level as specified in the approved reclamation plan”. Furthermore section 3707 (c) states, “Reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for two consecutive crop years, that of the premining conditions or similar crop production in the area. Productivity rates, based on reference areas described in the approved reclamation plan, shall be specified in the approved reclamation plan.”

For land that is not prime agricultural land there is the following SMARA regulation. SMARA regulation 3708, Performance Standards for Other Agricultural Land states, “The following standards shall apply to agricultural lands, other than prime agricultural lands, when the approved end use is agricultural. In addition to the standards of topsoil salvage, maintenance, and redistribution, non-prime agricultural lands shall be reclaimed so as to be capable of sustaining economically viable projection of crops commonly grown the surrounding areas.”

WILLIAMSON ACT

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) serves to preserve open spaces and agricultural land. It discourages urban sprawl and prevents landowners from developing their property to commercial and/or subdivided residential use. The Williamson Act program was revised by the enactment of Farmland Security Zone (FSZ) legislation during the 1998 legislative session, offering landowners greater property tax reduction in exchange for longer contract terms than under the Williamson Act Program.

The Williamson Act is a State program that allows agricultural landowners to pay reduced property taxes in return for their contractual agreement to retain the land in agricultural and open space uses for a period of 10 years. The term of the contract automatically renews each year, so that the contract always has a 10-year period left to run. The renewing process can be stopped by either the landowner or the County, at which point the contract would run out and, after 9 years, expire. The legal contract is between the landowner and the County. The specific land uses allowed on agricultural lands under Williamson Act contract are regulated by the contract itself and by State law (Government Code Section 51200 *et seq.*). Government Code Section 51238.2 specifically addresses surface mining of Williamson Act contracted lands. The requirements of Section 51238.1 and Section 51238.2 restrict the types of uses that may be allowed on Williamson Act lands. Generally the uses are those related to the production of food and fiber; however, each Williamson Act contract can be different and individual contracts spell out permitted and prohibited uses.

Important Farmland Mapping Classifications

In 1982, under Legislative mandate (Government Code §65570), the Department of Conservation was required to collect and/or acquire data on lands converted to/from agricultural use. The purpose for collecting such information was to provide decision makers maps and statistical data on the conversion of farmland and grazing land to assist in the land use planning process. Important Farmland maps are prepared biannually based on information from the Natural Resources Conservation Service and State Department of Water Resources. Based on this information, land is classified into one of eight categories (five relating to farmlands and three associated with nonagricultural purposes). The five farmland classifications are as follow:

1. Prime Farmland: Lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.

2. Farmland of Statewide Importance: Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to retain moisture.

3. Unique Farmland: Lands with lesser-quality soils used for the production of California's leading agricultural cash crops. These lands usually are irrigated but may include non-irrigated orchards or vineyards, as found in some of the state's climatic zones.

4. Farmland of Local Importance: Lands of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee.

5. Grazing Land: Lands in which the existing vegetation is suited to the grazing of livestock.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The General Plan includes goals and policies that protect and guide development on surrounding Agricultural Lands. The two general goals of the Agricultural Element are (1) maintenance of the County's agricultural lands, their agricultural productivity and natural resource benefits they provide and (2) support farming and related industries as a strong and viable sector of the economy of a rapidly urbanizing county. The Agricultural Element provides the following introduction:

> Farmland is the fundamental agricultural resource. County farmlands are being encroached upon by urban developments, wildlife preserves, and outdoor recreation facilities. With rare exceptions, conversions of farmland to nonfarm uses are irreversible. Farmland conversions affect agricultural productivity directly by reducing the farmland base, and indirectly by increasing production costs or reducing yields on neighboring farmlands. Farmland losses reduce the ability of the County to supply food to local and export markets. The cumulative effects of individual farmland conversions include urban growth inducement, unstable rural real estate markets, and reduced viability of the local agricultural economy.
>
> The converse relationship is also true: lack of viable agricultural productivity tends to lead to conversions of land to other, often conflicting uses. The real or perceived lack of viability may be caused by many factors including: growth pressures, unstable or reduced real estate values, cost of water or energy, and government regulation.

The following are the most pertinent General Plan policies related to agricultural resources that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

AG-5:

> Projects resulting in the conversion of more than fifty (50) acres of farmland shall be mitigated within Sacramento County, except as

specified in the paragraph below, based on a 1:1 ratio, for the loss of the following farmland categories through the specific planning process or individual project entitlements request to provide in-kind or similar resources value protection (such as easement for agricultural purposes).

- Prime, statewide importance, unique, local importance and grazing farmlands located outside the USB (Urban Service Boundary);
- Prime, statewide importance, unique and local importance farmlands located inside the USB.

The Board of Supervisors retains the authority to override impacts to Unique, Local, and Grazing farmlands, but not with respect to Prime and Statewide farmlands.

However, if that land is also required to provide mitigation pursuant to a Sacramento County endorsed or approved Habitat Conservation Plan (HCP), then the Board of Supervisors may consider the mitigation land provided in accordance with the HCP as meeting the requirements of this section including land outside of Sacramento County.

Note: This policy is not tied to any maps contained in the Agricultural Element. Instead, the most current Important Farmland map from the Department of Conservation should be used to calculate mitigation.

AG-28:

The County shall actively encourage conservation of soil resources.

AG-30

Provide a plan focused on noxious weed control in agricultural areas.

CO-51

Direct development away from prime or statewide importance farmlands or otherwise provide for mitigation as required by AG-5 slowing the loss of additional farmland conversion to other uses.

Sacramento County Zoning Code

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

The Agricultural Land Use zone is designed to promote and protect the designated agricultural lands within Sacramento County. Specifically, the land use zone is designed to:

- Eliminate encroachment of incompatible land uses on agricultural lands;
- Preserve the supply of agricultural land in order to conserve the County's economic resources;
- Discourage premature and unnecessary conversion of agricultural land to urban uses;
- Preserve agricultural lands as open space and for production of agricultural products; and
- Encourage retention of large agricultural lots to assure viable agricultural units.

Surface mining is permitted within an Agricultural land use zone subject to the following conditions (Zoning Code section 3.2, Table 3.1 Industrial Uses, A.3; Use Standard 3.8.1.C):

- Permitted for short duration, small scale borrow sites of 200,000 cubic yards or less over a year after obtaining a conditional use permit from the appropriate County authority.

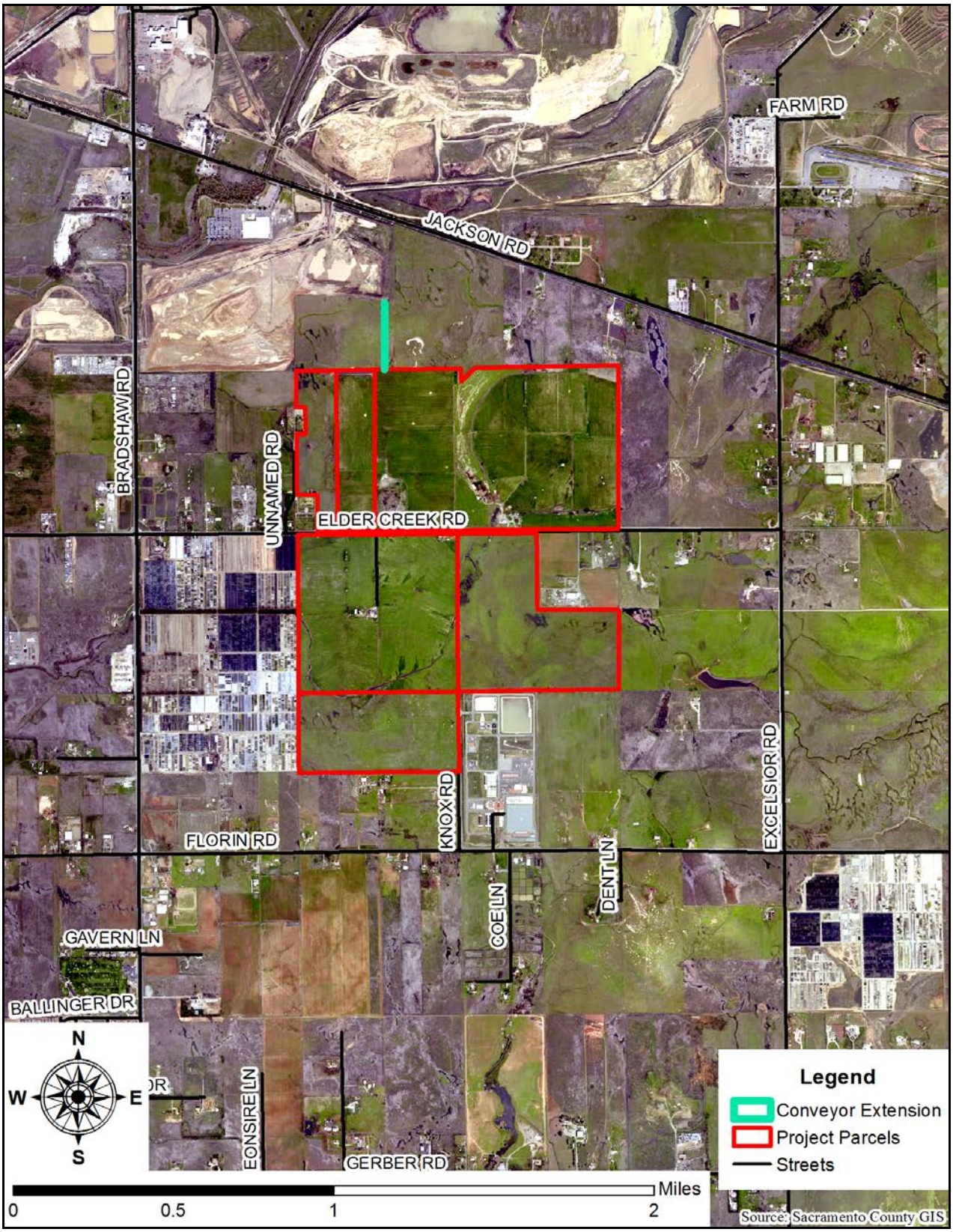
For surface mining operations that exceed the 200,000 cubic yard a year limit, they must rezone the subject parcels to add a Surface Mining Combining land use zone. The Surface Mining Combining land use zone allows operations that produce amounts of material larger than 200,000 cubic yards a year subject to additional permitting and regulatory requirements enumerated in Zoning Code section 3.8.1.A.

ENVIRONMENTAL SETTING

EXISTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate AG-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

Plate AG-1: Location Map (2012 Imagery)



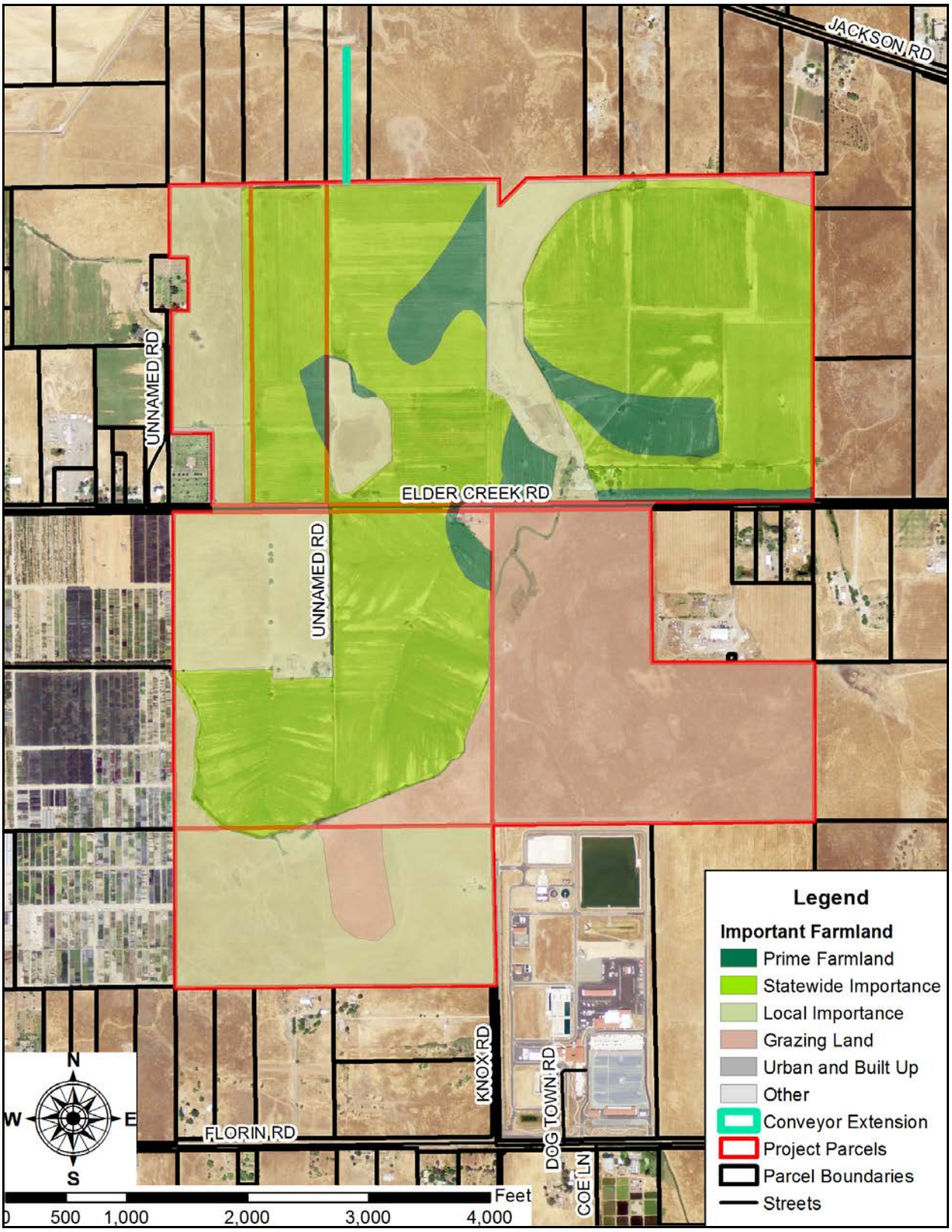
Project Site Characteristics

The project site consists of annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek. The majority of the project site is used as rangeland for livestock and irrigated pasture for forage production. The project site also includes three residences with associated out buildings and power line towers. Site topography slopes downward from east to west with surface elevations ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet MSL along the west side of the project site.

The project site's zoning (IR, AG-80, AG-80 (F), AG-160 and AG 160 (F)) allows for the entire site to be used as general agricultural. Furthermore, the project site has lands classified as prime farmland, statewide importance farmland, local importance farmland and grazing land. There are approximately 43 acres of prime farmland within the project site; the greater part of the prime farmland is located within Aspen 8 which contains approximately 38 acres of prime farmland. Aspen 9 has approximately five acres of prime farmland located on parcel 066-0020-006 adjacent to Elder Creek Road. The majority of the project site is statewide importance farmland with approximately 305 acres. Local importance farmland encompasses approximately 179 acres of the project site. The remainder of the farm land is classified as grazing land with approximately 152 acres. The project site also contains about four acres of water (Elder Creek), roads and other development (Plate AG-2).

The surrounding properties have similar land use and General Plan and Zoning designations. The surrounding lands are sparsely populated with very isolated agricultural residences. Currently there are three homes on the project site and there are five residences adjacent to the site. Of the three homes on the project site two of the three will be removed as a result of the project. Surrounding land uses consist of irrigated farmland, annual grasslands, grazing lands, rural residential homes, Bellevue and Arlington Cemeteries to the west, a nursery facility to the south-west, a surface water treatment facility to the south, and other surface mining operations to the north and north-west.

Plate AG-2: Farmland Map



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Agricultural Resources the proposed project would have a significant impact if it:

AG-1: Converts Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production; or

AG-2: Conflicts with any existing Williamson Act contract; or

AG-3: Introduces incompatible uses in the vicinity of existing agricultural uses.

IMPACTS AND ANALYSIS

Impact Evaluation AG-1: Does the project Convert Prime Farmland, Unique Farmland, Farmland of Statewide importance or areas containing prime soils to uses not conducive to agricultural production?

The proposed project for the Aspen VIII portion of the site will mine 34 acres of prime farmland, 166 acres of farmland of statewide importance, and 54 acres of local importance farmland (Table AG 1). The proposed project for the Aspen IX portion of the site will mine five acres of prime farmland, 59 acres of farmland of statewide importance, and 37 acres of local importance farmland (Table AG 2). The total project site has 43 acres of prime farmland, 305 acres of farmland of statewide importance, and 179 acres of local importance farmland (Table AG 3). The project will mine a total of 39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of local importance farmland.

According to General Plan Policy AG-5, projects resulting in the conversion of more than 50 acres of farmland shall be mitigated within Sacramento County at a ratio of 1:1. Policy AG-5 further states, that if the project is located in the Urban Service Boundary (USB) the project must mitigate for prime farmland, farmland of statewide importance and farmland of unique or local importance. The project is located in the USB and will therefore, have to mitigate at a ratio of 1:1 for the conversion of all the prime farmland, farmland of statewide importance, and farmland of local importance converted in excess of 50 acres. The proposed project will convert over 50 acres of farmland to mining uses for up to 15 years. There will be a total of 357 acres of land mined of this total 39 acres are prime farmland, 225 acres are farmland of statewide importance, 91 acres of

Table AG 1: Farmland on Aspen VIII

Aspen VIII	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	38	34	4
Statewide Importance	209	166	43
Local Importance	69	54	15
Grazing Land	1	1	0
Other	1.4	0	1.4

Table AG 2: Farmland on Aspen IX

Aspen IX	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	5	5	0
Statewide Importance	96	59	37
Local Importance	110	37	73
Grazing Land	151	1	150
Other	1.6	0	1.6

Table AG 3: Total Farmland on the Project Site

Total for Project (Aspen VIII & Aspen IX)	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	43	39	4
Statewide Importance	305	225	80
Local Importance	179	91	88
Grazing Land	152	2	150
Other	3	0	3
Totals	682	357	325

farmland of local importance, and two acres of grazing land. General Plan Policy AG-5 uses the word "conversion" of farmland as the impact triggering mitigation. Upon reclamation the mine will be reclaimed to open space grassland as the end use and not back to irrigated agricultural uses. This constitutes a permanent conversion of agricultural land to another use. The permanent conversion of a total of 355 acres of farmland (39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of local importance) is considered a significant impact.

Level of Significance Before Mitigation: Significant

AG-1: Agricultural Farmland Impacts Mitigation Measure

Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted on the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 34 acres of prime farmland, 166 acres of statewide importance farmland, and 54 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use

- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Prior to any work south of Elder Creek Road , grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Level of Significance After Mitigation: Less than Significant

<u>Impact Evaluation AG-2: Does the project conflict with any existing Williamson Act contract?</u>

The project site was previously under two Williamson Act contracts both located on the proposed Aspen VIII project site. Williamson Act contract 70-AP-041 was for parcel 063-0160-001 and Williamson Act contract 76-AP-006 was for parcels 063-0180-005 and 006. Both of the Williamson Act contracts were noticed for non-renewal on September 11, 1989. The notice of non-renewal was filed with the Board of Supervisors and the contract expired automatically on February 28, 1999. Therefore, there are no active Williamson Act contacts covering the project parcels for which the project could conflict.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AG-3: Does the project introduce incompatible uses in the vicinity of existing agricultural uses?

The applicant is requesting a use permit and rezone to mine the project site. The use is permitted on agricultural land with an approved use permit from the Board of Supervisors. The proposed mining operation will not be an incompatible use near agricultural uses. Currently there are numerous mines located near agricultural uses in the vicinity of the proposed project. The uses work well together because the mine operations normally don't interfere with the surrounding farm operations. Furthermore, the mines have to be reclaimed in accordance with their approved reclamation plans which usually specify agricultural uses or other open space use as the end result of reclamation. The County's General Plan has policies that encourage the mining of important mineral resources. The mining operation will allow for the extraction of important mineral resources and after the mining is complete the project site will be reclaimed to open space grassland uses. Open space grassland uses would not conflict with the surrounding agricultural uses. Therefore, the proposed project will not introduce incompatible uses in the vicinity of existing agricultural use.

Level of Significance: Less than Significant – No Mitigation Required

6 AESTHETICS

REGULATORY CONTEXT

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to aesthetics that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

LU-31:

> Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8, Surface Mining (SM) Combining Land Use Zone, Mining Administration and Procedures contains regulations pertaining to surface mining (Zoning Code Sections 4.8 through 4.8.16.E). Many of these regulations address aesthetic impacts through the use of required setbacks. For example, the Zoning Code requires a 25-foot minimum setback from the property lines, the first five feet of which shall remain entirely undisturbed. Furthermore, along public streets a 25-foot setback of undisturbed land is required. Additionally, the Zoning Code provides that the Board of Supervisors may condition the project to require visual screening in the form of berms, landscaping or other setbacks.

ENVIRONMENTAL SETTING

REGIONAL LANDSCAPE

The regional character of Sacramento County is distinguished by three general regions; the Sierra Nevada-foothills (east), the Lower Sacramento Valley (west, south, and north), and the Sacramento-San Joaquin River Delta (south and west). Sacramento County is located at the southern portion of the Sacramento Valley providing for the vast agricultural lands that occupy much of the County. The County contains three major rivers, the Sacramento, American, and Cosumnes Rivers. The Sacramento River forms the western border of the county and flows north to south. The American and Cosumnes Rives flow through the central portion of the County and they flow from east to west.

A majority of Sacramento County is at an elevation near sea level, with some portions of the County below sea level. The highest elevations in the County occur along its eastern border on the edge of the Sierra Nevada foothills, approximately 700 – 800 feet above mean sea level. Much of the County is flat alluvial plains until the eastern edge where the foothills of Sierra Nevada Mountains begin to emerge.

Urbanization has occurred primarily in the northern and central portions of Sacramento County near the cities of Sacramento, Elk Grove, Citrus Heights, Folsom, and Rancho Cordova. The urbanized portion of the County exhibits the typical views of a combined urban and suburban area, distinguished by groups of commercial, industrial, office, and residential areas, with various infrastructure improvements (roads, bridges, etc.).

Agricultural and pasture lands presently occupy much of the area surrounding the project and are the dominant visual landscape of the south and eastern portions of the County. These areas provide views of agricultural lands containing grains, orchards, and vegetables, while other lands remain open grassland utilized primarily for grazing of cattle.

PROJECT SITE CHARACTERISTICS

The project site is in the central portion of unincorporated Sacramento County and consists of fields for cattle grazing and feeding, three residences, agricultural buildings, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west. Existing habitat includes annual grasslands and irrigated farmland, scattered wetlands and other waters, including Elder Creek. The majority of the site is used as rangeland for livestock and irrigated pasture for forage production.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Aesthetics the proposed project would have a significant impact if it:

AE-1: Substantially degrades the existing visual character or quality of the site and its surrounding; or

AE-2: Creates a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the area; or

AE-3: Substantially alters existing viewsheds such as scenic highways, corridors or vistas.

The project site does not occur in the vicinity of any scenic highway, corridors, or vistas. Therefore, impact AE-3 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation AE-1: Does the project substantially degrade the existing visual character or quality of the site and its surrounding?

The proposed project will irreversibly change the existing landform by excavating material from the site to a depth of approximately 25 to 50 feet. The degree of impact of a project, either negative or beneficial, to the visual character of the area is largely subjective. Few objective or quantitative standards are available to analyze visual quality, and individual viewers respond differently to changes in the physical world.

Reasonable people can disagree as to whether alteration of visual character would be adverse or beneficial. The project was analyzed using the principals contained within the United States Department of Transportation Federal Highway Administration document “Visual Impact Assessment for Highway Projects”. Though this is not a highway project, the document provides a visual impact framework that is broadly applicable. The document defines visual quality by three key terms: vividness, intactness, and unity, which are defined as follows:

- Vividness is a measure of the visual impression that remains in the memory of the viewer (e.g. Niagara Falls). Vivid visual experiences are striking and distinctive.

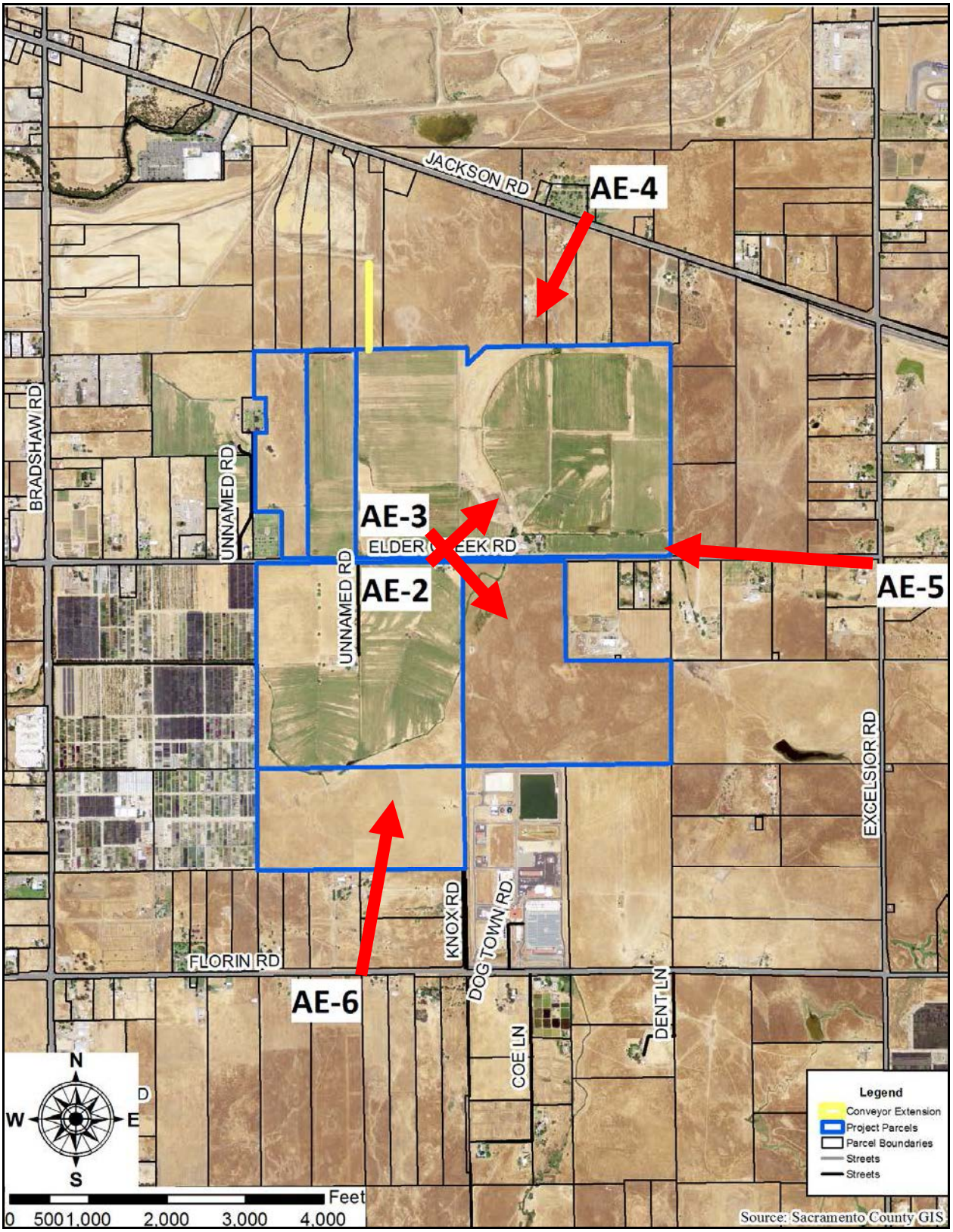
- Intactness is the visual integrity of the natural and built landscape. Intact landscapes are unobstructed visual experiences.

- Unity is the coherent inter-compatibility of connected landscape elements. A high degree of unity creates a harmonious visual pattern.

The project area is in a rural landscape, so there are a limited number of viewer groups that will be impacted by the project. These groups include people driving on Elder Creek Road and the residents of homes in the project vicinity. People driving on area roads are considered to have low sensitivity. Drivers have only transitory views of the site as they pass by. On the other hand, residents typically view the surrounding landscape as an integral part of their home environment, and are very sensitive to changes in that environment. Based on field visits, approximately three to five homes will have clear views of the proposed project.

Photos were taken to supplement the following discussion, and were taken from locations intended to represent the various user groups or to illustrate a point made in the discussion. Plate AE-1 is an aerial photo of the project vicinity that has been annotated to show where the photos were taken, and in which direction the camera lens was pointed. The referenced photos are in Plate AE-2 through Plate AE-6. The discussion is divided into three sections focusing on each of the key terms (vividness, intactness, and unity) and a fourth section that summarizes the findings. In the beginning of each section, the current visual quality will be assessed using a scale of low, moderate, and high. Furthermore, near the end of the section the project's impacts to visual quality will be assessed using a scale of low, moderate, and high.

P AE L A A P


JACKSON RD
AE-4
BRADSHAW RD
UNNAMED RD
AE-3
ELDER CREEK RD
AE-2
UNNAMED RD
AE-5
EXCELSIOR RD
KNOX RD
DOG TOWN RD
FLORIN RD
AE-6
DENT LN
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W
E
S
Feet
0 500 1,000 2,000 3,000 4,000
Legend
Conveyor Extension
Project Parcels
Parcel Boundaries
Streets
Streets
Source: Sacramento County GIS

Plate AE-2: Looking Northeast from Elder Creek Road

Plate AEE 3: Looking Southeast from Elder Creek Road

Plate AEE-4: Looking Southwest from Jackson Road

Plate AEE-5: Looking West from Excelsior Road

Plate AEE-6: Looking North from Florin Road

Vividness

The site's current (before project implementation) vividness is assessed as moderate. The transmission line towers that are located on the site will create a memory that adds to the vividness of the site. The views are similar in visual character to much of the surrounding agricultural land. Viewers passing by on Elder Creek Road see a mostly flat landscape of grazing land for cattle and the transmission line towers. From more distant viewing locations one cannot visually identify this site as being at all separate from the rest of the agricultural lands in the viewshed.

The vividness of the site will be increased by the project; the surface mining facility will be a very distinctive feature in the landscape. Particularly from the perspective of people that live near the site. Furthermore, the mining pit will linger in the memory more post-project than it does currently for people that drive by the project site. Though the project will make the site substantially more striking, raising the vividness to high, it is important to emphasize that this is not due to any increase in overall site attractiveness as a result of the project. A view can be vividly negative or vividly positive, as determined by the intactness and unity of the view. Therefore, after the project is implemented the vividness will increase to high.

Intactness

The site's current (before project implementation) intactness is assessed as moderate. Viewers mostly see open agricultural land. The exceptions are the transmission line towers located along Elder Creek Road, the rural residences and associated out buildings near Elder Creek Road. The main visual benefit of the current site condition is that its undeveloped state gives the feeling of expansiveness or openness. The proposed project would excavate the site to a depth of about 25 to 50 feet; this will be a major new encroachment within the field of vision. As the project progress, the depth of the excavation will help limit the view of the project site from the neighboring properties and roadways. The project will be setback a minimum of 25 feet for Elder Creek Road and setback a minimum of 10 from interior property lines. Furthermore, native landscaping will be installed along Elder Creek Road to screen the project site. The project area is 683 acres in size and the excavated mining pits will be 355 acres in size. Even the relative large size of the project site will not off-set the perceived loss of the intact view, this is because the viewshed is so much larger than the proposed mining operation. The result is expected to be a degradation of the openness of the current views, even in cases where viewers are still able to see beyond the project site. Therefore, after project implementation the Intactness will be decrease to low.

Unity

The site's current (before project implementation) unity is high. As previously described, from a distance it is difficult to determine where one agricultural property begins and another ends. Even from a closer vantage point, one sees expanses of open agricultural fields and rangeland. The project will place into the area a new visual element that is not at all cohesive with the existing elements. The new element added to the view will be the proposed mining pits. The mining pits will cumulatively be over 350 acres of excavation and will turn the green or tan color into a darker brown of excavated earth because the site will be stripped of aggregates and vegetation during the mining phase of the project. The mining pits will make the view less unified because people will see the excavated pits and the color change where before one saw farmland. The unity will be lessened further by the landscaping used to help screen the mine from view. Therefore, after project implementation the unity will decrease to moderate levels.

Summary

The project area's vividness before the project is implemented is assessed at a moderate level; with project implementation the vividness is assessed at a high level. Vividness is increased because the project will excavate a large pit into the viewshed and the new mining pits are a vivid sight. Furthermore, the project area's intactness before project implementation is assessed at a moderate level and after project implementation the intactness falls to a low level. This is due to the project's mining pits lessening the intactness of the rural landscape. The current view of the intact rural landscape will be altered by the proposed mining pits. Finally, the project area's unity before the project is implemented is high and after the project is implemented unity is

assessed at a moderate level. Once again, the mining pits will lower the visual unity by lessening the connected rural landscape elements with the addition of the mining pits.

Neither unity nor intactness alone creates an attractive visual landscape. If the viewshed is highly unified and intact because it is not diverse, it creates a view that is uninteresting. The highest quality views are those that are intact, unified and contain sufficient visual diversity to make the site memorable. The project will decrease the unity and intactness but the site will become highly vivid. In this case, this vividness is not a positive impact, as an unnatural excavation is what is making the site more memorable.

For non-residents on Elder Creek Road the impacts may be either neutral or negative, depending on one's perspective. Its negative visual impact will be more fleeting and may perhaps be balanced out by its becoming an interesting talking point. For residents of surrounding properties, the project will have a negative effect. Residents are more sensitive to changes in their views.

Visual quality is intensely subjective, and as noted the nearby residents are likely to be more sensitive to any change, regardless of whether the analysis concludes the impact is not significant. With this in mind, an analysis of potential mitigation is included here for consideration. The native landscaping installed along Elder Creek Road and the berms around the mine will help screen the project site.

In the past the County has screened aggregate mines from public view with landscaping and berms. This has resulted, some will argue, in trading one aesthetic impact for another because the landscaping and berms do screen the view of the mine but they also screen the views of the landscape that lies beyond. The landscaping and berms can lead to the tunnel or corridor effect as can be experienced along the Jackson Highway aggregate mining area.

The residence located at 9895 Elder Creek Road, (063-0180-022) to the west of the proposed Aspen VIII project site will be the closest home to the mining pit. The resident attended the Public Scoping Meeting and requested additional visual screening. The applicant discussed the issue with the resident and it was mutually decided to add berms and landscaping to screen the view of the mining pit adjacent to the residence; therefore, as part of the project a mitigation measure has been added for additional visual screening of the mining pit for the residence at 9895 Elder Creek Road, west of Aspen VIII. See the Noise chapter for information concerning the berms as noise attenuation.

The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. This type of large landform change will not go unnoticed by the surrounding residences or even by the passing motorists and bicyclists. Screening will not totally hide or mitigate the visual impacts caused by project implementation. Furthermore, screening of the site can create its own problems as described above. Therefore, the overall aesthetic impacts are significant.

Level of Significance Before Mitigation: Significant

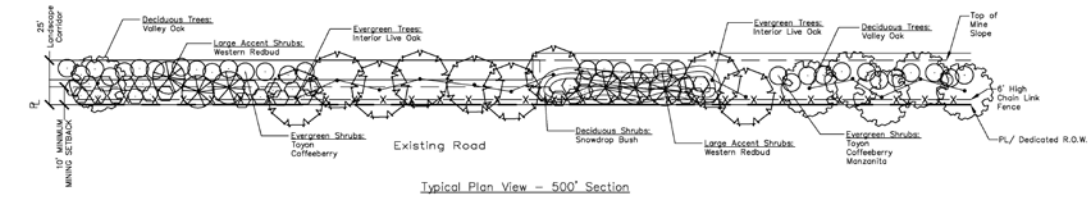
AE-1: Viewsheds Mitigation Measure

A. Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (*Quercus lobata*) and interior live oak (*Quercus wislizenii*); and the following shrubs; western redbud (*Cercis occidentalis*), toyon (*Heteromeles arbutifolia*), hoary coffeeberry (*Rhamnus tomentella*), snowdrop bush (*Styrax officinalis*), and Howard McMinn' manzanita (*Arctostaphylus densiflora*). The placement of landscaping shall be as show in Plate AE-7. The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height.

B. Additional berms and landscaping shall be placed to screen the view of the mining pit for the residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and west of Aspen VIII. This shall consist of a berm and landscaping combination to the satisfaction of the Department of Community Development with input from the resident of 9895 Elder Creek Road.

Level of Significance After Mitigation: Significant and Unavoidable

Plate AE-7: Landscaping Planting Plan

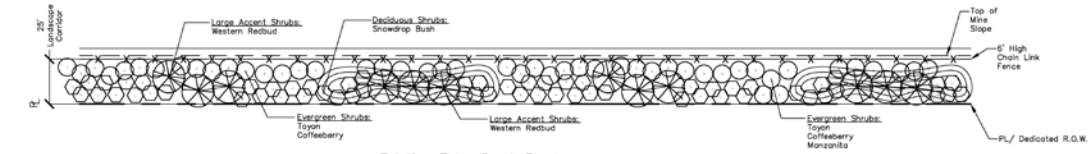


Typical Plan View – 500' Section
Along Aspen 8 West Boundary

Typical Elevation View

Botanical Name	Common Name	Type	Mature Height
Large trees:			
Quercus lobata	Valley Oak	Deciduous	60–100'
Quercus wislizenii	Interior Live Oak	Evergreen	30–70'
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

TREE/SHRUB VISUAL SCREEN CORRIDOR



Typical Plan View – 500' Section
Along Elder Creek Road

Typical Elevation View

Botanical Name	Common Name	Type	Mature Height
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

SHRUB ONLY VISUAL SCREEN CORRIDOR

Impact Evaluation AE-2: Does the project create a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the area?

There is the potential for the mining operation lighting to bleed over to the neighboring properties and create negative impacts. The equipment used to prepare the mine will be lighted with safety lights and working lights. Normally the equipment preparing the mining facility does not operate during hours of darkness. Furthermore, the hours of operation are limited by Zoning Code section 4.8.12.A which states that Monday through Friday mining operations shall be from 6:00 a.m. until 9:00 p.m. and maintenance operations beyond mining hours to occur from 9:00 p.m. to midnight, Saturday mining operations shall be from 7:00 a.m. until 3:00 p.m. and maintenance operations beyond mining hours to occur from 3:00 p.m. to 4:00 p.m., and on Sunday and labor union holidays no mining, processing or maintenance.

Once the site has been prepared for the mining of aggregate; electric conveyors, security trailers, employee trailers and mobile equipment will operate within the project area. Typically the head section of each electric conveyor is lighted. The security and employee trailers will also have lights as well as the mobile equipment. The trailer lighting will be similar to residential home lighting patterns.

The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. Only during the fall and winter will there be an opportunity to mine after sunset. Furthermore, most mining facilities curtail their activities in winter because operating in inclement weather could create issues for the safety and efficiency of the mining operation. Moreover, most of the equipment and trailers will be located down in the mining pit and will be below grade. With the lights below grade the adverse effects from lighting will be lessened. There is the potential for the project's lighting to impact negatively the adjacent homes and roadways. Therefore, the project may create a new source of light that would result in safety hazards or adversely affect day or nighttime views in the area and these impacts are potentially significant.

Level of Significance Before Mitigation: Potentially Significant

AE-2: Reducing Impacts Associated with Lighting Mitigation Measure

Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.

Level of Significance After Mitigation: Less than Significant

7 AIRPORT COMPATIBILITY

REGULATORY CONTEXT

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration's (FAA) most recent Advisory Circular 150/5200-33B provides guidance regarding land uses that have the potential to attract hazardous wildlife near airports. The Federal Aviation Administration requires airports that receive federal grant-in-aid assistance, such as Mather Airport, to utilize these guidelines. It also recommends that land-use planners and project developers use the guidance for privately owned or initiated projects on or near airports.

Federal Aviation Administration guidance specifies that when considering proposed land uses; airport operators, local planners and development must take into account whether the proposed land uses, including new developments projects, will increase wildlife hazards. The evaluation to determine whether the net bird aircraft collision hazards would increase as a result of project actions are based on the following factors:

- Changes in habitat conditions;
- Changes in on-site bird populations;
- Existing and potential off-site habitats and resulting potential for attracting birds to the project sites from off-site lands;
- Flight heights of bird species;
- Aircraft flight paths in relation to the project site;
- Aircraft flight heights above the project site; and
- Known information on heights of past bird-aircraft collisions.

The latest Advisory Circular reaffirmed that Airport Operations Areas (AOA) and land use practices that attract hazardous wildlife should be separated by 10,000 feet. Additionally, the Advisory Circular included the recommendation of a 5-mile separation between the Airport Operations Areas (AOA) and hazardous wildlife attractants, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

The Advisory Circular further recommends that off-airport storm water management systems within the 10,000 foot or 5-mile approach and departure separation areas be designed and operated so as to be capable of being drained within 48-hours after the

design storm. The Advisory Circular recommends using steep-sided riprap lined, narrow ponds, and elimination of vegetation that offers cover and food for hazardous wildlife. It does not specifically recommend use of physical barriers for off-site ponds. Finally, the Advisory Circular identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

STATE OF CALIFORNIA

The state of California regulates airports under the authority of the Airport Land Use Commission Law, Chapter 4, Article 3.5, California Public Utilities Code. The purpose of the Airport Land Use Commission Law is to:

1. Protect public health, safety, and welfare through the adoption of land use standards that minimize the public's exposure to safety hazards and excessive levels of noise.

2. Prevent the encroachment of incompatible uses around public-use airports, thereby preserving the utility of these airports into the future.

These purposes are implemented through Airport Land Use Commissions which are required in every county with a public use airport or with an airport served by a scheduled airline. The Sacramento Area Council of Government (SACOG) has been designated as the Airport Land Use Commission for the counties of Sacramento, Sutter, Yolo and Yuba. Under the provisions of the law, the Airport Land Use Commission is required to prepare an Airport Land Use Compatibility Plan, formerly called a Comprehensive Land Use Plan (CLUP), for each public airport within its jurisdiction.

The Airport Land Use Compatibility Plan or Comprehensive Land Use Plan (CLUP) must be based on either a 20-year master plan or an airport layout plan if the Caltrans Division of Aeronautics makes a determination that the existing airport layout plan is adequate for use in Airport Land Use Compatibility Plan/Comprehensive Land Use Plan preparation. Airport Land Use Compatibility Plans and Comprehensive Land Use Plans regulate land use in three major areas:

SAFETY ZONES

The probability of airplane accidents is highest in the immediately vicinity of airports. Consequently, safety zones are delineated around airports which are associated to restrictions in land use. Ranging from most to least restrictive are the clear zone at the end of each runway, the approach/departure zone extending out away from the ends of each runway, and the overflight zone extending around the runway. The densities of land uses allowed in these zones are inversely related to probability of an accident in the zone (Plate AC-1).

NOISE ZONES

Noise that emanates away from runway and airplane flight paths is represented by concentric noise contours around the airport. The contours delineate zones where land use is restricted, protecting the citizens from the detrimental effects of exposure to excessive airplane noise. The contours are constructed using the FAA's Integrated Noise Model. The result is a 24-hour day/night average called either Day-Night Average Sound Level (DNL) or Community Noise Equivalent Level (CNEL). The cumulative noise descriptor required for aircraft noise analyses in the State of California is the CNEL. The actual noise levels around an airport are a function of the number, time of day, and frequency of operations of each aircraft type. Noise levels are also influenced by the variations in monthly and seasonal flight schedule changes by the airlines. The contours are used to determine compatible land uses around the airport (Plate AC-2).

HEIGHT RESTRICTIONS

Buildings surrounding airports are prohibited from intruding into aircraft airspace except when permitted by the California Department of Transportation, Division of Aeronautics. Compliance with the height restrictions is tested by comparing the height of proposed projects with an imaginary surface surrounding each airport. Their imaginary surfaces are based on FAA Regulations (FAR Part 77, Imaginary Surfaces). The height restrictions applicable to Mather Airport are shown in Plate AC-3

State Law requires that General Plans be made consistent with Airport Land Use Commission adopted Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans. Consistency can be achieved through either of the following actions:

1. Amending general/community plan elements and other land use regulations, where necessary, to be consistent with the Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans, or prevent the encroachment of incompatible uses around public-use airports, thereby preserving the utility of these airports into the future.

2. In the event the Board of Supervisors does not agree with a provision of the plan, it can satisfy the consistency requirement for that provision by overruling the Airport Land Use Commission by a two-thirds vote. The overruling must, however, be made after a public hearing and must be based on specific findings that the proposed actions is consistent with the purposes of the Airport Land Use Commission Law.

Plate AC-1: Mather Airport Safety Zones

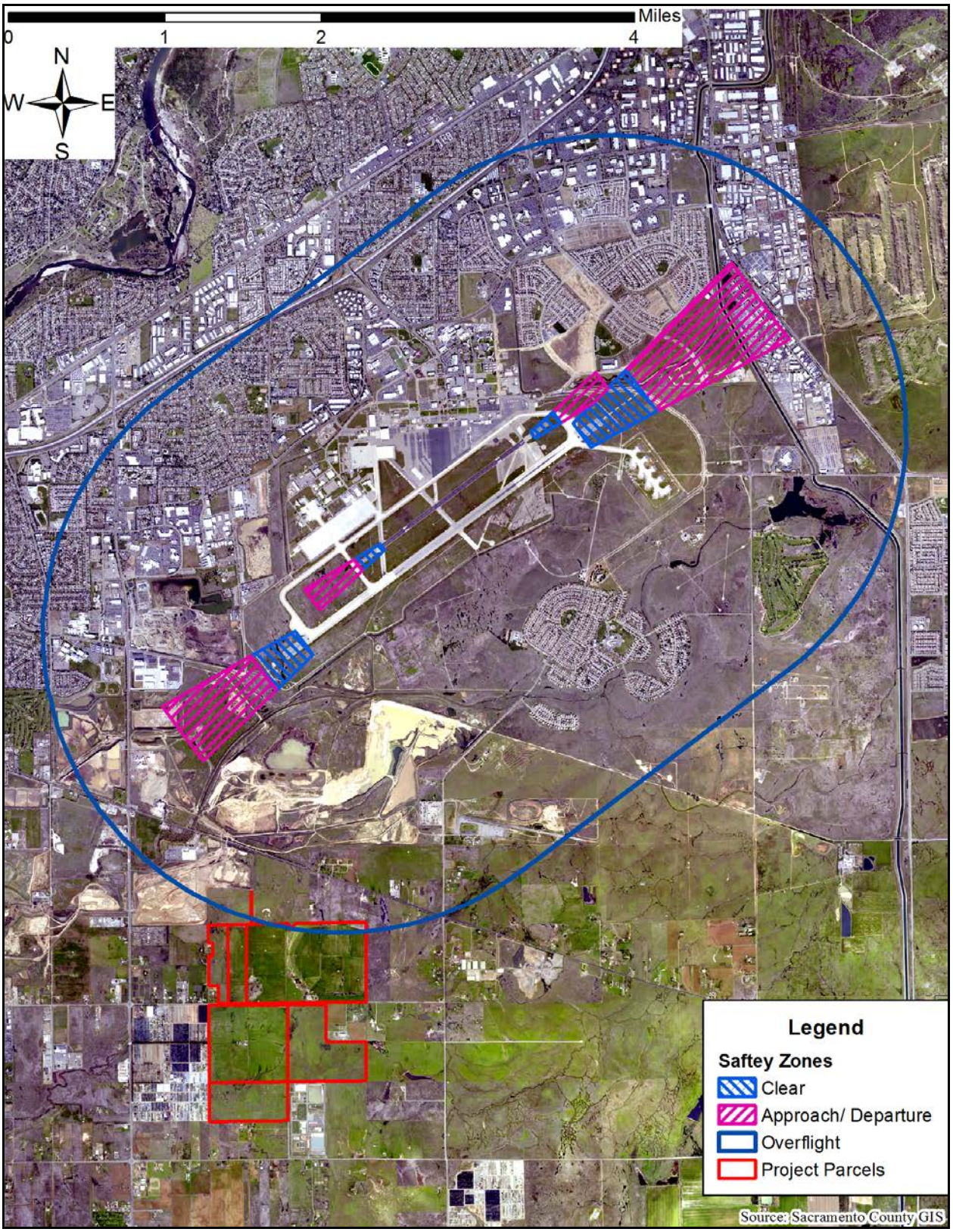


Plate AC-2: Mather Airport Theoretic Capacity Noise Contours

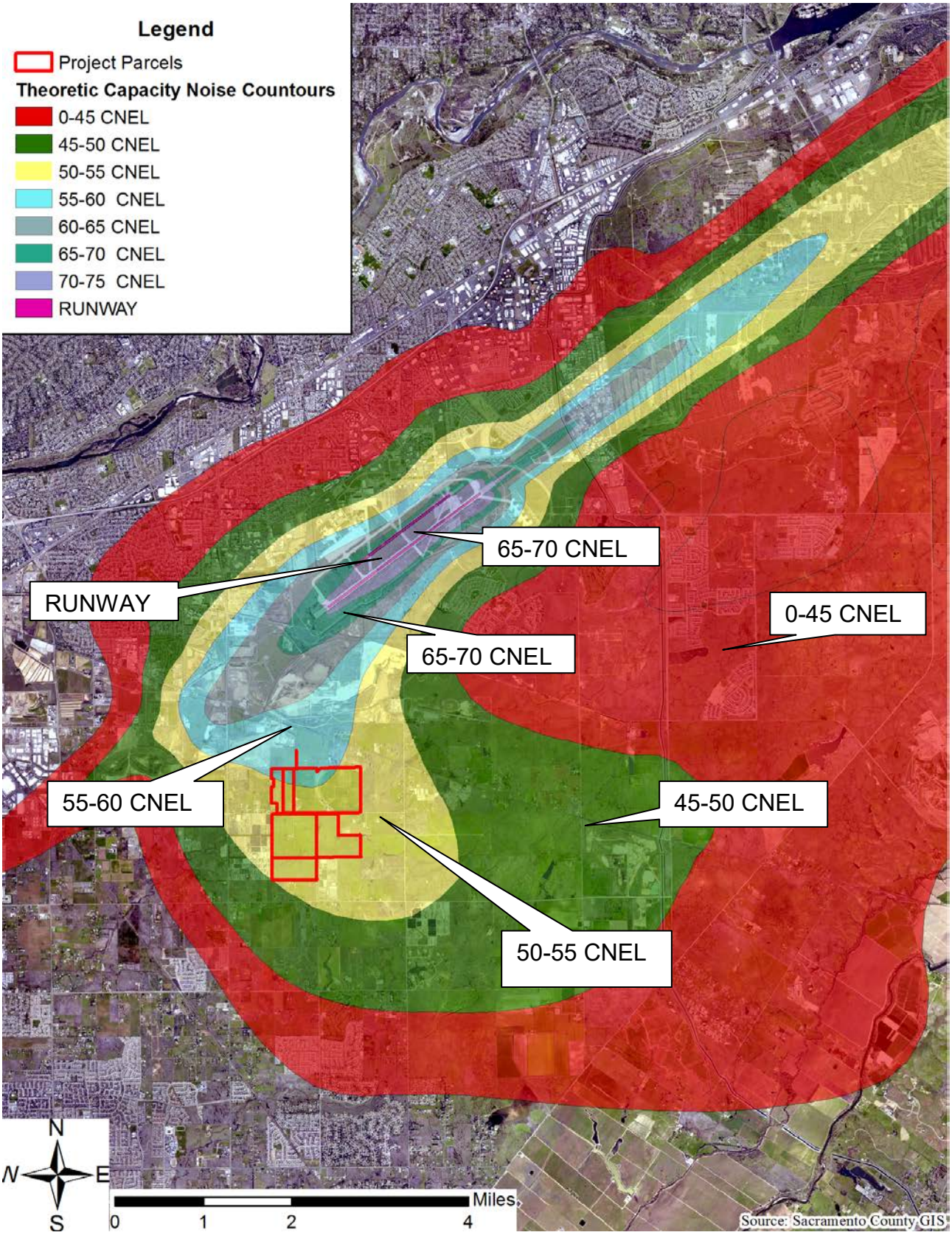
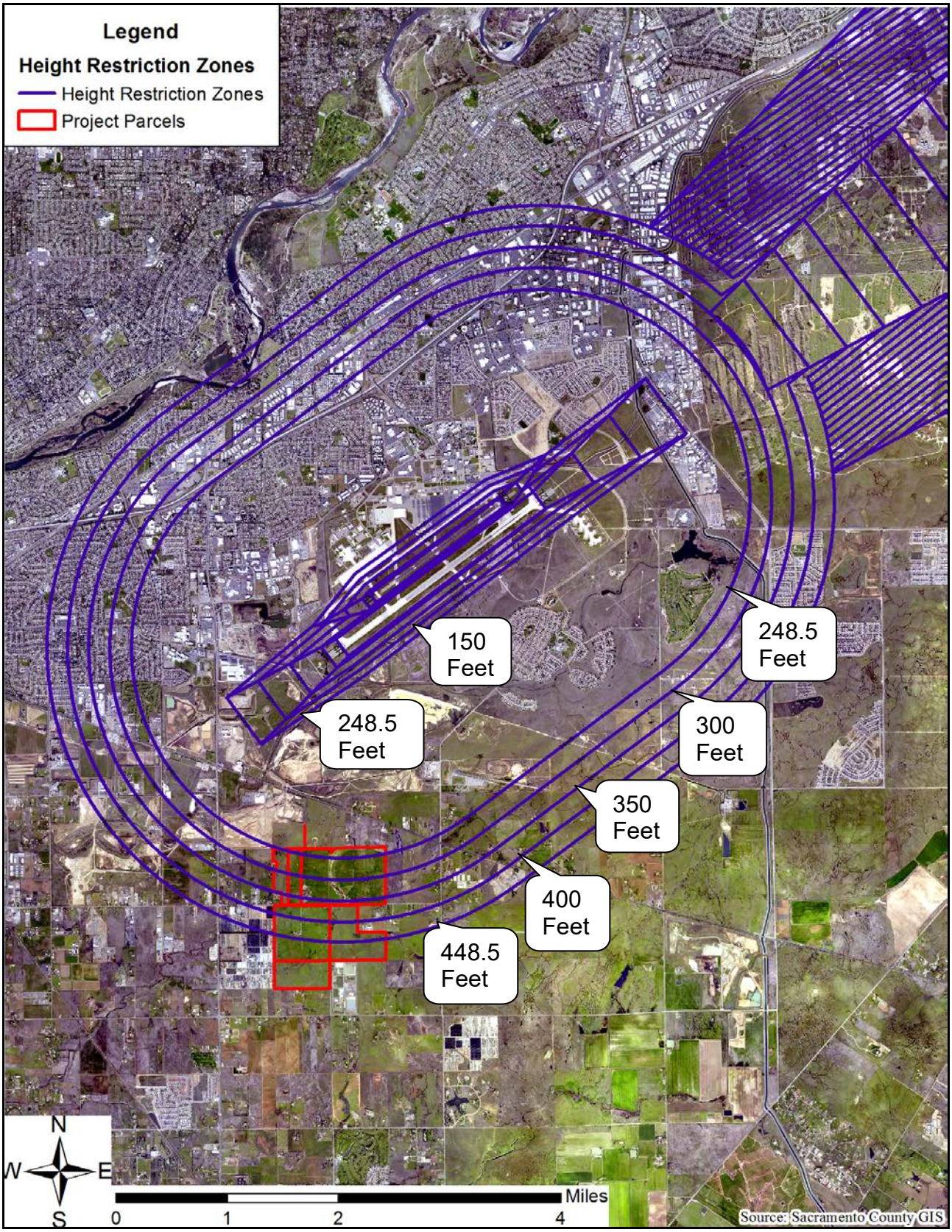


Plate AC-3: Mather Airport Height Restrictions



Once consistency is achieved between the Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans and County land use controls through either of the above two methods, State law requires that certain types of projects be referred to the Airport Land Use Commission for a determination of their consistency with an adopted Airport Land Use Compatibility Plan and/or Comprehensive Land Use Plan. Such projects include amendments to the General Plan, or a community plan, and adoption or amendments to zoning ordinances that affect an area within an airport planning boundary as established by an Airport Land Use Compatibility Plan and/or Comprehensive Land Use Plan. If the Airport Land Use Commission determines the proposed project to be inconsistent, the County may overrule the Airport Land Use Commission by a two-thirds vote, again after a public hearing, and based on specific findings.

MATHER AIRPORT COMPREHENSIVE LAND USE PLAN (CLUP)/ AIRPORT LAND USE COMPATIBILITY PLAN

In May 1996, the Airport Land Use Commission prepared a Draft Mather Airport Comprehensive Land Use Plan Update to establish height, noise and safety zones for Mather Airport based on its projected buildout use as a County-operated aviation facility. A revised version of the Draft Mather Airport Comprehensive Land Use Plan was prepared in October 1996. An amended version of the Mather Comprehensive Land Use Plan was adopted by the Airport Land Use Commission Board on May 15, 1997. On June 24, 1998, the Sacramento County Board of Supervisors approved a package of amendments to the General Plan that incorporated the Mather Field Comprehensive Land Use Plan. Although the CLUP has not been officially updated by the Airport Land Use Commission, the County of Sacramento has incorporated updated noise contours into its General Plan based on theoretic capacity of the airport and uses those contours in making land use consistency determinations.

The Mather Airport Master Plan, which was adopted in August 2014, and updated aviation forecasts may be used by Airport Land Use Commission for a future update to the Mather Comprehensive Land Use Plan. If the Mather Comprehensive Land Use Plan is revised to reflect the noise contours in the Mather Airport Master Plan, land use restrictions surrounding Mather Airport could be reduced because the model of the updated forecast show a reduction in the size of the 60 CNEL and 65 CNEL noise contours. The noise contours and land use restrictions in the currently adopted Comprehensive Land Use Plans would remain in effect after approval of the Mather Airport Master Plan until such a time that a revised Comprehensive Land Use Plans or Airport Land Use Compatibility Plans is approved by the SACOG Board and adopted into the County's General Plan. A revised Comprehensive Land Use Plan or Airport Land Use Compatibility Plan would require adequate California Environmental Quality Act (CEQA) documentation prior to approval.

MATHER AIRPORT PLANNING POLICY AREA

In 2006, Sacramento County adopted the Mather Airport Planning Policy Area (APPA), which places specific limitations on conditions of new residential development within certain proximity to Mather Airport (MHR). Specifically, the Mather APPA conditions:

1. Prohibit new residential development inside the current Board approved 60 CNEL noise contour for MHR.

2. Condition new residential land uses within the APPA boundary but beyond the current Board approved 60 CNEL noise contour for MHR as follows:

    a. Minimum noise insulation to protect persons from excessive noise within new residential dwellings, including detached singe family dwellings, that limits noise to 45 dB CNEL, with windows closed, in any habitable room.

    b. Notification in the Public Report prepared by the California Department of Real Estate disclosing to prospective buyers that the parcel is located within the applicable Airport Planning Policy Area and that aircraft operations can be expected to overfly that area at varying altitudes less than 3,000 feet Above Ground Level (AGL)

    c. Execution and recordation with the Sacramento County Recorder of Avigation Easements prepared by the Sacramento County Counsel's Office on each individual residential parcel contemplated in the development in favor of the County of Sacramento. All avigation easements recorded pursuant to this Policy shall, once recorded, be copied to the Director of Airports and shall acknowledge the property location within the appropriate Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the appropriate airport.

Exceptions: New accessory residential dwellings on parcels zoned Agricultural, Agricultural Residential, Interim Agricultural, Interim General Agricultural, or Interim Limited Agricultural, shall be exempt from the Airport Planning Policy Area's prohibitions.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15

elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to airport compatibility that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

NO-2:

> Proposals for new development within Sacramento County which may be affected by aircraft noise shall be evaluated relative to Table 4: *Land Use Compatibility for Aircraft Noise.* (Table AC 1 below is the excerpt from the General Plan's Table 4 that pertains to mining uses).

Table AC 1: Land Use Compatibility for Airport Noise

Table 4 **Land Use Compatibility for Airport Noise**					
Land Use Designation	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
• Agricultural services	Yes	Yes	Yes[3]	Yes[3]	Yes[3]
• Mining and quarrying	Yes	Yes	Yes[3]	Yes[3]	Yes[3]
• Oil and gas extraction	Yes	Yes	Yes[3]	Yes[3]	Yes[3]

LU-87:

> Because land use decisions around airports by local governments have a direct impact on an airport's long-term viability and utility, proposed new land use projects and land use practices near airports within Sacramento County shall consider consistency with current federal, State, and local airport land use compatibility regulations, orders, policies, plans, standards and guidance pertaining to public safety and minimization of hazardous wildlife attractions within five statute miles of County airports.

Table AC 2 shows an excerpt from the Land Use Compatibility for Airport Safety table in the Land Use Chapter of the General Plan. The footnotes that pertain to mining and quarrying are listed after the table:

Table AC 2: Land Use Compatibility for Airport Safety

Land Use Category	SAFETY ZONES		
	Clear	Approach / Departure	Overflight
PUBLIC AND QUASI-PUBLIC SERVICES			
• Post offices	No	No	Yes[18]
• Government offices	No	No	Yes[15,18]
• Government social services	No	No	Yes[15,18]
• Elementary and Secondary schools	No	No	Yes[9,16,17]
• Colleges and universities	No	No	No
• Hospitals	No	No	No
• Medical and dental laboratories	No	Yes[2,17]	Yes[18]
• Doctor and dentist offices	No	No	Yes[15,18]
• Museum and art galleries	No	No	Yes[15,18]
• Libraries	No	No	Yes[15,18]
• Churches	No	No	Yes[15,18]
• Cemeteries	No	Yes[2,2A,10]	Yes[18]
• Jails and detention centers	No	No	No
• Child care programs (six or more children)	No	No	Yes[15,18]
• Nursing care facilities	No	No	Yes[15,18]
RECREATION			
• Neighborhood parks	No	No	Yes[18,20]
• Community-wide and regional parks	No	No	Yes[17]
• Riding stables	No	Yes[2,12,17]	Yes[18]
• Golf courses	No	Yes[2,2A,11]	Yes[18,19]
• Open space and natural areas	Yes[3,6]	Yes[2,2A,6,12]	Yes[6,18,20]
• Natural water areas	Yes[3,6]	Yes[2,2A,6,12]	Yes[6,18,20]
• Recreation and amusement centers	No	No	Yes[15,18]
• Physical fitness and gyms	No	No	Yes[15,18]
• Camps, campgrounds, and recreational vehicle parks	No	No	Yes[17]
• Dance halls, studios, and schools	No	No	Yes[15,18]
• Theaters - live performance	No	No	Yes[15,17]
• Motion picture theater - single or double	No	No	Yes[15,17]
• Motion picture theater complex - three or more	No	No	No
• Professional sports	No	No	No
• Stadiums and arenas	No	No	No
• Auditoriums, concert halls, and amphitheaters	No	No	No
• Fairgrounds and expositions	No	No	No
• Racetracks	No	No	No
• Theme parks	No	No	No
AGRICULTURAL AND MINING			
• Row and field crops	Yes[3,6]	Yes[2,2A,6]	Yes[6]
• Tree crop	No	Yes[2,2A,6]	Yes[6]
• Intensive livestock	No	Yes[2,2A,6]	Yes[6]
• Nursery products	No	Yes[2,2A,6]	Yes[6]
• Poultry	No	Yes[2,2A,6]	Yes[6]
• Pasture and grazing	Yes[3,6]	Yes[2,2A,6]	Yes[6]
• Agricultural services	No	Yes[2,2A]	Yes
• Mining and quarrying	No	Yes[2,2A,6]	Yes[6]
• Oil and gas extraction	No	No	Yes

Footnote 2: Use is compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24 hour period ending at midnight, not to exceed 50 persons per acre at any time. Note: if entry also refers to footnote 2A, see below.

Footnote 2A: For Sacramento International Airport, use is compatible only if it does not result in a concentration of persona greater than 25 persons per acre at any time or the storage of flammable or explosive material above ground.

Footnote 6: Uses compatible only if they do not result in a possibility that a water area may cause ground fog or a bird hazard.

METHODOLOGY FOR BIRD AIR STRIKE HAZARD EVALUATION

Northwest Hydraulic Consultants prepared a technical study titled Evaluation of Bird-Aircraft Collision Hazards for the Aspen VIII and IX project. Portions of the report are utilized below and the entire report is provided in Appendix AC-1. Northwest Hydraulic Consultants assessed whether the proposed project would significantly increase the potential for bird collisions with aircraft using Mather Airport compared to that which occurs under existing conditions. To evaluate current and future collision risks, Northwest Hydraulic Consultants evaluated regional habitat conditions, existing and post-project land use conditions, and uses of these habitats by potentially hazardous bird species. The analysis then evaluated the frequency of aircraft flights over the project site, height of previous bird aircraft collisions at Mather Airport, and typical heights of hazardous species. This information is then combined to determine the overall bird aircraft collision hazard that currently occurs at the site and that which would occur under the proposed project. These pre- and post- project evaluations are then compared to determine if the project would result in a net change in bird aircraft collision hazard.

REGIONAL HABITAT CONDITIONS

Regional habitat conditions were evaluated using aerial images in Google Earth (www.earth.google.com). Teichert's Geographic Information Systems (GIS) staff also quantified regional abundance of various wetland habitats within the 10,000 foot and 5-mile separation zones around Mather Airport using data from the South Sacramento County Habitat Conservation Plan. The information provided a regional context for comparison with Aspen VIII and IX conditions and for evaluation of potential synergistic effects.

EXISTING ON-SITE HABITAT CONDITIONS AND POTENTIAL BIRD USE

On-site habitat conditions and bird use were evaluated at a general level based on several sources. Wetland habitat acres were a focus of the assessment because of

their potential to attract water birds that are considered hazardous to aircraft. Wetlands were characterized from the assembled regional wetland database, to ensure consistency for comparison with regional characteristics. Results from regional mapping were cross checked with project specific wetland delineation (ECORP Consulting 2014).

Bird use of existing project lands were characterized at a general level for species and species groups identified as hazardous by the Federal Aviation Administration. Relative level of bird population sizes and use (i.e., high, high-moderate, moderate, moderate-low, low-none, none, relative to other regional habitats) were determined based on:

- Habitat conditions observed on-site;
- Biological survey the project site (Burleson 2014) and reconnaissance surveys conducted by Daniel Airola;
- Other related studies of bird use and bird-aircraft collisions risk conducted in the areas of Mather Airport (Airola 2007a, b; Airola and Gibson & Skordal 2009, LSA Associates 2008);
- Review of the California Natural Diversity Database and California Wildlife Habitat Relationships System (California Department of Fish and Game 2007);
- Daniel Airola's personal knowledge of local bird species distribution, abundance, habitat relationships and behaviors, based on 30-years conducting biological work and birding in Sacramento Region, and information for other references (Beedy and Pandolfino 2013 and ebird.org); and
- Eric Lichtwardt's personal knowledge from conducting wildlife hazards assessments at many California airports.

Synergistic Effects from Adjacent Lands

Synergistic effects are defined as those created as a result of project conditions, in combination with other off-site conditions. Effects of existing on-site conditions were evaluated to determine if they could encourage bird flight to and from the site and therefore result in enhanced bird hazards to aircraft. Potential synergistic effects include the presence of nesting or roosting habitat that would attract birds that forage on off-site land or the presence of foraging habitat on-site that would attract birds that roost or nest off-site.

Post Project On-Site Habitats and Bird Use

Existing project land uses and habitat conditions were evaluated during on-site surveys and from biological and wetlands surveys. Post-project habitat conditions were assessed based on information in the mining and reclamation plans and revegetation plan. Relative population levels of bird species and species groups identified as most

hazardous to aircraft were evaluated based on surveys of other mining sites with habitats similar to those at the proposed project (Airola's 2006a, b), extensive field experience in the project region, and general references on avian distribution on habitat relationships in the region (Beedy and Pandolfino 2013, ebird.org).

POST PROJECT SYNERGISTIC EFFECTS FROM ADJACENT LANDS

To assess potential post-project synergistic effects, foraging or roosting conditions on-site were evaluated to determine if they would be expected to increase the number of bird flights to and from the project site that may cross the flight path closer to the runway, which could result in enhanced bird hazards to aircraft.

AIRCRAFT FLIGHT CHARACTERISTICS OVER THE PROJECT SITE

Sacramento County Department of Airports keeps extensive records of aircraft flight paths and elevations because of high public concern about aircraft noise and public safety. Sacramento County Department of Airports originally provided a record of aircraft departure and arrival frequencies, locations, and heights over the project site and other areas during August of 2007. Northwest Hydraulic Consultants contacted Sacramento County Department of Airports and determined that the records from 2007 are still appropriate for analysis.

BIRD-AIRCRAFT COLLISION RECORDS

Bird airstrikes are an ongoing issue at Mather Airport and as a result the County has reported information on individual bird airstrikes to the Federal Aviation Administration's bird airstrike database (http://www.faa.gov/airports/airport_safety/wildlife/). Northwest Hydraulic Consultants used data on bird aircraft collisions collected at Mather Airport during July 2004 to June 2014 to characterize bird aircraft collisions. The data was used to identify species and groups that previously posed hazards to local aircraft and the heights at which the incidents occurred. The data was evaluated to determine the frequencies of recorded strikes that occurred at various heights. The limited nature of this data (number of records, incompleteness of information on species identities, height, etc.) precluded quantitative use, but nonetheless provided information useful in subjectively evaluating hazards.

ANALYSIS OF BIRD AIRCRAFT COLLISION HAZARDS

Evaluations of changes in potential risks of bird aircraft collision were conducted for hazardous species based on existing and post project habitat conditions and resulting bird populations, in combination with information on aircraft flight heights and past information on bird aircraft collisions in the area. The evaluations included assessment of the potential for collisions by birds with aircraft above the project site and elsewhere as a result of synergistic effects.

EXISTING CONDITIONS AND POST-PROJECT HAZARD EVALUATION

Existing bird hazard conditions were characterized based on the relative abundance of species at the project site. Relative abundance was scaled (from high to low) relative to highest abundance of each species' in local habitats and geographic areas. Species relative abundances then become the basis for identifying changes in abundance of hazardous species under the proposed project.

For the post-project evaluation, collision potential was examined for species whose relative abundance of post-project populations either increase or occurred at relative abundance levels of moderate and above. These species were examined in greater detail based on general knowledge of the species' flight heights, to determine which may pose collision potential at the altitudes at which aircraft cross the project site.

NET PROJECT EFFECTS

To assess the net effects of the project, relative abundances of potential hazardous bird species were compared under the pre- and post-project conditions and those for which population levels were likely to increase were identified. These species were then evaluated for their potential to pose a collision hazard to aircraft flying at know heights above the project site, to determine if the project would pose any net increase in aircraft collision hazard.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community. Most of the project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains a nearly two mile partially channelized segment of Elder Creek, which now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. Approximately 27 acres of wetlands have been identified on-site, many of which are associated with irrigation. Tree cover on the project site is sparse due to historic land clearing.

The applicant proposes to mine 353 acres of the 683-acre project site, while maintaining 166 acres of grassland-vernal wetland habitat which will include a 93-acre preserve area to be located near the south-east side of Aspen IX and the Elder Creek floodway (Plate AC-4). The mine depth will be approximately 30-50 feet below the current grade. When mining is completed the site will be reclaimed back to open space grassland.

The preservation component of project mitigation for loss of existing jurisdictional wetlands and other habitats would occur within the on-site preserve areas along Elder Creek and possibly in other unmined lands on-site, while other mitigation to achieve the creation requirements for lost wetland acreage would occur off-site at approved mitigation banks.

When mining and reclamation is completed, the mined site will be below grade. Stormwater from precipitation falling within the mined areas will no longer flow off-site. As such, permanent stormwater retention ponds are proposed at the site. Furthermore, the site will be graded to direct all surface water flows into the retention ponds. The ponds will be constructed as deep, linear ponds with relatively small surface areas and steep banks that discourage bird use (Plate AC-5).

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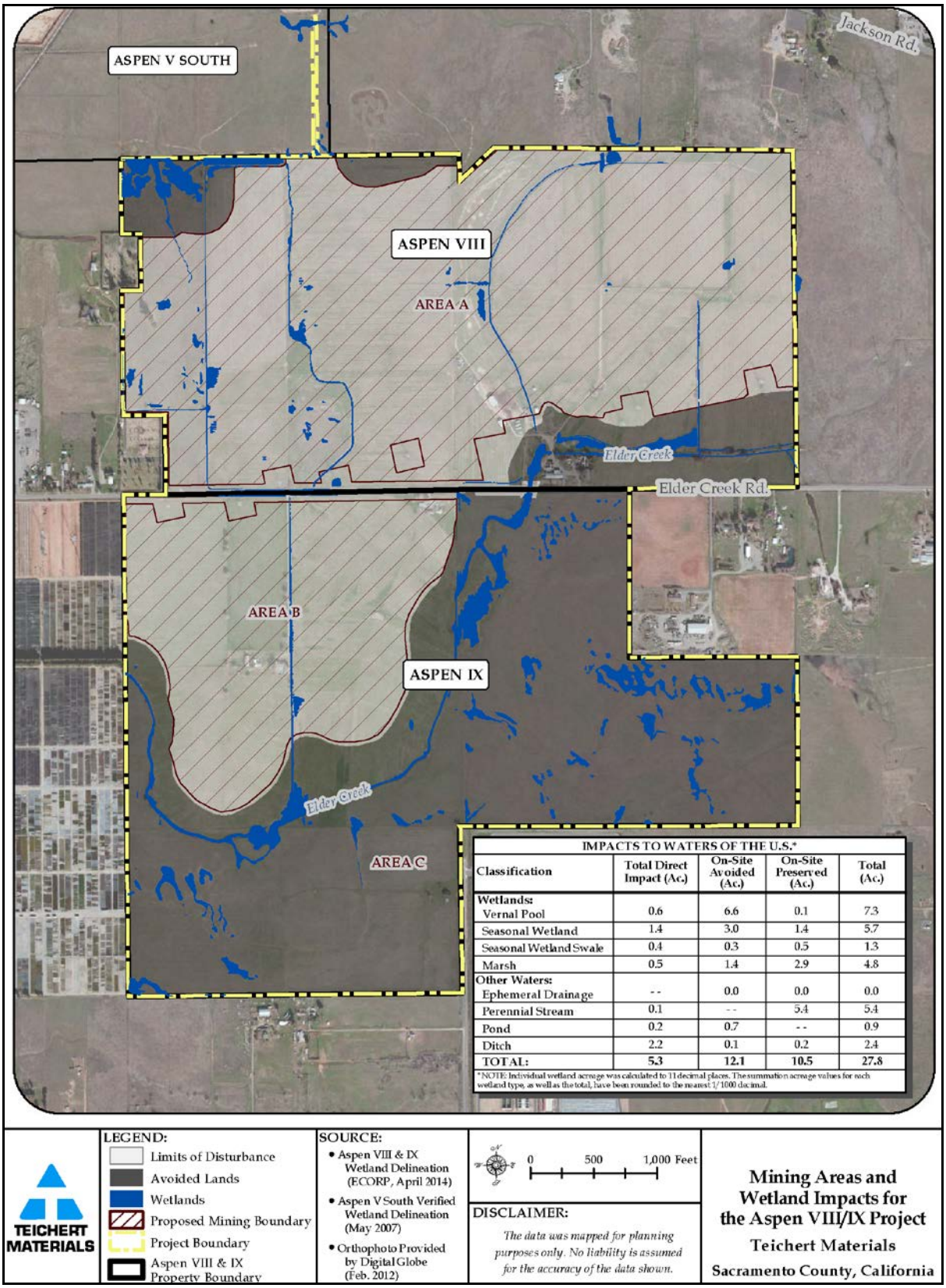

IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	On-Site Avoided (Ac.)	On-Site Preserved (Ac.)	Total (Ac.)
Wetlands: Vernal Pool	0.6	6.6	0.1	7.3
Seasonal Wetland	1.4	3.0	1.4	5.7
Seasonal Wetland Swale	0.4	0.3	0.5	1.3
Marsh	0.5	1.4	2.9	4.8
Other Waters: Ephemeral Drainage	--	0.0	0.0	0.0
Perennial Stream	0.1	--	5.4	5.4
Pond	0.2	0.7	--	0.9
Ditch	2.2	0.1	0.2	2.4
TOTAL:	**5.3**	**12.1**	**10.5**	**27.8**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

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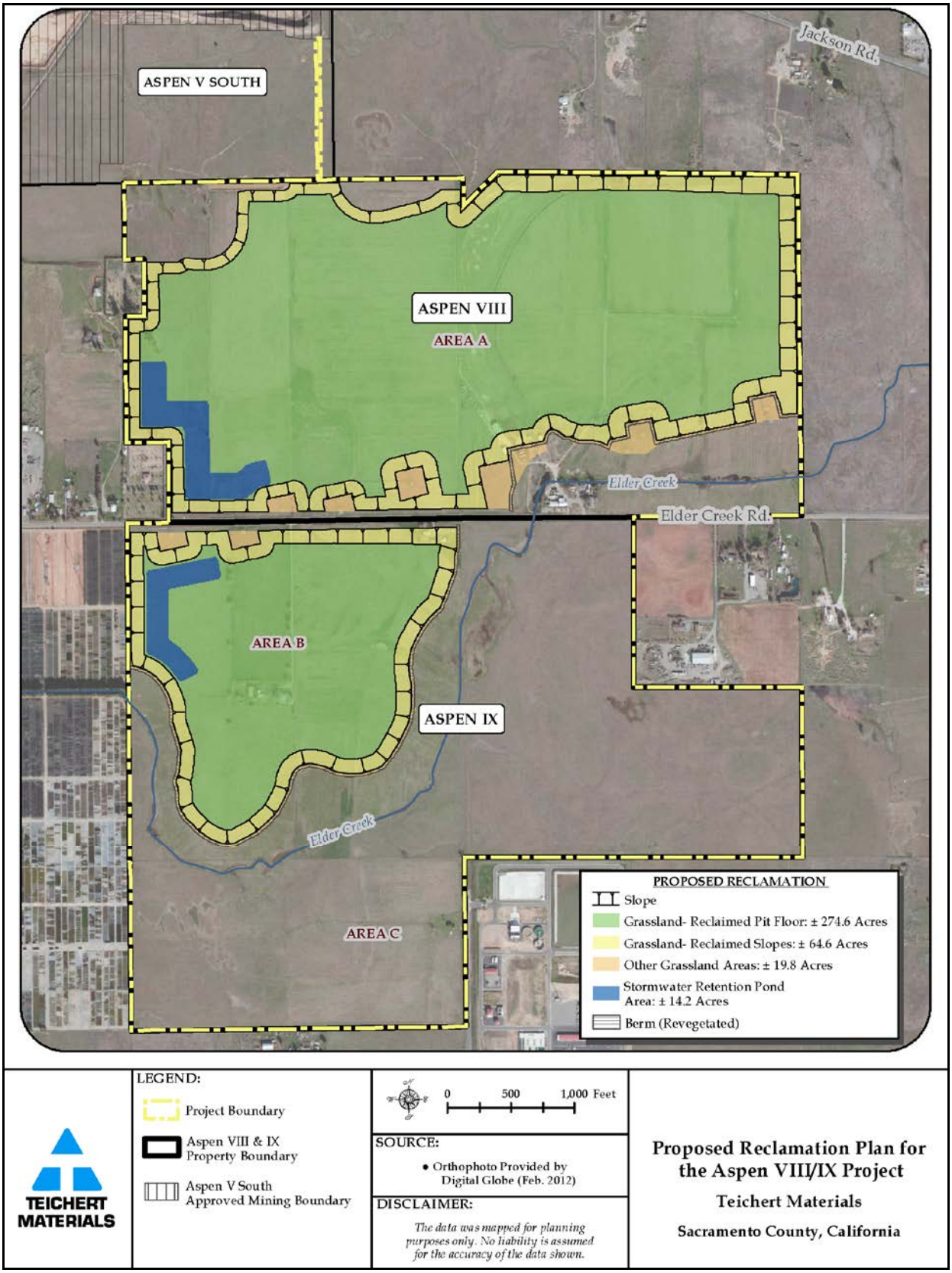
ASPEN V SOUTH
Jackson Rd.
ASPEN VIII
AREA A
Elder Creek
Elder Creek Rd.
AREA B
ASPEN IX
Elder Creek
AREA C
PROPOSED RECLAMATION
Slope
Grassland- Reclaimed Pit Floor: ± 274.6 Acres
Grassland- Reclaimed Slopes: ± 64.6 Acres
Other Grassland Areas: ± 19.8 Acres
Stormwater Retention Pond Area: ± 14.2 Acres
Berm (Revegetated)
TEICHERT MATERIALS
LEGEND:
Project Boundary
Aspen VIII & IX Property Boundary
Aspen V South Approved Mining Boundary
0 500 1,000 Feet
SOURCE:
• Orthophoto Provided by Digital Globe (Feb. 2012)
DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.
Proposed Reclamation Plan for the Aspen VIII/IX Project
Teichert Materials
Sacramento County, California

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Airports, the proposed project would have a significant impact if it:

AC-1: Exposes people residing or working in the project area to aircraft noise levels in excess of applicable standards; or

AC-2: Results in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft; or

AC-3: Results in a safety hazard for people residing or working in the vicinity of an airport/airstrip; or

AC-4: Results in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks, the project is a surface mine that will extract aggregate material from the site. Therefore, AC-4 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation AC-1: Does the project expose people residing or working in the project area to aircraft noise levels in excess of applicable standards?

The project site is located to the south of the Mather Airport runway and is located in both the 50-55 Community Noise Equivalent Level (CNEL) and the 55-60 CNEL noise contours emanating from Mather Airport. Pursuant to General Plan Policy NO-2, mining and quarrying are compatible uses where aircraft noise levels are less than 70 CNEL. By virtue of the project's location, the surface mining use is compatible with the airport noise standards of the General Plan. Therefore, the project would not expose people residing or working in the project area to aircraft noise levels in excess of applicable standards and impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AC-2: Does the project result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft?

Navigable Airspace

The navigable airspace could be impacted if building heights in the project area exceed designated height standards. The Mather Comprehensive Land Use Plan height standards for defining obstructions to air navigation are established by the Federal Aviation Administration are defined in Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. The Mather Comprehensive Land Use Plan further discusses the need for height restrictions as follows:

> Height restrictions are necessary to ensure that objects will not impair flight safety or decrease the operation capability of the airport. Federal Aviation Regulation Part 77 defines a series of imaginary surfaces surrounding airports. Any object or structure which would penetrate any of these imaginary surfaces is considered by the Federal Aviation Administration to be an obstruction of air navigation.

The “imaginary surfaces” for Mather Airport are most restrictive adjacent to the runway and becomes less restrictive further away. The project site is south of the runway; the northern boundary of the project site is near the 248.5 foot height limit and the southern portion of the project area is outside of the 448.5 foot height limit.

The project is a surface mining operation that does not propose to construct any permanent structures much less any structure over 200 feet in height. The project will use construction type trailers as the temporary office and security office at the site. The project will also include the use of electric conveyors to move the aggregate off the site. The electric conveyors are usually no more than five feet off the ground but in some cases the conveyors are raised up to make a pile of aggregate material. When raised the conveyers will not be over 50 feet in height; moreover they will be in the mining pit below grade. Therefore, the project will not result in structures that would affect navigable airspace and impacts are less than significant.

Ground Fog

The project area is located within the Overflight Safety Zone. The proposed use does not conflict with General Plan policy LU-87 in that according to Table AC-1 mining is conditionally compatible in the Overflight Safety Zone. Footnote 6 states; “such use is compatible only if it does not result in a possibility that a water area may cause a ground fog or a bird hazard.” The ground fog and bird hazard discussions are below.

The site contains a total of 27.796 acres of wetlands and water of the U.S; this includes vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, perennial streams, ephemeral streams, ponds and ditch wetland habits. The project will eliminate

5.373 acres of these wetlands; the project will also create drainage basins to control flooding. The drainage basins will be located at the low point of the each mining pit and will be approximately 8,700 feet or 1.75 miles south of the runway. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. Therefore, by virtue of lower elevation, the distance from the runway, and the prevailing winds, the project is not expected to cause any additional adverse ground fog hazards for aircraft.

Bird Airstrike Hazards - Existing Habitat Conditions

The properties that surround the project area are used for commercial nursery operations, agriculture, aggregate mining, rural residential use, and the County's water treatment facility. Wetlands are common features within the area, with over 480 wetland acres present within 10,000 feet and 2,253 acres within 5 miles of Mather Airport (Plate AC-6). The Aspen VIII and IX project site supports 27.7 acres of wetlands and waters of the United States. All of these are capable of supporting open water during wet periods. The majority of the site consists of irrigated pasture used for hay production and livestock grazing. There are 163 trees located on the site; or about one tree per four acres.

The estimated use levels by potentially hazardous bird species are found in Table AC-3. A number of hazardous species and species groups are currently expected to occur at greater than moderate abundance at the project site, relative to their abundance on neighboring lands. Many of the species on-site are more abundant than on surrounding lands due to their preference for irrigated pasture. Eight species were rated as occurring at moderate abundance and ten potentially hazardous species either are unlikely to occur at the project site or would occur at low or low-moderate abundance.

The only current site features that may be contributing to synergistic use of the site (bird attraction from elsewhere) is irrigation (water features on the site) and management of pasture lands. Current irrigation increases production and duration of availability of low green vegetation that likely attracts use by Canada geese, irrigation and growth of hay also increases production of earthworms, insects, and other invertebrates which may attract crows, blackbirds, starlings, and other species, and seeds that are attractive to blackbirds. Irrigation also enhances productivity of the site for rodents (gophers, ground squirrels, voles), and hay cutting makes these species more available and thereby attract raptors.

The existing on-site wetlands are likely too small and scattered to serve as major roosting areas for waterfowl because better sites are available nearby. Similarly, the number of trees is relatively low at the project site and their densities and sizes are similar to those on surrounding lands, so that no substantial attraction of tree nesting species would occur.

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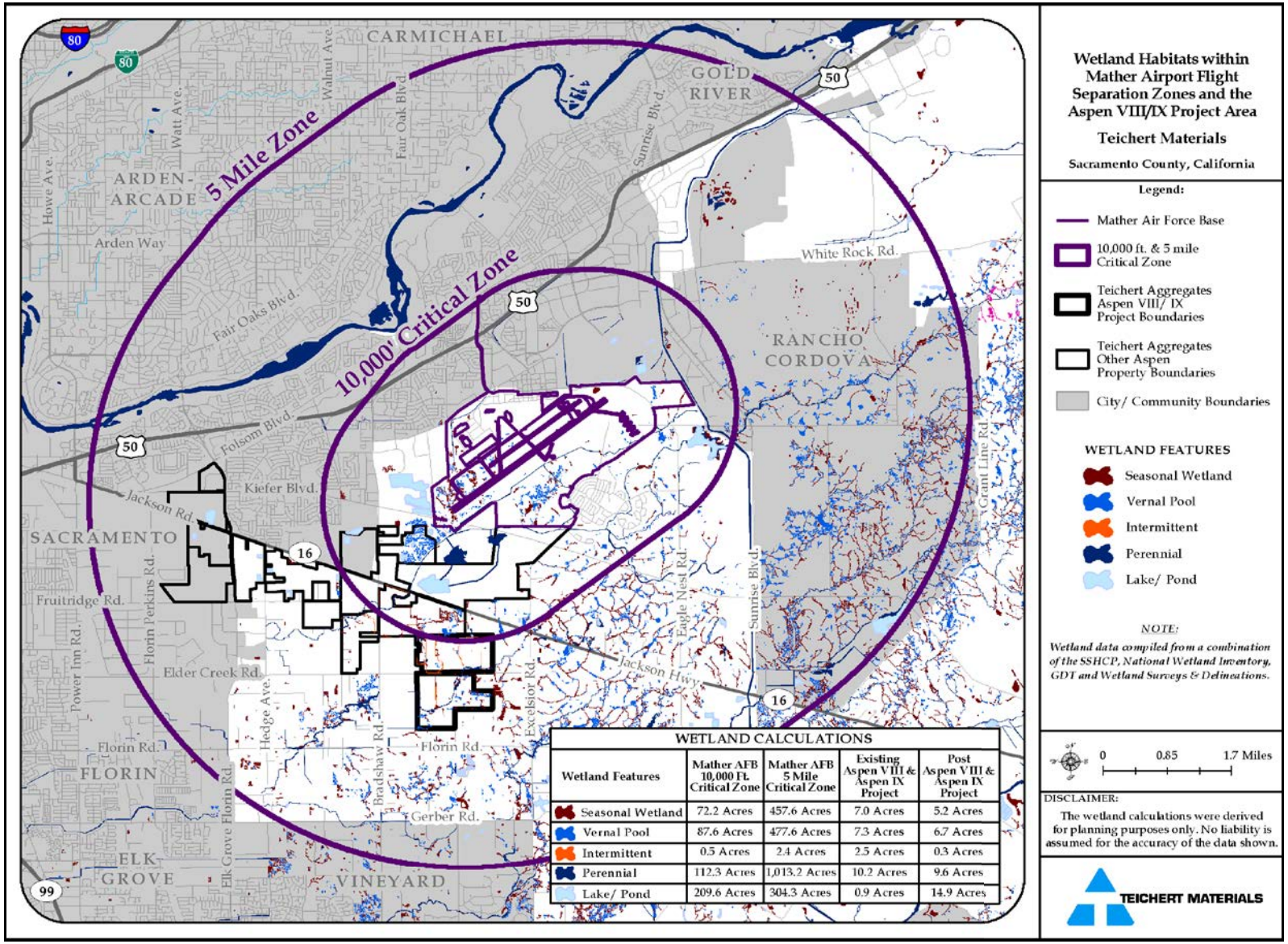


Table AC-3: Use Levels by Hazardous Bird Species

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Turkey Vulture	Moderate	Moderate	No Change	Tree removal may decrease abundance initially by removing roosting habitat (trees), but riparian restoration would at least partly offset this effect over the long-term (>50 years) based on tree age used for roosting (Airola 2011). Foraging habitat likely to remain unchanged due to continued livestock use, although changes in surrounding land uses may reduce populations
Canada Goose	Moderate	Low	Decrease	Irrigated lands are greatly preferred for foraging. Post-project water bodies likely too small for roosting use and too steep-sided and predator prone for nesting use
White Pelican	None	None	N/A	Wetlands under current and post-project conditions are too small for use
Double-crested Cormorant	None-Low	None-Low	No Change	Wetlands under current and post-project conditions are too small for use. Stormwater retention basins would be too small and narrow to support regular use by cormorants.
Sandhill Crane	None	None	N/A	The project site is far from traditional wintering areas where species uses waste grain; habitat not highly suitable for either foraging or roosting
Bald and Golden Eagles	None	None	N/A	Wetlands are too small for Bald Eagle foraging. Too much of surrounding area is converted to development and unsuitable agriculture for Golden Eagle.
Ducks	Moderate	Low-Moderate	Decrease	Irrigated habitat may attract limited numbers of foraging and nesting ducks in wet areas. Seasonal wetlands in annual grasslands likely supports few nesting Mallards. Limited amount of open water in small, linear ponds under post-project condition would maintain use at low levels.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Osprey	None-Low	None-Low	No Change	Water bodies too small to attract nesting or dispersing individuals.
Wild Turkey	Low	Low	No Change	Woodlands are limited under existing and post-project conditions, but irregular use could occur under both.
Ring-necked Pheasant	Low -Moderate	Low	Decrease	Irrigated pasture is not a preferred foraging crop, but hay production likely supports a small population that would nest in weedy areas and annual grassland. Areas of pure annual grassland support few pheasants, due to poor foraging conditions. Increase in post-project annual grassland acreage could slightly reduce populations.
Great Blue Heron and Great Egret	Moderate	Low-Moderate	Decrease	Reduced irrigated pasture would reduce foraging habitat on gophers exposed during irrigation. Wetland acreage decrease also would reduce foraging habitat. Tree removal would reduce potential for nesting, but lack of foraging nearby high quality foraging habitat make nesting use unlikely onsite.
Swainson's Hawk	Moderate-High	Moderate	Decrease	Foraging habitat quality would likely decrease for Swainson’s Hawk due to loss of irrigated pasture and hayfields. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area. Long-term population declines are also possible due to land use changes in surrounding lands
Red-tailed Hawk	Moderate-High	Moderate-High	No Change	Foraging habitat quality would likely would increase slightly for Red-tailed Hawk over the long term by reclamation of pasture and hayfields to annual grassland. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area to support nesting

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Gulls	Moderate-High	Low	Decrease	Foraging habitat quality would decrease substantially with elimination of irrigated agriculture. Roosting habitat is limited or absent on all lands due to low amounts of open water, except after flood events.
Rock Pigeon	Moderate	Low	Decrease	Elimination of some barns and other buildings likely would reduce nesting populations of the Rock Pigeon. Foraging habitat conditions would be reduced through elimination of food sources in hayfields.
Great-horned Owl and Barn Owl	Moderate	Low-Moderate	Decrease	Elimination of irrigated agriculture likely would reduce prey, especially gopher populations, for both species. Loss of buildings would reduce Barn Owl nesting. Tree removal could decrease nesting and roosting use by both species.
Horned Lark	Low-Moderate	Moderate-High	Increase	The species favors short, dry grasslands and disturbed lands. Suitable habitat would increase during mining and subsequent reclamation to grazed annual grassland, but only if grazing occurs at high intensities.
American Crow	Moderate-High	Low-Moderate	Decrease	Forages on earthworms and insects in irrigated agriculture, so use would decrease following elimination of irrigated use.
Common Raven	Low	Low	No Change	Localized and uncommon at low elevations in Sacramento County. Abundance may increase as part of an ongoing population trend, but is unlikely to be affected by changes to the project area.
Mourning Dove	Moderate-High	High	Increase	Hay fields, grazed annual grasslands, and disturbed mining areas all produce seeds and open foraging conditions favored by doves. Tree removal would reduce nesting habitat, but as restored trees mature, nesting habitat would partly recover.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Blackbirds/ European Starling	High	Moderate	Decrease	Elimination of irrigated pasture would likely reduce foraging habitat for Brewer's and Red-winged Blackbirds and European Starlings, and potential nesting habitat for Tricolored Blackbird. Foraging areas in annual grassland for the Tricolored Blackbird would remain.
American Kestrel	Moderate	Moderate	No Change	Change from irrigated pasture and hayfields to grazed annual grassland would not likely change habitat suitability for kestrel foraging. Tree removal during mining would decrease nesting habitat suitability, which would partly recover with maturation of planted trees.
Western Meadowlark	Low-Moderate (breeding) High (wintering)	Moderate (breeding), Moderate (wintering)	Decrease	Irrigated land is likely better foraging habitat for meadowlarks than annual grassland, but annual grassland is better for nesting. Therefore, summer populations would likely increase, while large wintering populations (a greater risk to aircraft) would decrease.
Swallows	Moderate-High	Low-Moderate	Decrease	Production of insect foods would be substantially reduced under non-irrigated post-project condition. Removal of barns and trees would reduce nesting opportunities for the Barn, Cliff, and Tree Swallows
Sparrows	Moderate	Moderate-High	Increase	In the short term, loss of irrigated land likely would reduce cover for sparrows (Song and Savanna Sparrows, Spotted Towhee
Nighthawks	None	None-Low	Increase	Nighthawks are uncommon species, generally restricted to drier rocky areas. They might increase slightly in mined areas prior to reclamation

Post Project Habitat Conditions

The project proponents expect to disturb 383 acres of the 683-acre site. Therefore, mining of the site will alter habitat conditions on approximately 383 acres. The remaining approximately 300 acres will remain undisturbed, including a 93-acre preserve area. The major changes to habitat that would affect bird populations include:

- Elimination of irrigated agriculture (including hay farming, and irrigated pasture grazing),
- A minor reduction in wetland and pond acreage,
- Elimination of certain farmsteads (including buildings and existing trees),
- On-site creation of permanent, steep-sided stormwater retention basin,
- Creation of temporary disturbed areas during mining, and
- Creation of additional non-irrigated annual grassland habitat following mining reclamation.

The proposed project will decrease the existing wetlands and other waters from approximately 27.8 to 22.5 acres. However, a total of 14.2 acres of stormwater detention ponds, designed to minimize wildlife use, will be constructed to serve as on-site stormwater detention basins. The project will, therefore, result in a net increase in the area of wetlands and water by 8.9 acres. The applicant has designed the stormwater detention system to minimize waterbird use. The detention ponds will be:

- Located outside the 10,000 foot separation area from Mather Airport,
- Designed to provide a minimum surface area,
- Narrow and linear in shape to reduce bird security for resting, and
- Steep-sided at all water elevations to discourage wildlife use and shoreline vegetation growth.

There were 26 species and species groups analyzed. The expected change in their abundance is presented in Table AC-4 and their anticipated post-project abundance/use levels are presented in Table AC-5. Only four species are expected to increase post-project while 12 species would decrease, seven species would remain unchanged and three species would have no use. Seventeen species or species groups are predicted to remain at or below low-moderate population levels under post-project conditions. The remaining nine species or groups; the turkey vulture, Swainson's hawk, red-tailed hawks, horned lark, mourning dove, blackbirds and starlings, American kestrel, western meadowlark, and sparrows have the potential to occur at moderate or higher levels and warrant more site-specific analysis of hazard risk that is below.

Table AC-4: Changes in Species/Groups Abundance and Use Levels from Existing to Post-Project

Species/Group Responses	Number of Species/Groups	Percentage of Species/Groups
Increase	4	15
Unchanged	7	27
Decrease	12	46
No Use	3	12

Table AC-5: Post-Project Abundance/Use Levels

Post-Project Relative Abundance	Number of Species/Groups	Percentage of Species/Groups
High	1	4
Moderate-High	3	12
Moderate	5	19
Low-Moderate	5	19
Low	5	19
None-Low	4	15
None	3	12

Of the nine species that have the potential to occur at moderate or greater relative population levels, only four are expected to increase under post-project conditions. They are the mourning dove (post-project abundance high), the horned lark, sparrows, and nighthawks (post-project abundance moderate-high).

Aircraft Activity

A total of 2,250 aircraft departures and 2,154 arrivals occurred from Mather Airport during the August 2007 reference period. Most of the departure flights occur at night, according to the County Airport System. Almost a quarter (23%) of all aircraft departures crossed above the project site while almost three quarters (72%) of those departing flights occurred at heights of 1,000-2,500 feet above the project site and nearly a quarter (24%) occurred above 2,500 feet. Only 3% of departures passed at heights below 1,000 feet.

Most arrivals to Mather Airport approach landings from the northeast. The project parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, flights arriving from the south or southwest may pass over

the project site as they proceed to runway 22. Of the total of 2,154 arriving planes recorded at Mather Airport in August 2007, 135 (6.3%) crossed above the project site. Of these arriving flights that crossed the site, over three quarters (77%) occurred at heights of 1,000-2,500 feet about the project site. No flights passed below 500 feet and only 11% of these flights (less than one per day) passed at heights below 1,000 feet.

The aircraft arrival and departure data show that a moderate proportion (23%) of departing flights and a small proportion (6.3%) of arriving flights from Mather Airport cross over the project site. Departing flights crossed the project area above 1,500 feet 80% of the time. Arriving flights cross the project site less frequently than departing flights but the arriving flights are at lower heights. No planes flew over the project site at heights below 500 feet, and less than one plane per day flew between 500- 1,000 feet.

Mather Airport Airstrike Characteristics

Bird strikes were reported at an average rate of 7 per year (78 collisions per 11 years) from data reported covering the years 2004-2014 (Table AC-6). A majority (68%) of the birds that collided with aircraft were not identified. Larger species such as coots and hawks represented 32% of identified species or groups. Medium-sized species such as killdeer, starlings, meadowlarks, blackbirds represented 28% of the species that collided with aircraft. Finally, smaller species such as swallows, sparrows, pipits, and larks comprised 40% of reported species groups.

Table AC-6: Characteristics of Bird-Aircraft Collisioins Reproted at Mather Airport, 2004-2014

Species Group	Collision Location				% of Identified Groups
	On Ground	In Air	Unknown	Total	
Coots		1		1	4
Hawks	4		3	7	28
Starlings/blackbirds	1	3		4	16
Killdeer	1		2	3	12
Pipits/larks		1	1	2	8
Swallows	4	2	1	7	28
Sparrow		1		1	4
Unknown birds	16	30	7	53	
Total	**26**	**38**	**14**	**78**	100
% of known locations	**41**	**59**			

Bird airstrike information for in-air collisions reported at Mather Airport shows 41% or 26 collisions occurred at ground level and 79% or 50 collisions occurred at an altitude of less than 200 feet (Table AC-7). Only one collision occurred over the 11 year reporting

period at an altitude of 1,000-2,500 feet, the altitude most aircraft cross the project site. Nine percent or five collisions occurred within 200-2,500 feet altitude, while 14% or nine occurred above 2,500 feet. Nearly 70% of collisions occurred during the daytime (**T**able AC-8).

Table AC-7: Characteristics Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014

Bird-Aircraft In-Air Collision Heights in Feet

Height	Number of Collisions	%
0	26	41
>0-200	24	38
>200-500	1	2
>500-1,000	3	5
>1,000-2,500	1	2
>2,500- 5,000	4	6
>5,000	5	8

Table AC-8: Characteristics of Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014 Timing of Collisions

Period	Number of Collisions	%
Daytime	34	69
Dusk/Dawn	9	18
Night	6	12

Net Project Hazard Effects

The net project hazard effects considers hazardous species that occur at greatest abundance relative to surrounding lands and those whose populations would increase from existing to post-project conditions. The evaluation considers the potential for these species to collide with aircraft based on previous bird aircraft collisions and on the altitudes at which planes cross the project site, usually at 1,000-2,500 feet.

Under existing conditions, hazardous species use the project site because of the irrigated pasture habitat, trees, farmsteads, wetlands, some storm flooding events, and other habitat conditions. The current risk of bird aircraft collisions is low at the site because aircraft fly at a high altitude generally over 1,000 feet when crossing the project site and the relative heights at which most hazardous species regularly fly over the project site.

Under post-project conditions, most hazardous species would occur at low to moderate abundances relative to other habitats regionally. It is near impossible to eliminate all hazardous species from using a site a large as the project site. This is due to the fact that regardless of land uses or treatments, certain hazardous species would continue to find the site suitable. Therefore, it is appropriate to evaluate changes in populations,

and associated hazards posed by those species that occur at higher than typical regional populations.

Species of highest post-project relative abundance, those occurring at greater than moderate relative abundance include; horned lark, mourning dove, nighthawks, and various sparrows. Of these species only the mourning dove regularly flies at higher altitudes. If the standard for concern is lowered to populations that would occur at a moderate level, the following would be included; turkey vulture, red-tailed hawk, blackbirds, European starling, American kestrel, and western meadowlark. These species may at least occasionally fly at heights at which aircraft cross the project site. These species are all terrestrial species that are common within surrounding lands with various land uses. Therefore, it does not appear to be practical to significantly reduce their numbers under the post-project conditions.

The elimination of extensive irrigated agricultural lands would reduce the quality and productivity of habitat for many species, and as a result reduce populations of many of the species that pose potential aircraft hazards. On the other hand, the following species are expected to increase in abundance as a result of the proposed project; horned lark, mourning dove, and various sparrow species, and nighthawks. All of these species characteristically fly at low altitudes except during migratory movements.

The proposed project is expected to result in reduced use by a number of hazardous species that fly at high altitudes, including Canadian geese, great blue heron, great egret, gulls, rock pigeons, American crow, shorebirds, blackbirds, European starlings, western meadowlarks, and swallows.

The potential increase in populations of mourning doves which is the hazardous species that frequently flies at aircraft heights above the project site, is expected to be substantially offset by the decrease in use of the site by many species that could be hazardous to aircraft at the elevation at which aircraft cross the site.

Due to the low number of aircraft that depart and arrive at Mather Airport and that nearly all flights cross the project site at about 1,000 feet of altitude. The existing bird aircraft collision hazard level is low because most bird flights occur below 1,000 feet of altitude. The proposed surface mine will reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher altitudes would decline in abundance. The net effect of the proposed project is to reduce the potential for bird aircraft collisions. Therefore, the project's impacts would not result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft. The projects impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

<u>Impact Evaluation AC-3: Does the project result in a safety hazard for people residing or working in the vicinity of an airport/airstrip?</u>

The airport Comprehensive Land Use Plans (CLUPs) define three safety zones; the Clear Zone, Approach/Departure zoned and the Overflight Zone. The Clear Zone is the area at the end of each runway where noise and risk of off-runway accidents are at their greatest. The Approach/Departure zone is the area between the Clear Zone and the overflight zone where aircraft have either just taken off or are preparing to land. The overflight zone is the area where aircraft maneuver to either exit or enter the airport space for landing or take off.

The project site is located partially within the Overflight Zone and is not near the Clear Zone or the Approach/Departure Zone. The Overflight Zone coincides with the area under the Horizontal Surface, but outside of the Clear and Approach/Departure Zones. For Mather Airport, the perimeter of the Overflight Zone is constructed by swinging arcs of 10,000 foot radii from the center of each end of the primary surface of all runway ends and connecting these arcs by lines tangent to these arcs. The Overflight Zone risk of aircraft accidents is the least of the three safety zones.

The project site is located at the outer edge of the Overflight Zone (Plate AC-1) with most of the project area completely out of the Overflight Zone; mining is a compatible use within the Overflight Zone. Moreover, the Overflight Zone only extends approximately 300 feet into the extreme north-east portion of Aspen VIII while all of Aspen IX is completely out of the Overflight Zone. The operators mining the project site as noted above will be located at the extreme edge of the overflight zone when mining operations commence and will soon be completely out of the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport. The impacts of the project are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

8 PUBLIC SERVICES

REGULATORY CONTEXT

FEDERAL REGULATIONS

CLEAN WATER ACT

The 1972 amendments to the federal Clean Water Act prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The Clean Water Act requires National Pollutant Discharge Elimination System permits for stormwater discharges caused by general construction activity. The purpose of the National Pollutant Discharge Elimination System program is to establish a comprehensive stormwater quality program to manage urban stormwater and reduce pollution of the environment as much as possible. The National Pollutant Discharge Elimination System program involves characterizing the quality of receiving water, identifying harmful constituents, targeting potential sources of pollutants, and implementing a comprehensive stormwater management program. National Pollutant Discharge Elimination System permits are issued by the Regional Water Quality Control Board.

SAFE DRINKING WATER ACT

The federal Safe Drinking Water Act established a national program to protect the quality of drinking water available from municipal and industrial water suppliers. The Act established a program requiring compliance with national drinking water standards for contaminants that may have an adverse effect on human health. It also established programs to protect potable groundwater from contamination.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to protect human health and the environment from potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. Under the Resource Conservation and Recovery Act, the United States Environmental Protection Agency (EPA) has the authority to control hazardous wastes from the “cradle to grave”. This includes the generation, transportation, treatment, storage and disposal of hazardous wastes. The Resource Conservation and Recovery Act also sets a framework for the management of non-hazardous solid wastes. In 1986 amendments to Resource Conservation and Recovery Act enabled the EPA to address underground storage tanks storing petroleum and other hazardous substances.

The Resource Conservation and Recovery Act authorized states to develop and enforce their own waste management programs. State programs must be approved and authorized by the EPA.

FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission is an independent agency that regulates the transmission and sale of electricity, natural gas, and oil; licenses and inspects hydropower projects; reviews proposals to build liquefied natural gas (LNG) terminals; and oversees related environmental matters.

STATE OF CALIFORNIA REGULATIONS

URBAN WATER MANAGEMENT PLANNING ACT

Pursuant to California Water Code Sections 10610-10657, as last amended by Senate Bill 318 in 2004, the Urban Water Management Planning Act requires all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 AFA to submit an Urban Water Management Plan (UWMP) to the California Department of Water Resources every 5 years and update the plan on or before December 31 in years ending in 5 and 0. SB 318 is the 18th amendment to the original bill requiring an Urban Water Management Plan, which was initially enacted in 1983. Amendments to SB 318 have focused on ensuring that the Urban Water Management Plan emphasizes and addresses drought contingency planning, water demand management, reclamation, and groundwater resources.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Act requires the California State Water Resources Control Board to adopt water quality control plans and set waste discharge requirements for dischargers into surface and groundwaters. The Central Valley Regional Water Quality Control Board (Regional Water Board) is responsible for administering and enforcing waste discharge requirements, permits, and water quality control plans.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT AND CALRECYLE (FORMERLY THE CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD)

Regulations for solid waste disposal in California began with the enactment of the Solid Waste Management and Resource Recovery Act of 1972. This statute created the Solid Waste Management Board, giving it authority related to solid waste handling, disposal and reclamation.

The Integrated Waste Management Act of 1989 is the result of two pieces of legislation, AB 939 and SB 1322, which created the California Integrated Waste Management Board which has been, renamed CalRecycle. The Integrated Waste Management Act mandated a goal of 25 percent diversion of each city's and county's waste from disposal by 1995 and 50 percent diversion in 2000, with a process to ensure

environmentally safe disposal of waste that could not be diverted. CalRecycle plays a central role of promoting achievement of the waste diversion as mandated by the Act.

CalRecycle is the State agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. They provide grants and loans to help California cities, counties, businesses and organizations meet the State's waste reduction, reuse and recycling goals. CalRecycle promotes a sustainable environment where these resources are not wasted, but can be reused or recycled. In addition to many programs and incentives, CalRecyle promotes the use of new technologies for the practice of diverting California's resources away from landfills. CalRecyle is responsible for ensuring that State waste management programs are primarily carried out through local enforcement agencies. The California Water Resources Control Board and the Central Valley Regional Water Quality Control Board also regulate waste disposal (the latter actually regulated solid waste prior to CalRecycle).

As reported in the CalRecycle 2008 Annual Report, California has exceeded the goals mandated by the Integrated Waste Management Act of 1989 by diverting 58 percent of its waste stream. This accomplishment is in part due to successful partnership between State government, local government, and the solid waste industry in California.

Senate Bill 1016, signed into law on September 26, 2008, represents a fundamental shift in the way local jurisdictions will be measured for compliance with state diversion mandates. Jurisdictions will be evaluated based on the implementation of programs that measure per capita waste disposal, rather than diversion percentage.

CALIFORNIA PUBLIC UTILITIES COMMISSION

The California Public Utilities Commission regulates the design, installation, and management of California's public utilities, including electric, natural gas, water, transportation, and telecommunications. The California Public Utilities Commission also provides consumer programs and information, such as energy efficiency, low income programs, demand response, and California solar initiative for California's energy consumers.

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

In accordance with California Code and Regulations (CCR) Title 8 Sections 1270, "Fire Prevention" and Section 6773 "Fire Protection and Fire Equipment", the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all firefighting and emergency medical equipment.

EMERGENCY RESPONSE/ EVACUATION PLANS

The State of California passed legislation authorizing the Office of Emergency Services (OES) to prepare a Standard Emergency Management System program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with the Standard Emergency Management System could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency or disaster.

LEROY F. GREENE SCHOOL FACILITIES ACT OF 1998

The "Leroy F. Greene School Facilities Act of 1998", also known as Senate Bill No. 50 (SB 50) established a State program to provide per-pupil funding for new construction and modernization of existing school facilities. The passage of Proposition 1A in 1998 allowed SB50 to be fully implemented.

Senate Bill 50 limited the power of cities and counties to require mitigation of school facilities as a condition of approving new development and authorized school districts to assess fees (at various levels) to directly offset the costs associated with increased capacity as a result of new development.

CALIFORNIA GOVERNMENT CODE SECTION 66477

California Government Code Section 66477 (Quimby Act) allows local governments to exact land dedications or fees in lieu for park purposes from new subdivisions. The law prescribes a standard consistent with the circumstances of each park district based on a minimum of 3 acres and a maximum of 5 acres per 1,000 residents. Sacramento County Department of Community Development oversees these requirements in the unincorporated area.

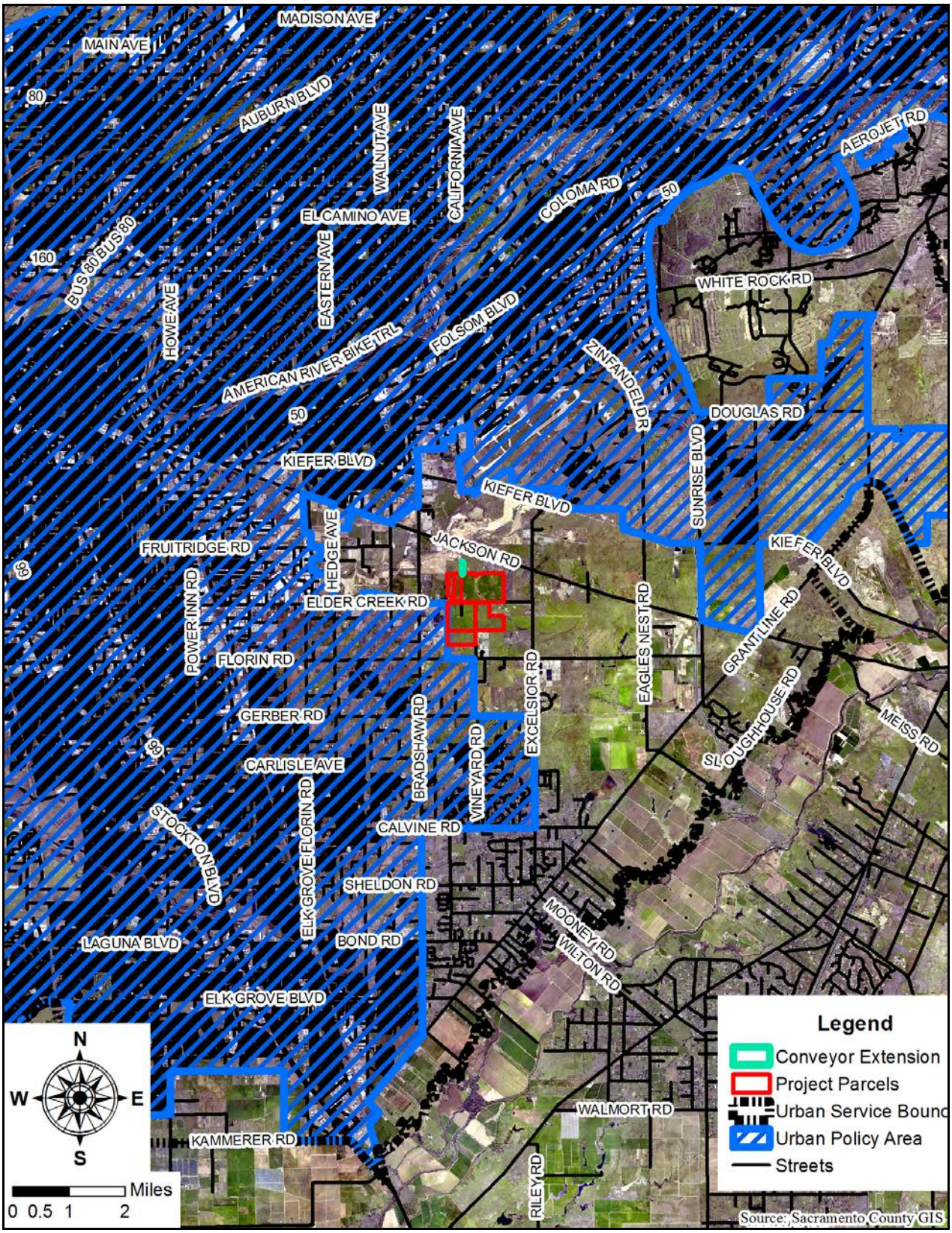
LOCAL REGULATIONS

SACRAMENTO COUNTY URBAN SERVICE BOUNDARY (USB) AND URBAN POLICY AREA (UPA)

The Urban Service Boundary (USB) (Plate PS-1) indicates the ultimate boundary of the urban area in the unincorporated County. This boundary is based upon jurisdictional, natural and environmental constraints to urban growth. It is intended to be a permanent growth boundary not subject to modification except under extraordinary circumstances. The Urban Service Boundary should be used by urban infrastructure providers for developing very long-range master plans that can be implemented over time as the urbanized area expands. It is anticipated that the Urban Service Boundary and construction schedules will be incorporated into master plans for the provision of public services and infrastructure to the urban area.

The Urban Policy Area (UPA) (Plate PS-1) defines the area within the Urban Service Boundary expected to receive urban levels of public infrastructure and services within the planning period. The General Plan states that the area within the Urban Policy Area must be able to accommodate growth projected for the 25-year planning period. If it cannot, the Urban Policy Area must be expanded to accommodate the anticipated growth. Defining the Urban Policy Area is of key importance in the provision of urban services and infrastructure to the unincorporated County, as it provides the geographic basis for infrastructure master plans, particularly for public water and sewerage, which require large capital investment and relatively long lead time for the installation of capital improvements.

Plate PS-1: Urban Service and Urban Policy Area Boundaries



The Urban Policy Area and the Urban Service Boundary are designed to promote maximum efficiency of land uses and protection of the County's natural resources. The Urban Service Boundary allows for the permanent preservation of agriculture and rangelands, critical habitat and natural resources, while the Urban Policy Area concentrates and directs growth within previously urbanized areas, limiting arbitrary and sprawling development patterns. These two growth boundaries work in tandem to manage and direct future development, as well as provide infrastructure and service providers with intermediate and ultimate growth boundaries to use to plan for future expansion.

Sacramento County Department of Waste Management and Recycling

The Sacramento County Department of Waste Management and Recycling (DWMR) is responsible for maintaining a waste management system for residents and businesses in the unincorporated areas of the County. The Department of Waste Management and Recycling has responsibility for residential refuse, recyclable material, and green waste collection, transfer, disposal, and recycling programs. The Department of Waste Management and Recycling also operates Kiefer landfill, the North Area Recovery Station, and the South Area Transfer Station. The Department of Waste Management and Recycling oversees the waste management collection and disposal services for approximately 155,000 residential customers every week. In 2014, the Department of Waste Management and Recycling collected and disposed/processed approximately 128,000 tons of trash, 70,000 tons of green waste, and 37,000 tons of recyclables.

Sacramento County Integrated Waste Management Plan

The County of Sacramento adopted the Sacramento County Integrated Waste Management Plan in March 1996, and it was approved by CalRecycle in May 1998. The plan was reviewed in 2013 as part of a mandatory 5-year review process by the Sacramento County Local Task Force. The Sacramento County Integrated Waste Management Plan was then re-approved by CalRecycle, in May of 2014. This plan consists of the following:

- Siting Element (entire county: cities and unincorporated areas)
- Summary Plan (entire county: cities and unincorporated areas)
- Source Reduction & Recycling Elements (by city or County, respectively)
- Household Hazardous Waste Elements (by city or County, respectively)
- Non-disposal Facility Elements (by city or County, respectively)

These documents are the main sources and references for solid waste facility planning in Sacramento County. The Siting Element and Summary Plan are prepared and administered by the County of Sacramento, Department of Waste Management &

Recycling. The remaining documents are prepared and administered by each individual jurisdiction or regional agency.

SACRAMENTO REGIONAL SOLID WASTE AUTHORITY

The Sacramento Regional Solid Waste Authority is a joint powers authority of Sacramento County and the City of Sacramento. The Solid Waste Authority was formed in December 1992 to assume the responsibility for solid waste, recycling, and disposal needs for businesses and apartment complexes in the Sacramento area. The Solid Waste Authority regulates commercial solid waste collection by franchised haulers and offers recycling services to multi-family dwelling units. The Solid Waste Authority is governed by a Board of Directors consisting of elected officials from the City of Sacramento and the unincorporated area of Sacramento County.

SOLID WASTE AUTHORITY ORDINANCES

The Solid Waste Authority has adopted three recycling ordinances that target three distinct waste streams: (1) The Business Recycling Ordinance, adopted in 2007 for commercial generators who subscribe to 4 cubic yards or more of refuse service per week; (2) The Certification of C&D [Construction and Demolition] Debris Sorting Facilities Ordinance, adopted in 2008, that creates a program for mixed C&D facilities that dovetails with both City and County C&D Ordinances for builders; and (3) The Multifamily Recycling Ordinance, adopted in 2009, that requires owners of multifamily properties with over 5 units to subscribe to a recycling service for their tenants.

LOCAL ENFORCEMENT AGENCY

Local enforcement agencies have the primary responsibility for ensuring the correct operation and closure of solid waste facilities in the state. They also have responsibilities for guaranteeing the proper storage and transportation of solid wastes. The Sacramento County Environmental Management Department (EMD) is authorized as the Local Enforcement Agency under Division 30 of the Public Resources Code and Title 14 of the California Code of Regulations (CCR).

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to public services that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-114:

> Protect stream corridors to enhance water quality, provide public amenities, maintain flood control objectives, preserve and enhance habitat, and offer recreational and educational opportunities.

CO-115:

> Provide setbacks along stream corridors and stream channels to protect riparian habitat functions (Plate PS-2).

- A functional setback of at least 100 feet and measured from the outside edge of the stream bank should be retained on each side of a stream corridor that prohibits development or agricultural activity. This buffer is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates that are known to degrade water quality. This buffer also provides for the protection of vegetation along the stream bank which provides bank stability, erosion control and flood attenuation.

- A transitional setback of at least 50 feet in width beyond the functional buffer should be retained along all stream corridors. This buffer is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. This buffer also provides corridors to facilitate the movement of wildlife.

- An extended setback of at least 50 feet in width beyond the transitional setback should be retained along all stream corridors. This setback will allow for recreational uses such as bike, pedestrian and/or equestrian trails and will allow for the placement of infrastructure such as water and sewer lines.

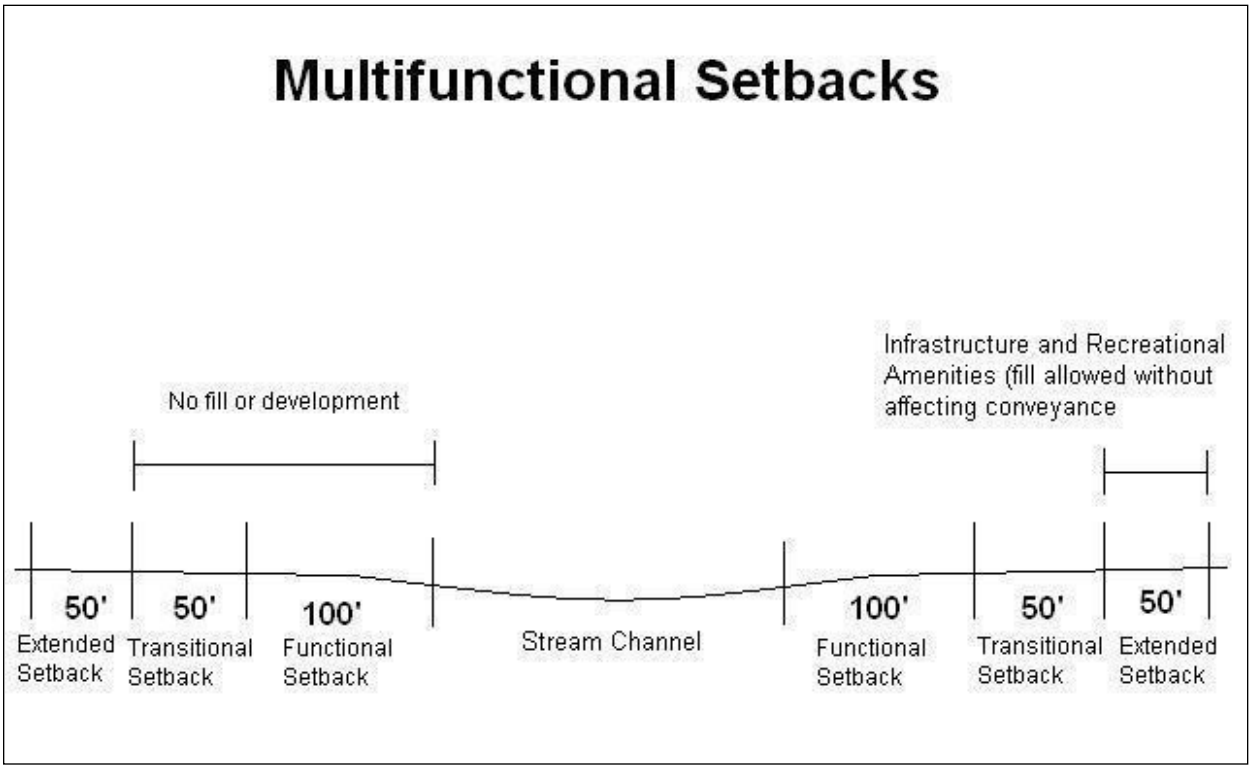
- Stormwater discharge ponds or other features used for improving stormwater quality may be located within the extended or transitional setback area. However, in order to protect stream habitat and floodplain value, the width of the setback shall not be based upon the width of the pollutant discharge pond. The ponds shall be landscaped and maintained with vegetation native to the surrounding area. Detention ponds or other features implementing pollutant discharge requirements, other than approved regional stormwater quality practices that are designed

and operated to complement the corridor functionally and aesthetically, are prohibited.

- Setback averaging within individual development projects or as otherwise specified in a County-adopted master plan will be permitted except when riparian woodland will be lost. The minimum width of setbacks cannot fall below 50 feet.

- Master drainage plans may provide for other standards that meet the intent of this policy.

Plate PS-2: Policy CO-115 Setback Diagram



OS-11:

Establish trail connections and linkages within the County and across jurisdictional boundaries that are compatible with existing land uses. These trail connections shall have the capability of being Class I trails (off-street, separated facilities) with grade separations wherever feasible.

OS-12:

The County shall seek to establish greenbelts to serve as habitat corridors and community separators. These shall be located:

- Between agricultural-residential communities within the unincorporated County; and
- Where feasible, between the unincorporated County and adjacent cities.

PF-120:

The County will work cooperatively with the local recreation and park districts to help assure that the provision of additional parks and recreation facilities keeps pace with urban growth within the County.

PF-121:

The County supports the adoption and implementation of Parks and Recreation Master Plans by local recreation and park districts to establish goals and policies for community-oriented parks and recreation facilities that are consistent with the goals and policies of this General Plan.

PF-122:

To help assure that local recreation and park district Master Plan standards for levels of service may be achieved and maintained, the County may require new development to dedicate land, pay in-lieu fees, development impact fees, or otherwise contribute a fair share to the acquisition and development of parks and recreation facilities. For development in infill areas where land dedication may not be practical, the County in cooperation with the affected park district may explore creative alternatives for providing park and recreation facilities.

CI-1:

Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.

CI-2:

Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.

CI-3:

Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.

CI-4:

Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

CI-5:

Land use and transportation planning and development should be cohesive, mutually supportive, and complement the objective of reducing per capita vehicle miles travelled (VMT).

CI-6:

Provide support for community based corridor planning processes on existing roadways with excess vehicle capacity within built communities to optimize the public right-of-way by utilizing the excess width for other modes of travel or public amenities such as bike lanes, landscaping, walkways, parking, or medians.

CI-13:

Collaborate with regional transportation planning agencies and neighboring jurisdictions to provide cross jurisdictional mobility.

CI-32:

Develop a comprehensive, safe, convenient and accessible bicycle and pedestrian system that serves and connects the County's employment, commercial, recreational, educational, social services, housing and other transportation modes.

CI-33:

Adopt, implement and periodically update the Sacramento County Bicycle Master Plan for unincorporated Sacramento County that sets forth the goals, policies, guidelines, programs and improvements necessary to accomplish the goals of this section.

CI-34:

Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.

CI-35:

The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.

CI-36:

Collaborate with neighboring jurisdictions and regional agencies to coordinate planning and development of the County's bikeways, pedestrian facilities and multi-use trails with those of neighboring jurisdictions, and to support a regional bicycle and pedestrian network.

CI-37:

Pursue all available sources of funding for the development, improvement, and maintenance of bikeways, pedestrian facilities and multi-use trails, and to support bicycle and pedestrian safety, education, encouragement and enforcement programs.

CI-38:

Design and construct pedestrian facilities to ensure that such facilities are accessible to all users.

SOUTHGATE RECREATION AND PARK DISTRICT

The project site is located in the Southgate Recreation and Park District (Southgate). The district serves 52 square miles and includes 47 parks, 6 community centers, two aquatic facilities, a golf course and many pathway and landscape corridors within the district boundary.

Southgate has reviewed the proposed project and has provided comments. They requested analysis to determine how the proposed project conforms to the above General Plan polices, the Sacramento County Bicycle Master Plan, and the Sacramento Area Council of Government’s Regional Bicycle, Pedestrian and Trails Mater Plan.

The Sacramento County Bicycle Master Plan is intended to guide and influence bikeway policies, programs, and development standards to make bicycling in Sacramento County more safe, comfortable, convenient and enjoyable for all bicyclists.

The ultimate goal is to increase the number of people who bicycle in Sacramento County for transportation to work, school, errands, and for recreation.

The Sacramento Area Council of Governments Regional Bicycle, Pedestrian and Trails Mater Plan envisions a complete transportation system that supports healthy living and active communities where bicycling and walking are viable and popular travel choices in a comprehensive, safe, and convenient network.

Currently, Southgate is acquiring means to construct the Elder Creek multi-use trail which is shown on Plate PS-3, downstream of the project site and wishes to have connectivity through the project site. The proposed project offers the opportunity to create, through General Plan Polices, another important interconnected section of the multi-use trial. Southgate has provided a trail standards document that depicts the details of the trail system; the Southgate Trail Standards dated January 13, 2015 and is included in appendix PS-1 Trail Standards. The applicant and Southgate have collaborated on the placement of the multi-use trial easement on the project site. The Southgate multi-use trail easement is depicted on Aspen VIII (Plate PS-5), Aspen VIII multi-use trail details (Plate PS-6), Aspen IX (Plate PS-7), and Aspen IX multi-use trail details (Plate PS-7).

Plate PS-3: Southgate Trails

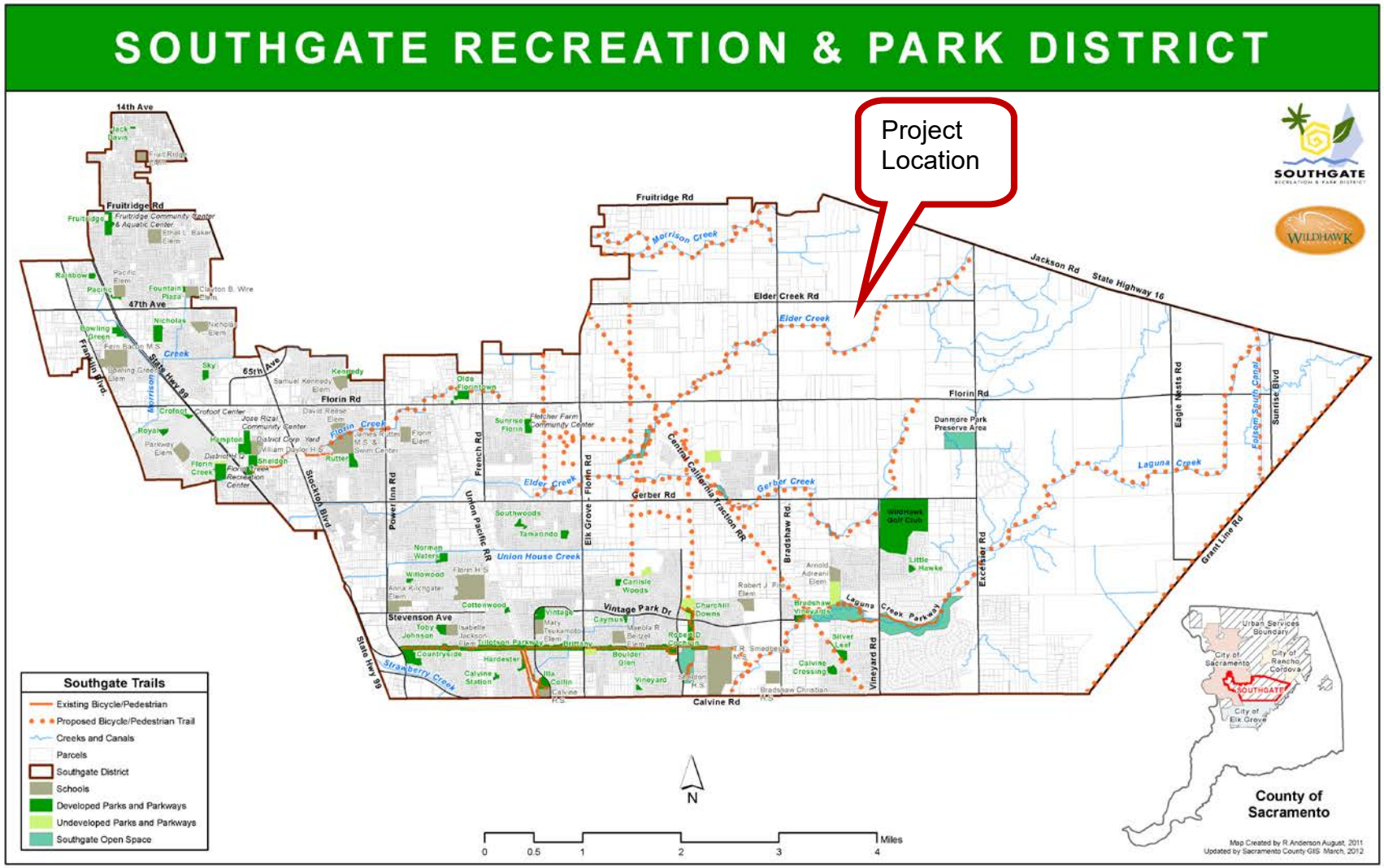


Plate PS-4: Aspen VIII

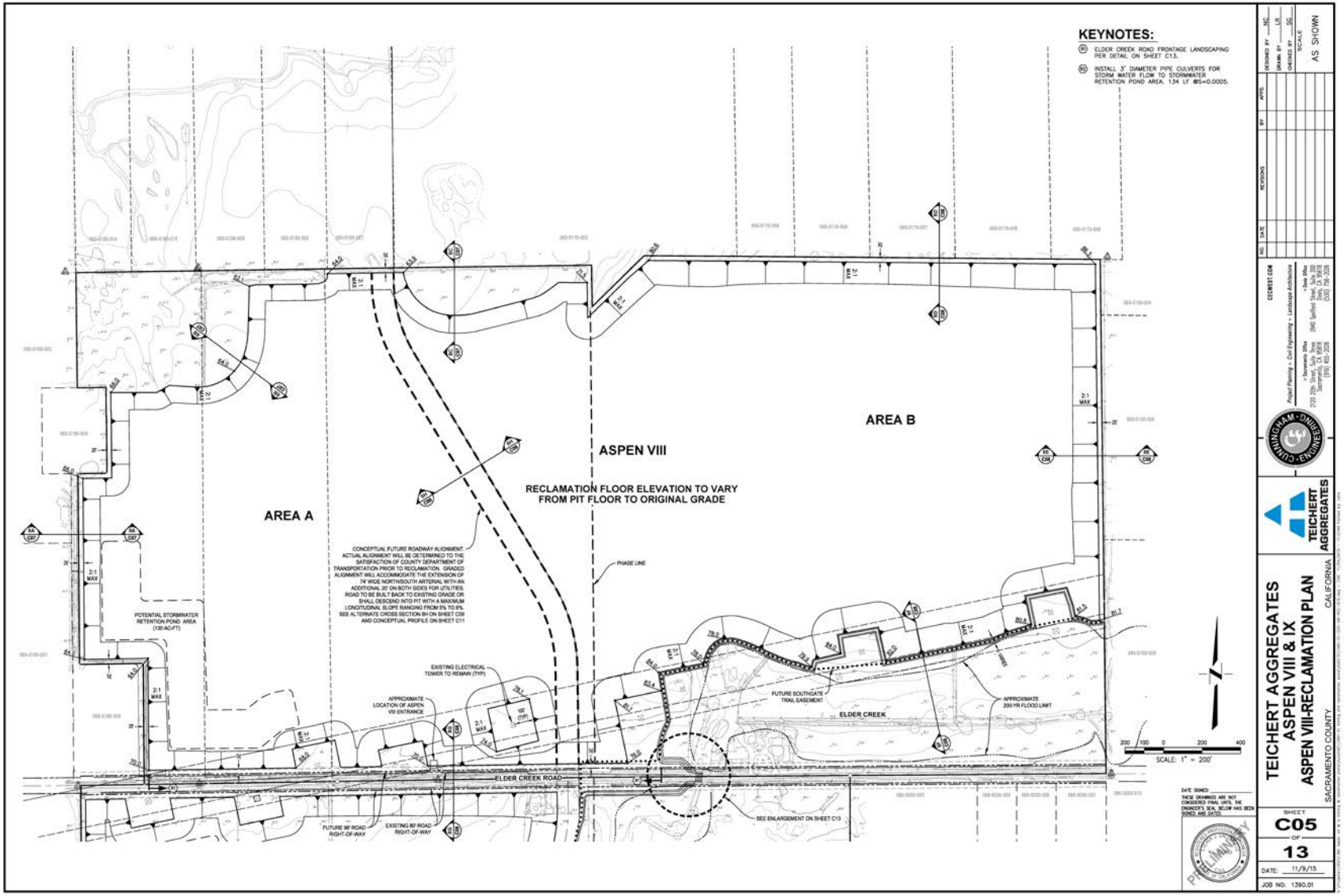


Plate PS-5: Aspen VIII Multi-Use Trail Details

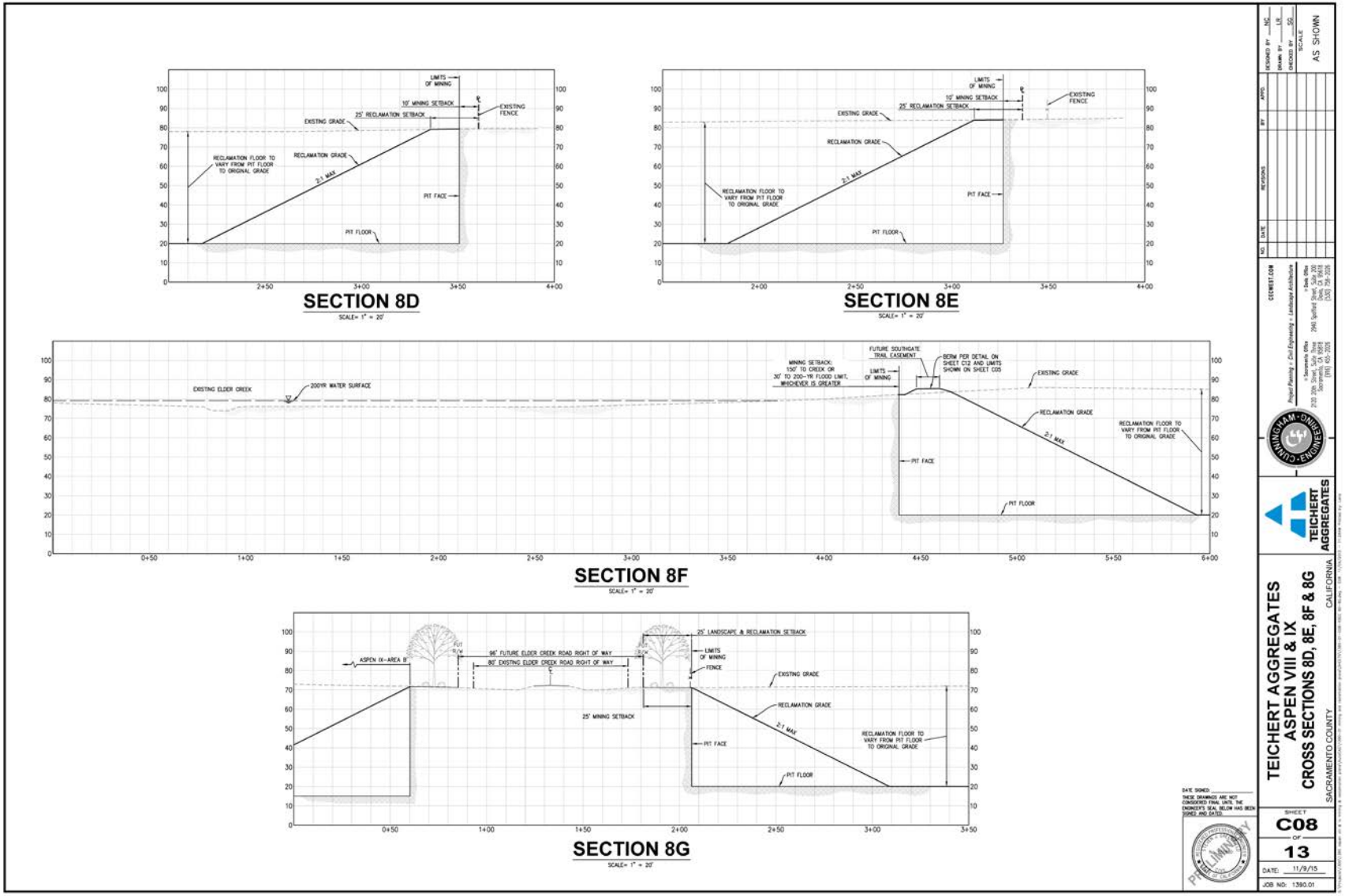


Plate PS-6: Aspen IX

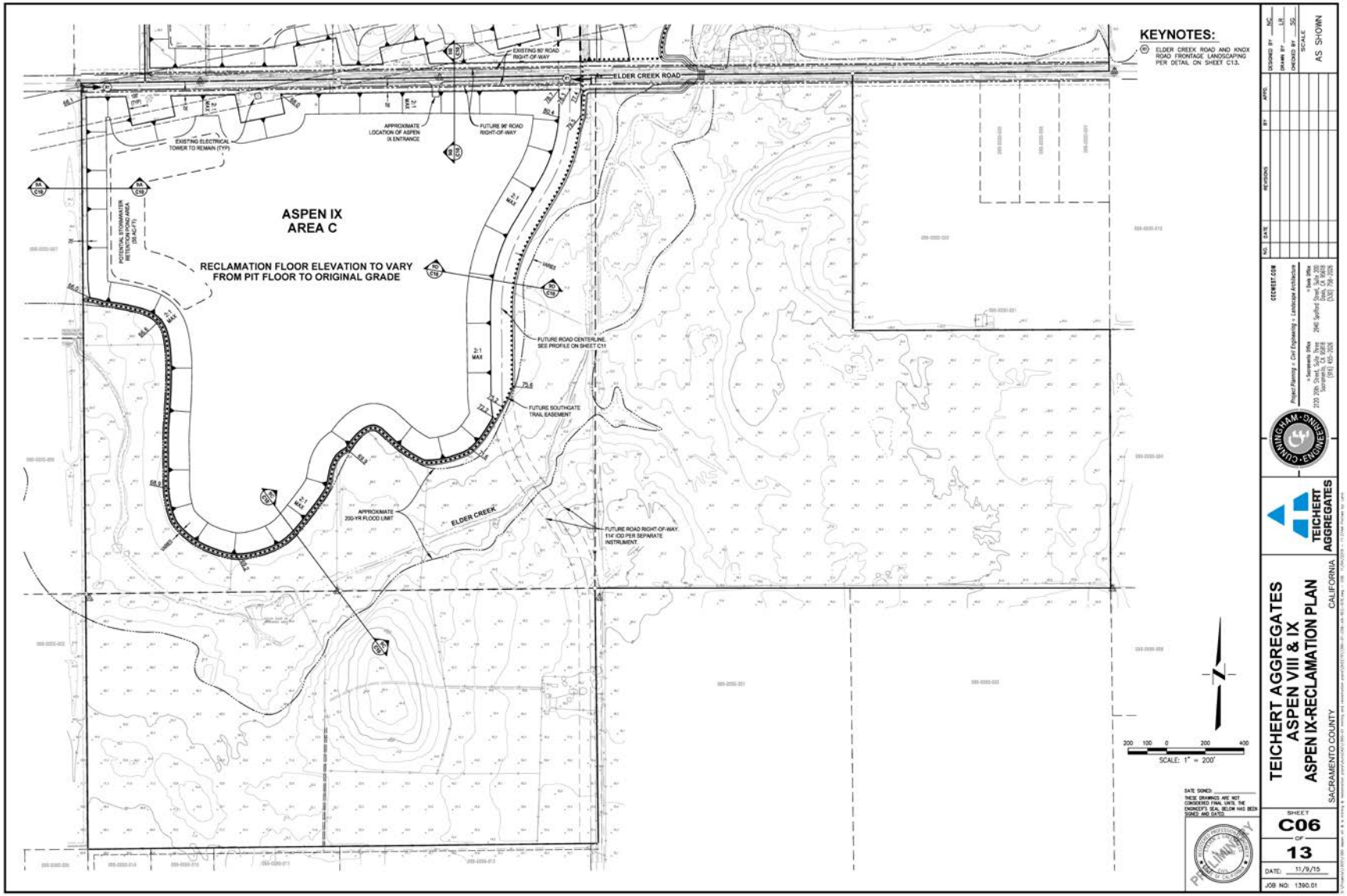
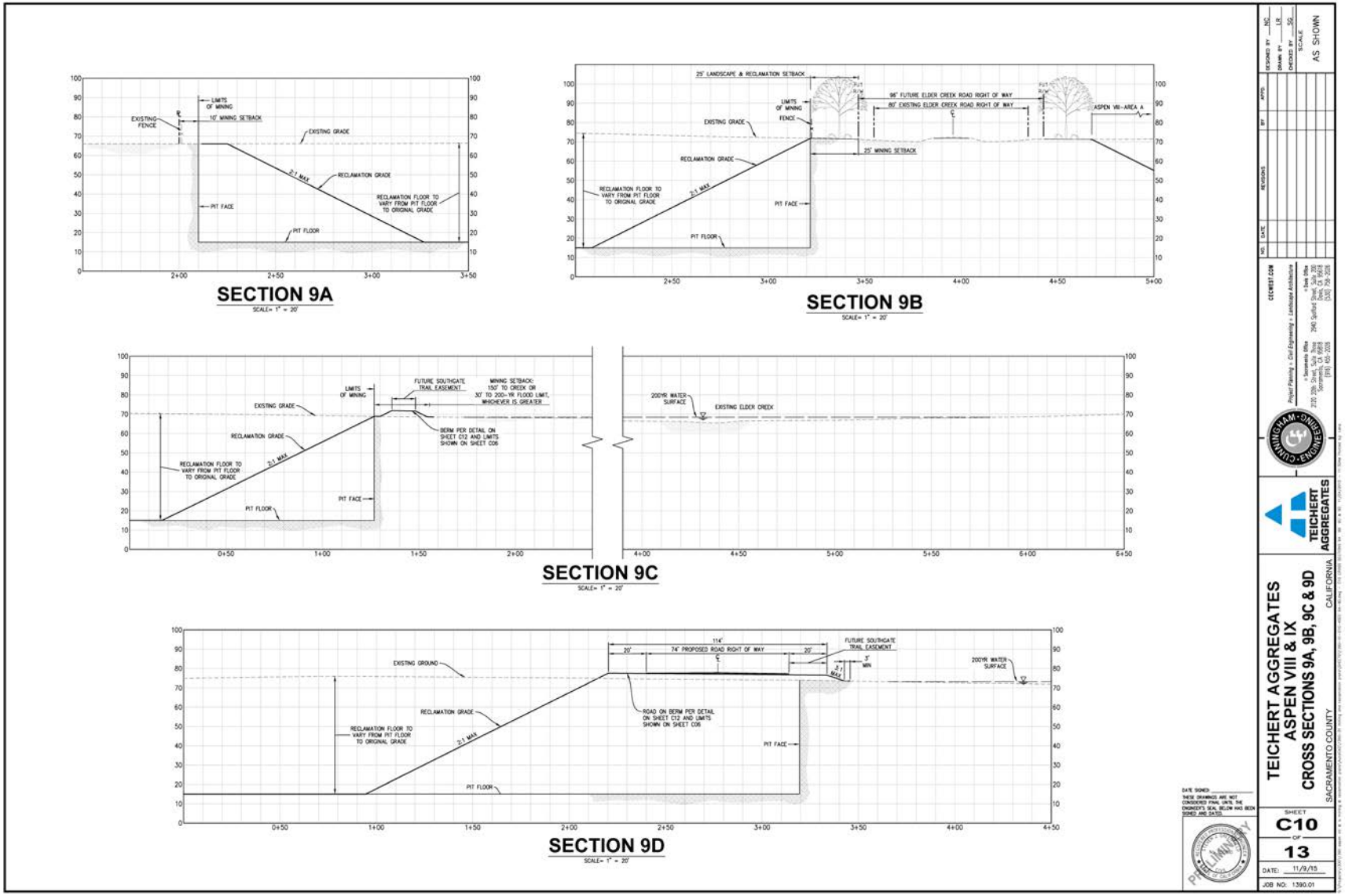


Plate PS-7: Aspen IX Multi-Use Trail Details



ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community and the majority of the project site is currently used as irrigated pasture and rangeland for livestock.

The project site includes three residences that utilize septic tanks for their sewer wastewater and use on-site wells for their domestic water service as well as farm irrigation. The residence located at 10151 Elder Creek Road (063-0160-001) will remain after project implementation while the other two residences will be removed. The residences are also supplied with electrical power via overhead power lines; the existing electrical service is provided by the Sacramento Municipal Utility District (SMUD). The project site is provided with emergency services through the Sacramento Metropolitan Fire District. Southgate Recreation and Park District (Southgate) provides park services for the project area and lastly Environmental Management District (EMD) has jurisdiction over the on-site wells, septic systems and hazardous materials/wastes.

The project site is located within the Urban Service Boundary (USB) but outside the Urban Policy Area (UPA). Moreover, the project site is within active service area of a variety of public utilities and services districts. Service providers were provided an opportunity to review and comment on the proposed project through the Notice of Preparation (NOP) process and through application distribution by Department of Community Development, Planning and Environmental Review Division. The following agencies commented on the proposed project:

- Sacramento Metropolitan Fire District (letter dated January 12, 2015)
- Southgate Recreation and Park District (letter dated May 6, 2015)
- Sacramento Area Sewer District (letter dated January 20, 2015)
- Environmental Management District (EMD) (letter dated January 22, 2015)

FIRE PROTECTION

The project is serviced by the Sacramento Metropolitan Fire District. Staff (M. Olcese) submitted a letter stating that the Fire District does not have any comments or recommendations for conditions of approval for the project.

PARKS AND RECREATION

The project site is located within the Southgate Recreation and Park District (Southgate) service area. Staff (V. King) reviewed the proposed project and submitted comments and conditions of approval for the project. Southgate commented that the District is acquiring means to construct the Elder Creek multi-use trail downstream of the project site. Furthermore, the District requested analysis to demonstrate how the project fulfills the pertinent General Plan policies. The applicant and Southgate collaborated on the placement of the multi-use trail easement within the project site using the General plan polices as a guideline. Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7 show the multi-use trail easement on the project site along with details indicting the width of the easement for the multi-use trail.

SOLID WASTE SERVICE

The project is within the Sacramento Area Sewer District (SASD). Staff (S. Moore) submitted a letter stating that since the project does not involve any additional sewer facilities being constructed or existing facilities being altered; the District has no additional comments or conditions for the project.

ENVIRONMENTAL MANAGEMENT

Sacramento County Environmental Management Department (EMD) regulates the on-site wells, septic tanks, as well as hazardous materials/wastes. Staff (C. Hunley) submitted a letter with comments to preform abandoned well surveys and conditions pertaining to the on-site wells and hazardous materials/waste.

ENERGY SERVICES

Existing electrical service is provided from the Sacramento Municipal Utility District (SMUD). No comment letter has been received to date from SMUD.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Public Services the proposed project would have a significant impact if it:

PS-1: Does not have an adequate water supply for full buildout of the project; or

PS-2: Does not have adequate wastewater treatment and disposal facilities for full buildout of the project; or

PS-3: Is not served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or

PS-4: Results in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities; or

PS-5: Results in substantial adverse physical impacts associated with the provision of storm water drainage facilities; or

PS-6 Results in substantial adverse physical impacts associated with the provisions of electric or natural gas service; or

PS-7 Results in substantial adverse physical impacts associated with the provision of emergency services; or

PS-8 Results in substantial adverse physical impacts associated with the provisions of public school services; or

PS-9 Interferes with adopted plans or results in substantial adverse physical impacts associated with the provision of park and recreation services.

IMPACTS AND ANALYSIS

Impact Evaluation PS-1: Does the project have an adequate water supply for full buildout of the project?

The project will not result in an increase demand for water supply at build out because the end use of the mine is open space grassland. The temporary use of water for dust suppression will be insignificant and is countered by the temporary stop in irrigated agriculture on the project site. The proposed project will utilize water from the on-site

wells for the water needs. Therefore, the proposed project will have an adequate water supply.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-2: Does the project have adequate wastewater treatment and disposal facilities for full buildout of the project?

The proposed project is a surface mining facility. The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities that are commonly referred to as port-o-potties. Furthermore, the current project site utilizes septic tanks and not the County sewer system. Therefore, the project will not require additional wastewater services and will have adequate facilities.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-3: Will the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030. Furthermore, the project will not generate substantial amounts of waste to the landfill. Therefore, the project will not exhaust the capacity of the Kiefer Landfill.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-4: Does the project result in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities?

The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Additionally, the Sacramento Area Sewer District has reviewed the proposed project and determined the project does not impact future sewer projects.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-5: Does the project result in substantial adverse physical impacts associated with the provision of stormwater drainage facilities?

The implementation of the proposed project will add new stormwater facilities to the project site. The new facilities are discussed in greater detail in the Hydrology and Airport Compatibility chapters. The applicant is proposing to construct stormwater detention ponds to serve as on-site stormwater detention basins for the mining pits. The stormwater detention basins will be approximately 14.2 acres in size and at least

one stormwater detention basin will be at each of the proposed mine pits. They will be designed to provide minimum surface area and have steep-sides that will discourage wildlife use and shoreline vegetation growth (see the Airport Compatibility chapter for additional details). The facilities are expected to adequately handle the drainage needs of the project without resulting in substantial adverse physical impacts. Therefore, there are no substantial adverse physical impacts associated with the provision of stormwater drainage facilities.

> Note: Larger culverts will be installed under Elder Creek Road as part of the project. The discussion about the culvert impacts are in the Hydrology chapter of this EIR.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-6: Does the project result in substantial adverse physical impacts associated with the provisions of electric or natural gas service?

Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project, two of the homes will be removed. The applicant is proposing to use temporary structures for an office/employee trailer, security trailer, and an electric conveyor system. The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system. This will not result in an adverse physical impact because the project will not require the addition of substantial electrical power infrastructure at the site. In other words, the project does not require any new construction to the public electrical or natural gas infrastructure but instead may construct a minor extension to serve the mine's electrical needs. Therefore, there are no substantial adverse physical impacts associated with the electric or natural gas service.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-7: Does the project result in substantial adverse physical impacts associated with the provision of emergency services?

The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-8: Does the project result in substantial adverse physical impacts associated with the provisions of public school services?

The project will not require the use of public school services.

Level of Significance: Less than Significant – No Mitigation Required

<u>Impact EvaluationPS-9: Does the project interfere with adopted plans or result in substantial adverse physical impacts associated with the provision of park and recreation services?</u>

The proposed project site is in the Southgate Recreation and Park District (Southgate). The Southgate master trails plan includes a multi-use trail located on the project parcels along Elder Creek. Plate PS-3 shows the proposed multi-use trail in red dots running adjacent to Elder Creek through the project site. The proposed project will excavate two large mining pits at the project site which could severely limit Southgate's ability to place an at-grade trail in a location consistent with the master trails plan.

Southgate has reviewed the proposed project and provided comments. Southgate has requested the multi-use trail be added to the project site plans in order for the project to comply with General Plan polices in regards to trails. Applicable standards for multi-use trails are contained in the Southgate Recreation and Park District, Trail Standards (Appendix PS-1 Trail Standards) and include an easement width of 20 feet, a compacted base rock foundation and paved surface. The grade and slopes of the multi-use trail easement should also be designed to provide for the safe use and safe entry and exit by the public.

Additionally, the Southgate guidelines and General Plan policy CO-115 require setbacks from the stream channel (Elder Creek) to the multi-use trail easement to have a functional setback of 100 feet, a transitional setback of 150 feet, and extended setback of 200 feet. The functional setback of 100 is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates. This buffer also provides for protection of the vegetation along the stream bank which provides bank stability erosion control and flood attenuation. The transitional setback is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. The transitional setback also provides corridors to facilitate the movement of wildlife. Finally the extended setback will allow for recreational uses such as bike/pedestrian (multi-use trail) and/or equestrian trail and will allow for the placement of infrastructure such as water and sewer lines.

The project as proposed includes a 20-foot wide at-grade easement for a future multi-use trail adjacent to the mine boundary and Elder Creek. The proposed trail location is generally consistent with the trail location shown on the Southgate master trails plan. The proposed multi-use trail will be set back from the channel (Elder Creek) by at least 200 feet, consistent with General Plan Policy CO-115. However, the project proposes only a 12-foot wide section of compacted base rock, rather than the 20 feet width specified in Southgate's Trail Standards.

In summary, the excavation of mining pits at the site could preclude Southgate's ability to provide a planned multi-use trail for the area. This impact is considered potentially significant. Although a trail easement is already proposed as part of the project's

reclamation plans, mitigation is recommended to ensure that the easement is in place prior to any on-site excavation and that the area within the easement is structurally appropriate for future trail use after reclamation of the site. With mitigation the impacts are reduced to less than significant.

Level of Significance Before Mitigation: Potentially Significant

PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure

A. Prior to issuance of Work Authorization Permit, the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District.

B. Prior to signoff of the reclamation plan the applicant shall install a 20-foot wide suitably compacted base rock foundation for the multi-use trail along Elder Creek, the grade and slopes of which shall be designed to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be to the satisfaction of Southgate Recreation and Park District.

Level of Significance After Mitigation: Less than Significant

9 TRANSPORTATION AND TRAFFIC

REGULATORY CONTEXT

STATE PLANS, POLICIES, REGULATIONS AND LAWS

The *Guide for the Preparation of Traffic Impact Studies* from the California Department of Transportation (Caltrans) identifies circumstances under which Caltrans believes that a traffic impact study would be required, information that Caltrans believes should be included in the study, analysis, scenarios, and guidance on acceptable analysis methodologies.

If a traffic study is warranted then the roadway operating conditions are needed for the traffic study. Determination of the roadway operating conditions is based on comparison of traffic volumes to roadway capacity. Levels of service (LOS) describe roadway operation conditions. Level of service is a qualitative measure of traffic operating conditions, whereby a letter grade from A to F is assigned with A being the best and F being the worst. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions.

In addition to the guidelines, Caltrans prepares Transportation Concept Reports (TCRs) for each of its facilities. A Transportation Concept Report is a long-term planning document that each Caltrans district prepares for every State highway or portion thereof in its jurisdiction. This document usually represents the first step in Caltrans' long-range corridor planning process. The purpose of a Transportation Concept Report is to determine how a highway will be developed and managed so that it delivers the targeted level of service (LOS) and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept". In addition to the 20-year route concept level, the Transportation Concept Report includes an "ultimate concept", which is the ultimate goal for the route beyond the 20-year planning horizon. Ultimate concepts must be used cautiously, however, because unforeseen changes in land use and other variables make forecasting beyond 20 years difficult.

The standards for Caltrans' facilities in the study area are detailed in the U.S. 50 Corridor System Management Plan and the U.S. 50 Transportation Concept Report. The U.S. 50 Corridor System Management Plan documents the existing route conditions and future needs, including existing and forecasted travel data and a concept level of service standard, addressing mobility needs over the next 20 years. The U.S. 50 Corridor System Management Plan contains the 20-year improvement concept for U.S. 50 and forecasted LOS. For the segment of U.S.

50 within the study area (Folsom Boulevard to Sacramento/El Dorado County Line), the ultimate facility concept is a ten lane freeway with four mainline lanes and one high occupancy vehicle (HOV) lane in each direction. According to this document, the concept service level for this facility is LOS F because improvements necessary to achieve LOS E are not considered feasible due to environmental, right-of-way, financial, and other constraints.

Caltrans considers project traffic increases that cause the freeway level of service to deteriorate beyond the level of service threshold defined in the Transportation Concept Report for the facility to be a significant impact. Since the Transportation Concept Report concept level of service is F, an impact will be considered if the project worsens this condition.

Regional and Local Plans, Policies, Regulations and Laws

Metropolitan Transportation Plan for 2036

The Metropolitan Transportation Plan (MTP) is a long range planning document for identifying and programming roadway improvements throughout the Sacramento region. The current MTP is the 2016 Metropolitan Transportation Plan/Sustainable Communities-Strategy (MTP/SCS) which was adopted by the Sacramento Area Council of Governments (SACOG) in February 2016. The 2016 MTP/SCS, prepared in coordination with cities, counties, and other public agencies in the SACOG region, is a long-range transportation plan and sustainable communities strategy to serve existing and projected residents and workers within the Sacramento region through the year 2036. The 2016 MTP/SCS accommodates another 811,000 residents, 439,000 new jobs, and 285,000 new homes with a transportation investment strategy of $35 billion. SACOG is required under federal and state law to update the MTP/SCS every four years. The 2016 MTP/SCS is an update to the first MTP/SCS adopted by SACOG in 2012, and focuses on the refinement and implementation of the 2012 plan. The 2016 MTP/SCS and the associated EIR cover the area within the counties of Sacramento, Yolo, Yuba, Sutter, Placer and El Dorado (excluding the Lake Tahoe basin).

Sacramento County Department of Transportation

The Sacramento County Department of Transportation's (SacDOT) Traffic Impact Guidelines (July 2004) define the significance thresholds for traffic and circulation impacts in the County. Sacramento County defines the minimum acceptable operation level for its roadways and intersections to be LOS D for rural areas and LOS E for urban areas. The urban areas are those areas within the Urban Service Boundary (USB) as shown in the Land Use Element of the County General Plan. The areas outside the USB are considered rural.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to Traffic/Transportation that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CI-8:

> Maintain and rehabilitate the roadway system to maximize safety, mobility, and cost efficiency.

CI-9:

> Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

CI-10:

> Land development projects shall be responsible to mitigate the project's adverse impacts to local and regional roadways.

Environmental Setting

Existing

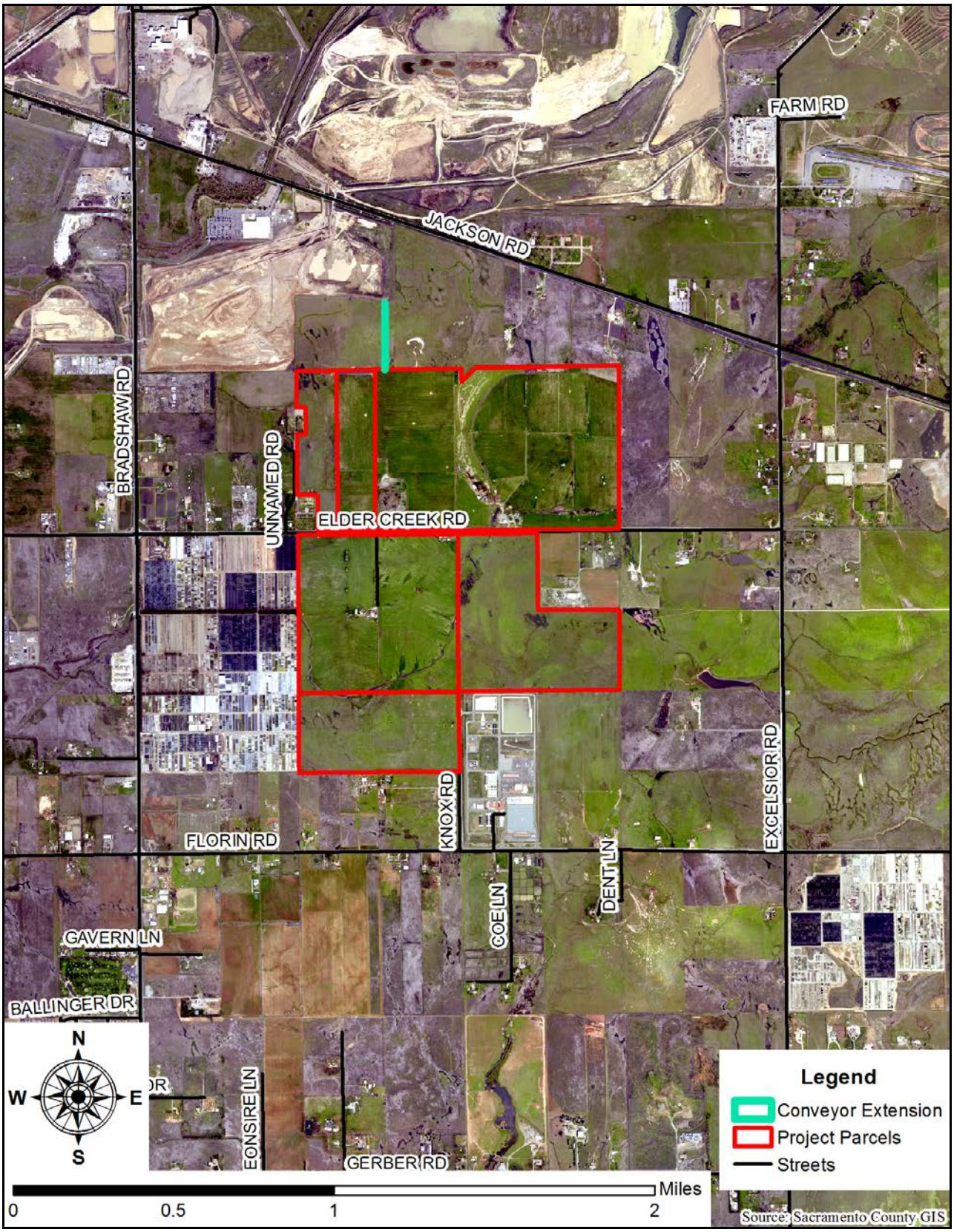
The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Road (State Route 16) and approximately one-half mile east of Bradshaw Road (Plate TT-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of

Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The applicant proposes using heavy duty haul-trucks to remove overburden material which is the top five to ten feet of topsoil/clay/silt that overlies the sand and gravel aggregate deposit from the site. The topsoil will be separated from the overburden and stockpiled for reclamation of the project site; the overburden will also be stockpiled at the site and on Aspen V South located directly north of proposed Aspen VIII. The overburden needs to be removed prior to extraction of aggregate material. The applicant anticipates a maximum of 500,000 cubic yards of overburden material to be transported off-site via haul-trucks. The overburden haul trucks will transport the overburden to the Aspen V South site located directly north of the Aspen VIII site. The overburden haul route is slightly less than a two mile round trip. Moreover, the overburden haul will not be conducted upon the County roadway system.

The mined aggregate material will be transported off-site via an electric conveyor system. Access to the site will be provided via entrance driveways located on Elder Creek Road. Both Aspen VIII and IX will each have an entrance driveway. Aspen VIII will have a sinuous driveway that will aid in eliminating tracking out of mud and other materials onto the County roadway system. The applicant estimates that seven employees will be required for mining operations.

Plate TT-1: Location Map



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Transportation/Traffic the proposed project would have a significant impact if it:

TT-1: Results in substantial adverse impact due to inadequate parking capacity or;

TT-2: Conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks) or;

TT-3: Results in a substantial adverse impact to public safety on area roadways or;

TT-4 Results in a substantial increase in peak hour vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County or;

TT-5 Results in a substantial adverse impact to access and/or circulation.

IMPACTS AND ANALYSIS

Impact Evaluation TT-1: Does the project result in substantial adverse impacts due to inadequate parking capacity?

The project is a surface mining operation and no new parking facilities are required. There will be a limited number of mine employees and parking for employee vehicles may be near the temporary employee and security trailers. A purpose built permanent parking lot is not required for this project. The project is temporary and the nature of mining operations does necessitate the need for permanent parking facilities as the mining operation moves on the site. Some of the employee parking will move along with the mining operations. The site is over 600 acres in size and adequate parking should not be an issue for the small amount of employees (less than ten employees) commuting to the site. Therefore, the project impacts to inadequate parking capacity are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-2: Does the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?

There are no conflicts with adopted policies, plans, or programs supporting alternative transportation that have been identified. The project is not a development that attracts customers to the site. Only a limited number of employees (less than ten) will access the site on a daily basis. The proposed project does not need additional bus turnouts or bicycle racks. Furthermore, there are no conflicts with adopted polices supporting alternative transportation. Therefore, the projects impacts to adopted policies and plans supporting alternative transportation are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-3: Does the project result in a substantial adverse impact to public safety on area roadways?

The project will not substantially impact public safety on the roadway. There will be approximately ten employees who will commute to the site for employment. This small amount of increased employee traffic should not pose a safety threat on the public roads. The proposed project includes heavy equipment for excavating the site and haul trucks to remove the overburden. The aggregate materials will be removed from the site via an electric conveyor system. The heavy equipment may be brought to the site via public roads and the number of deliveries will be limited because the equipment will operate on the site for some time. In some cases, the heavy equipment will be transferred to the site via internal access roads from the neighboring mines and not on the public roadway. The overburden haul trucks will not operate upon the County roadway system to haul overburden. The overburden will be hauled to Aspen V South which is located directly north of proposed Aspen VIII site. The overburden haul route is less than two miles and will utilize internal access roads and not the public roadway. Therefore, the project will not result in a substantial adverse impact to public safety on area roadways; the impact is less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-4: Does the project result in a substantial increase in peak hour or daily vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County?

In Sacramento County, the Level of Service standards are defined by Sacramento County General Plan Circulation Element Policy CI-9. According to this policy, an acceptable Level of Service is E on urban roadways. Level of Service (LOS) is a term that describes the operating performance of an intersection or roadway segment. LOS is reported on a scale from A to F, with A representing the best and F representing the worst performance. If a proposed

project would cause a roadway currently operating at an acceptable LOS to decline to an unacceptable LOS, impacts are significant. If a roadway is already operating at an unacceptable LOS and a project increases traffic by more than 5% (referred to as a volume-to-capacity increase of 0.05), then the impact is also significant.

Sacramento County Department of Transportation (SacDOT) has developed a screening methodology to help determine whether it is likely that a project will exceed these significance thresholds. The potential traffic generated by the proposed project is compared with the existing (developed or undeveloped) use and/or existing zoning. Zoning is typically used in this screening to approximate ultimate build-out in accordance with the General Plan, because ultimate roadway configurations are based on full build-out of the County in accordance with the existing General Plan. If a project would produce more traffic than existing zoning, ultimate General Plan roadway configurations may not be designed to accommodate the traffic.

The screening methodology indicates that if a proposed project is expected to increase PM peak hour vehicle trips by 100 or more, or daily trips by 1,000 or more, over existing use or existing zoning of the subject property, a detailed traffic study is required to further analyze impacts. Even if a project does not meet the screening thresholds, SacDOT may request a traffic study if there are localized traffic hazards or other system constraints. SacDOT staff has reviewed the project and provided comments and recommended conditions of approval for the staff report. The applicant anticipates ten employees will report to the project site for work. The new peak hour trips generated from ten employees will be less than 100, and therefore would not necessitate a traffic study. The amount of traffic generated by the ten employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips. Therefore, the project's impacts to peak hour trips or daily trip-ends are less than significant.

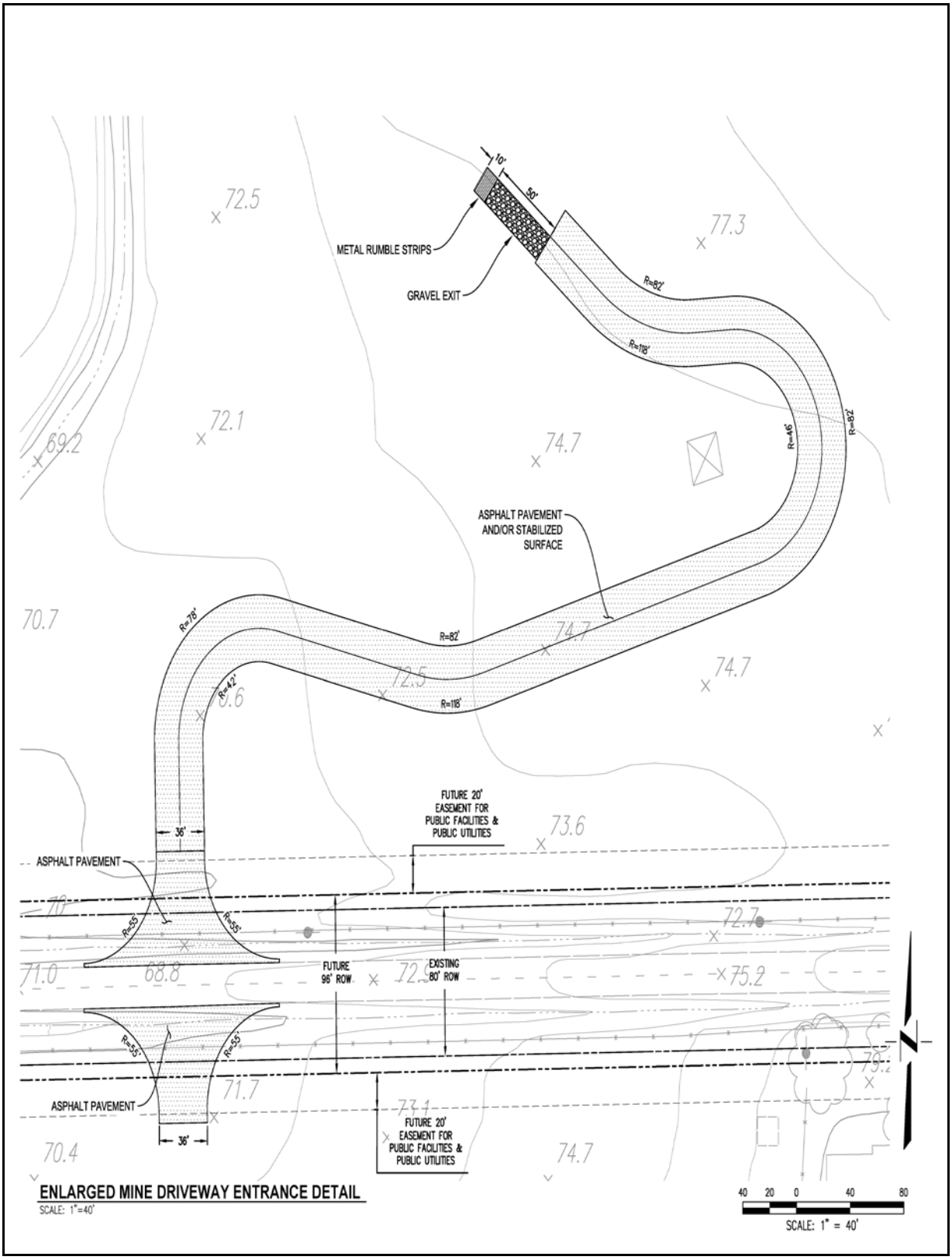
Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-5: Does the project result in a substantial adverse impact to access and/or circulation?

Access

The applicant is proposing to construct access driveways on both Aspen VIII and IX from Elder Creek Road (Plate TT-2). Elder Creek Road carries relatively light traffic volumes of about 2,200 vehicles per day. The access driveways will be where employees gain entrance and egress to and from the project site. No overburden haul trucks will use the entrances to access the County roadway system to haul overburden, instead the overburden haul trucks will haul the overburden along internal access roads to the mine located directly north of Aspen VIII. This

Plate TT-2: Access Driveways



internal haul route is slightly less than a two mile round trip. Furthermore, no aggregate haul trucks will access the County roadway system via the access driveways because all the aggregate material will be conveyed via an electric conveyor system to an existing processing plant located off-site.

The proposed project will construct access driveways on both sides of Elder Creek Road. As stated above the access driveways will be used by the employees and to a limited extent the arrival of heavy equipment and other delivery's and supplies. These access driveways are not a substantial deviation to present circulation pattern.

Circulation

The Circulation Element of the Sacramento County General Plan includes a Transportation Plan – a planned network of major roadways to serve the County's needs throughout the General Plan planning period. Knox/Vineyard Road is shown on the County's Transportation Plan at the project site location. PlateTT-3 shows the County-wide Transportation Plan and Plate TT-4 shows a close up of the project area indicated by a green square and the future Knox/Vineyard Road shown as a blue dashed line going through the project area in a north/south direction. Knox/Vineyard Road is to be an arterial with four lanes and is proposed for post 2030. This future roadway will provide north/south circulation to the County's roadway system. The proposed project will excavate two large mining pits at the project site which could limit Sacramento County's ability to place the future roadway consistent with the County's Transportation Plan.

The project applicant has worked with the Sacramento County Department of Transportation (SacDOT) in placing the future roadway on their site plans in a manner intended to achieve a roadway that is safe for the public to use. On the Aspen IX portion of the project site the roadway will be at the current grade and located near the eastern edge of the mine pit. The road portion on Aspen VIII will either be located down in the pit below the current grade or the roadway will be elevated to near the existing grade. SacDOT will determine which configuration the final roadway will ultimately take. Moreover, the proposed Knox/Vineyard Road will extend in a northerly direction from the existing Knox Road located south of the Aspen IX portion of the project site at Florin Road. The Knox/Vineyard Road will traverse through Aspen IX and Aspen VIII and terminate at Jackson Road (Hwy 16); an intersection for the new roadway will be created where the new road crosses Elder Creek Road. Plate TT-6 shows Knox/Vineyard Road on the Aspen VIII portion of the project site; Plate TT-7 shows Knox/Vineyard Road on the Aspen IX portion of the project site. Finally, Plate TT-8 shows the details of the roadway.

PlateTT-3: Sacramento County Transportation Plan

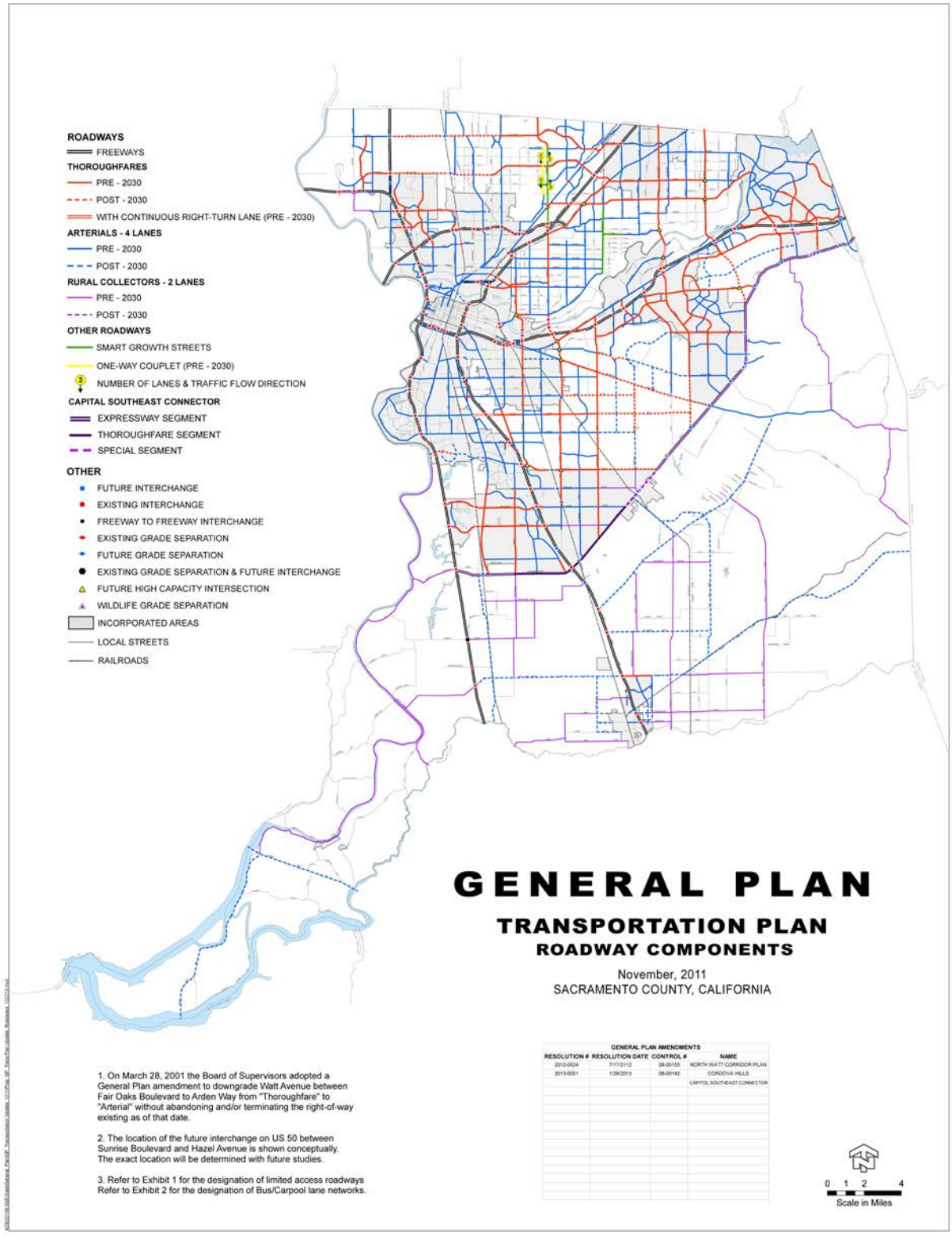
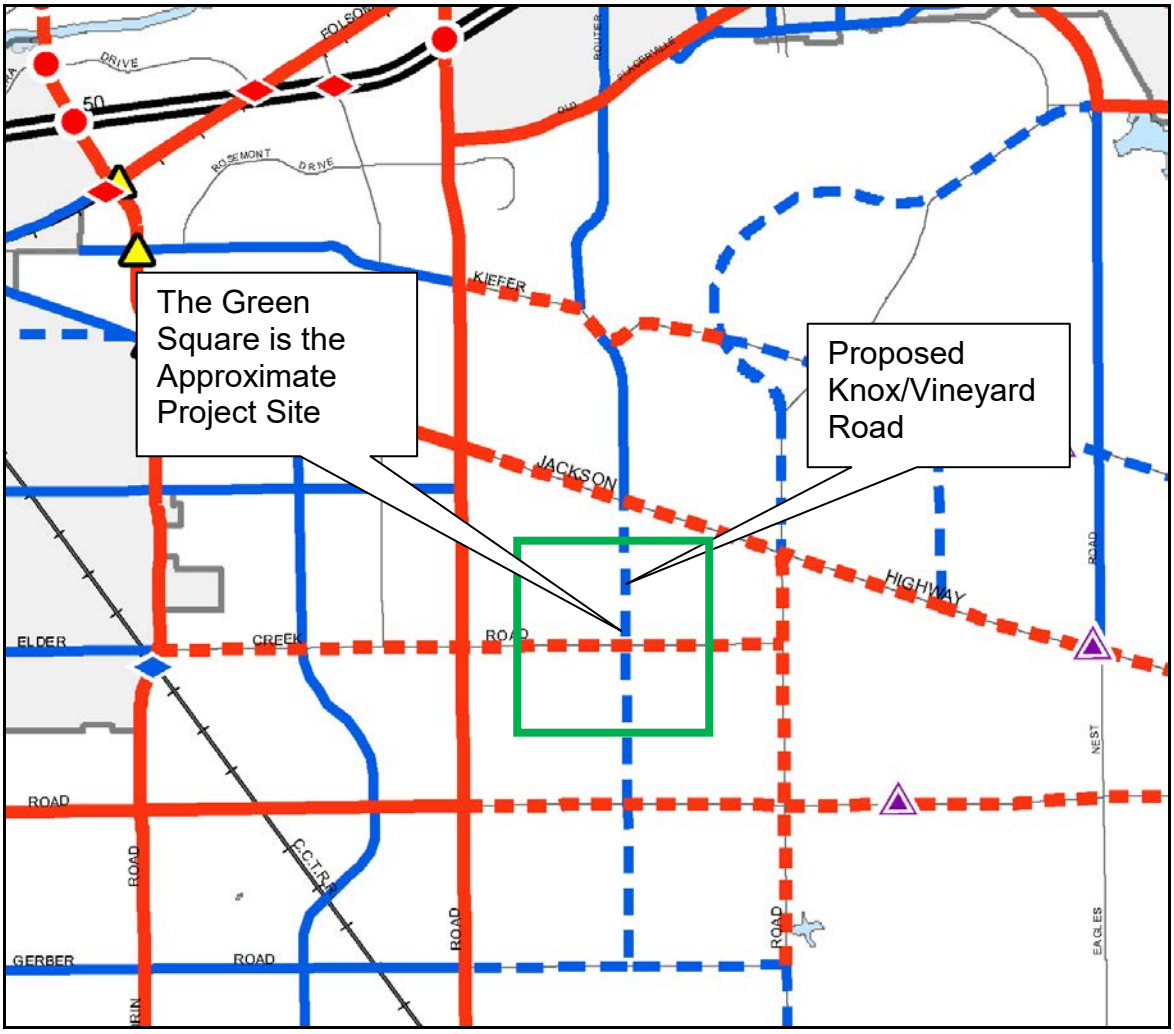


Plate TT-4: Sacramento County Transportation Plan Close-up of Project Area



The excavation of the site could pose issues with positioning the Knox/Vineyard Road on the project site. The large excavation could potentially alter the location of the future road on the site. The applicant has worked with SacDOT in the placement of the future roadway to achieve a roadway that is safe for the public to use. As mentioned above SacDOT has reviewed the project and worked with the applicant to place the new road.

SacDOT has recommended conditions that prior to approval of Improvement Plans or prior to Work Authorization Permit the applicant is required to make improvements to the access drives on both Aspen VIII and Aspen IX, to the upsized drainage culvert under Elder Creek Road, to modify Elder Creek Road based on a 96-foot standard thoroughfare, and to create 20 foot wide public utility easements on both sides of Elder Creek Road.

Plate TT-5: Knox/Vineyard Road Alignment

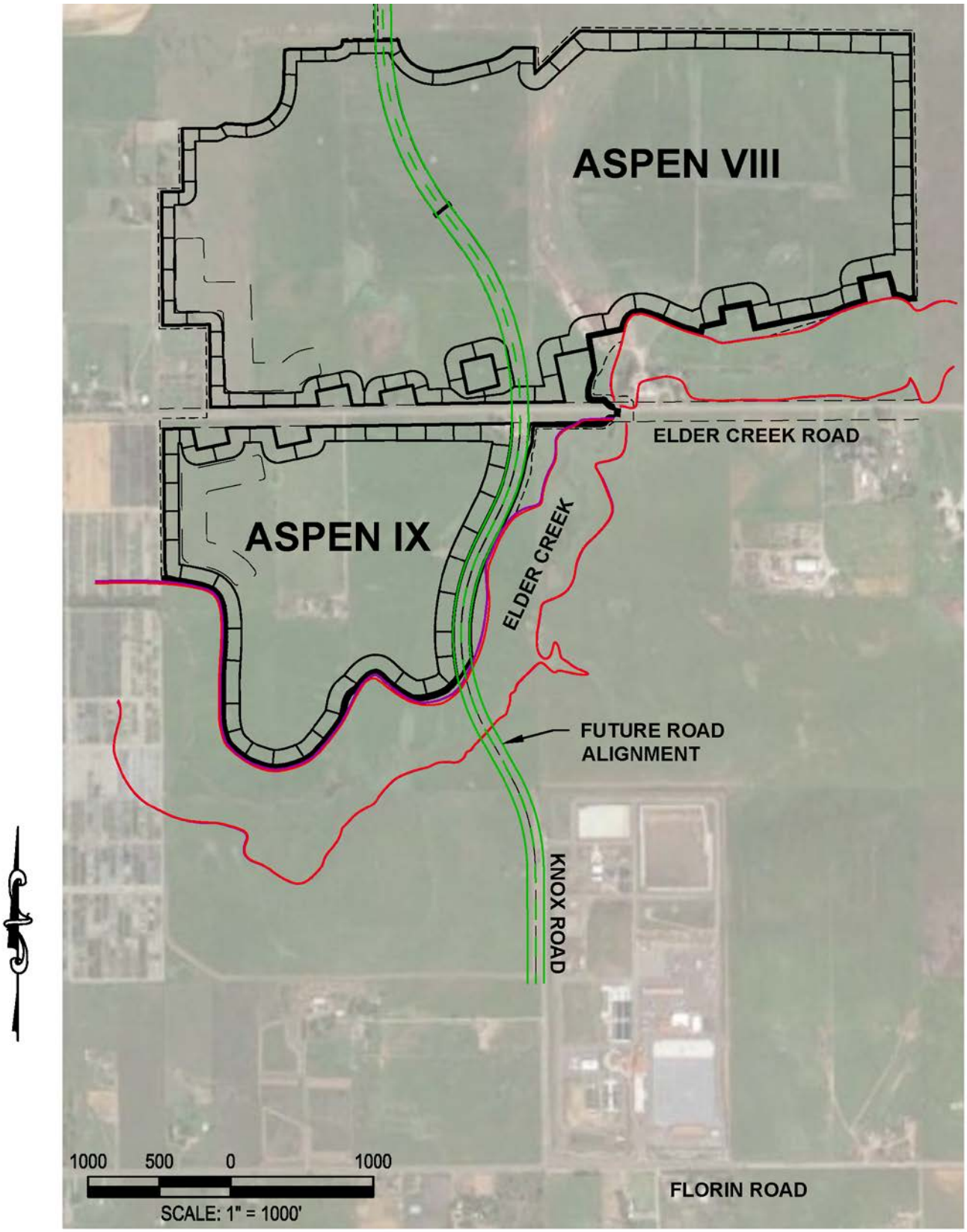


Plate TT-6: Knox/Vineyard Road on Aspen VIII

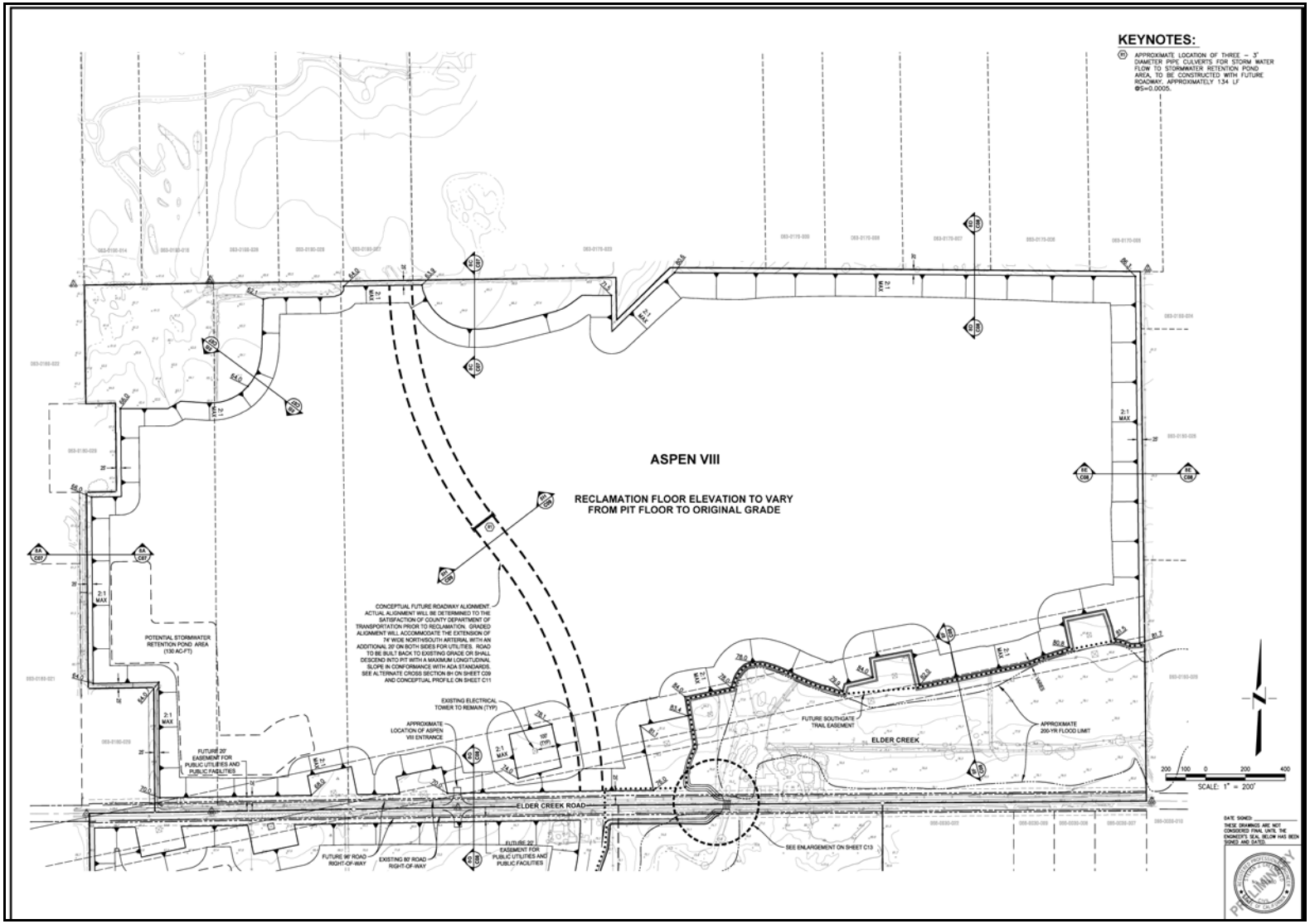


Plate TT-7: Knox/Vineyard Road on Aspen IX

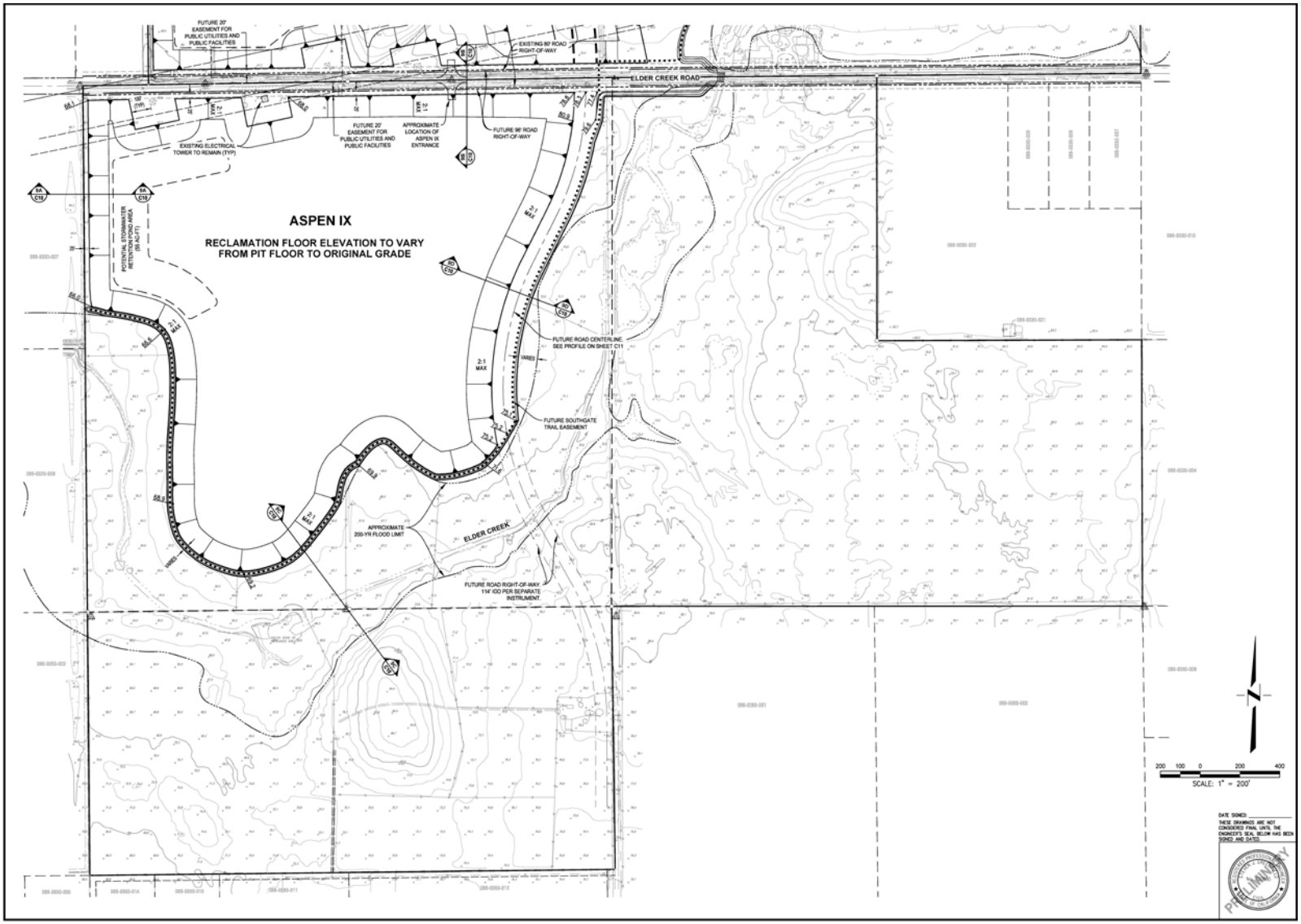
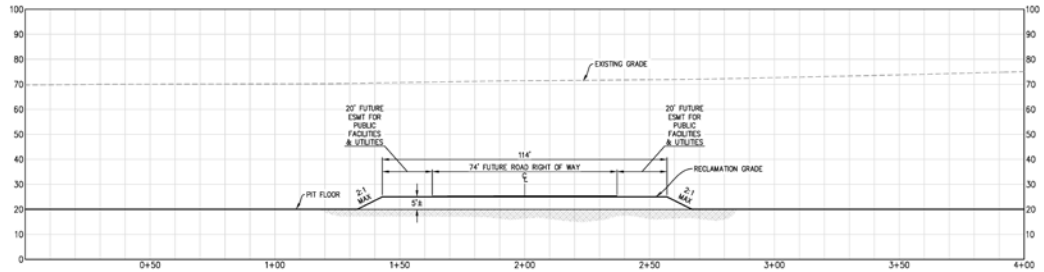
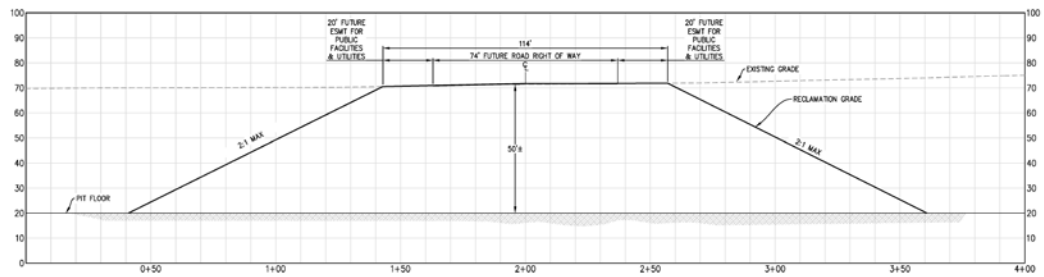


Plate TT-8: Knox/Vineyard Road Details



SECTION 8H - ROAD AT PIT BOTTOM

SCALE= 1" = 20'



SECTION 8H ALTERNATE - ROAD AT EXISTING GRADE

SCALE= 1" = 20'

DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

PRELIMINARY

SacDOT has also recommended as conditions of approval that, prior to sign-off of the Reclamation Plan, the applicant is required to return-to-grade, dedicate, and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek road. The applicant is also required to dedicate and rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard road. Furthermore, if the County adopts a trails master plan requiring easements the applicant shall dedicated and rough grade for the future easements along Knox/Vineyard Road. Finally the applicant shall dedicate the necessary slope easements for the Knox/Vineyard roadway.

In summary, the excavation of the mining pits at the project site could preclude SacDOT's ability to provide a planned roadway extension (Knox/Vineyard Road). This impact is considered potentially significant. Although a roadway easement is currently shown on the site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation and that SacDOT has the flexibility to modify the future roadway as needed to achieve their transportation goals.

Level of Significance Before Mitigation: Potentially Significant

TT-1: Knox/Vineyard Road Mitigation Measure

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by the Sacramento County Department of Transportation, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Transportation.

B. Prior to signoff of the reclamation plans, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements, the applicant shall dedicate those easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation.

C. Prior to signoff of the reclamation plan, the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of Transportation. The applicant shall return-to-grade and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek Road to the satisfaction of Sacramento County Department of Transportation.

Level of Significance After Mitigation: Less than Significant

10 AIR QUALITY

REGULATORY CONTEXT

FEDERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

FEDERAL CLEAN AIR ACT

The Clean Air Act (CAA) requires the EPA to establish national ambient air quality standards (NAAQS), as shown in Table AQ-1. The EPA has established primary and secondary national ambient air quality standards for the following criteria air pollutants, ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The Clean Air Act also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP).

The federal Clean Air Act Amendments of 1990 added requirements for states with non-attainment areas to revise their State Implementation Plans to incorporate additional control measures to reduce air pollution. The State Implementation Plan is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulation of the air basins as reported by their jurisdictional agencies. The EPA is responsible for reviewing all State Implementation Plans to determine if they conform to the mandates of the Clean Air Act and its amendments, and whether implementation will achieve air quality goals. If the EPA determines a State Implementation Plan to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the non-attainment area. If an approvable State Implementation Plan is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table AQ-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	-[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppn (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10mg/m^3)	9 ppm (10mg/m^3)	
Nitrogen dioxide (NO_2) [f]	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppd (188 µg/m^3)	-
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m$^{3)}$	0.14 ppm (for certain areas)	-
	3-hour	-	-	0.5 ppm (1300 µg/m$^{3)}$
	1-hour	0.25 ppm (655 µg/m$^{3)}$	75 ppb (196 µg/m^3)	-
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	-	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	-	35 µg/m^3	Same as primary standard
Lead [f]	Calendar quarter	-	1.5 µg/m^3 (for certain areas)	Same as primary standard

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
	30-Day average	1.5 µg/m^3	-	-
	Rolling 3-Month Average	-	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million

a California standards for ozone, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b Concentration expressed first in units in which it was issued. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm Accessed 9-2-15

TOXIC AIR CONTAMINANTS / HAZARDOUS AIR POLLUTANTS

Air quality regulations also focus on toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs). In general, for those toxic air contaminants that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established (Table AQ-1). Instead, the EPA and, in California, the California Air Resources Board (ARB) regulate hazardous air pollutants and toxic air contaminants, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. These in conjunction with additional rules set forth by the Sacramento Metropolitan Air Quality Management District (SMAQMD), the primary agency in charge of air quality in the project area, described below under Local, Sacramento Metropolitan Air Quality Management District," establish the regulatory framework for toxic air contaminants.

The EPA has programs for identifying and regulating hazardous air pollutants. Title III of the Clean Air Act Amendments of 1990 directed the EPA to promulgate national emissions standards for hazardous air pollutants. The national emissions standards for hazardous air pollutants for major sources may differ from that for area sources of hazardous air pollutants. Major sources are defined as stationary sources with potential to emit more than 10 tons per year of any hazardous air pollutant or more than 25 tons per year of any combination of hazardous air pollutants; all other sources are considered area sources. The emissions standards were to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA was required to promulgate health risk–based emissions standards when deemed necessary to address risks remaining after implementation of the technology-based national emissions standards for hazardous air pollutants standards.

STATE OF CALIFORNIA AIR RESOURCE BOARD CRITERIA AIR POLLUTANTS

The California Air Resource Board (ARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The California Clean Air Act was adopted in 1988 and requires the California Air Resource Board to establish California ambient air quality standards (CAAQS) as contained in Table AQ-1.

The California Air Resource Board has established California ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the California ambient air quality standards are more stringent than the national ambient air quality standards (NAAQS). The differences in the standards are generally explained by the

health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the California ambient air quality standards incorporate a margin of safety to protect sensitive individuals.

The California Clean Air Act requires all local air districts in the state achieve and maintain the California ambient air quality standards by the earliest date possible. The act specifies that local air districts should focus their attention on reducing the emissions from transportation and area wide emissions sources, and provides air districts with the authority to regulate indirect sources.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) in California are regulated primarily through Assembly Bill 1807 (AB 1807) and the Air Toxic Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (AB 2588). AB 1807 sets forth a formal procedure for California Air Resources Board to designate substances as toxic air contaminants. Before a substance can be designated a toxic air contaminant, the California Air Resources Board preforms research, public participation, and scientific peer review. To date, the California Air Resources Board has identified more than 21 toxic air contaminants and adopted the EPA's list of hazardous air pollutants as toxic air contaminants. Most recently, particulate matter exhaust from diesel engines (diesel PM) was added to the California Air Resources Board list of toxic air contaminants.

Once a toxic air contaminant has been identified, the California Air Resources Board then adopts an airborne toxic control measure for sources that emit that particular toxic air contaminant. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology (BACT) for toxics to minimize emissions.

AB 1807 requires existing facilities that emit toxic substances above a specified amount prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risks levels, and prepare and implement risk reduction measures.

The California Air Resource Board has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment such as tractors and generators. The replacement of older vehicles, over time, will result in a vehicle fleet that produces substantially lower levels of toxic air contaminants than under current conditions. Mobile source emissions of toxic air contaminants such as benzene, 1-3 butadiene, and diesel PM have been reduced significantly over the last decade. The emissions will be reduced further in California through a progression of regulatory measures such as Low Emission Vehicles, Phase II reformulated gasoline regulations, and control technologies. With implementation of California Air Resource Board's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 when compared to 2000. The adopted regulations are also expected to continue

to reduce formaldehyde emissions from cars and light-duty trucks. Furthermore, as emissions are reduced, it is expected that the risks associated with exposure to emissions will be reduced as well.

LOCAL

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary agency responsible for meeting federal and State ambient air quality standards in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the State Implementation Plan for ozone. The State Implementation Plan is a compilation of plans and regulations that govern how the region and State will comply with the federal Clean Air Act requirements to attain and maintain the federal ozone standard. Ozone plans in the Sacramento Metropolitan region include in the 1994 Sacramento Area Regional Ozone Attainment Plan and the 2009 Eight-Hour Ozone Attainment and Reasonable Further Progress Plan. These plans were produced to develop a strategy to attain the federal one-hour and eight-hour ozone standards. The Sacramento Region has been designated as a "severe" eight-hour ozone non-attainment area with an extended attainment deadline of June 15, 2019. Table AQ 2 shows Sacramento County's attainment status designation.

Table AQ 2: Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone (O_3)	Non-attainment (1-hour)[1] Classification= Severe	Non-attainment (1-hour) Classification Seriours[2]
	Non-attainment (8-hour)[3] Classification= Severe	Non-attainment (8-hour)
	Non-attainment (8-hour)[4] Classification= Severe	
Respirable Particulate Matter (PM_{10})	Attainment (24 hour)	Non-attainment (24 hour)
		Non-attainment (Annual)
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment (24 hour)	(No State Standard for 24-hour)
	Unclassified/Attainment (Annual)	Non-attainment

		(Annual)
Carbon Monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment (1-hour)	Attainment (1-hour)
	Unclassified/ Attainment (Annual)	Attainment (Annual)
Sulfur Dioxide (SO_2)[5]	(Attainment Pending) (1-hour)	Attainment (1-hour)
		Attainment (24 hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24 hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:

1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

2 Per Health and Safety Code (HSC) 40921.5(C), the classification is based on 1989 – 1991 data, and therefore does not change.

3 1997 Standard

4 2008 Standard

5 Cannot be classified

Source: http://airquality.org/aqdata/attainmentstat.shtml Accessed 9-3-15

SMAQMD's Sacramento Area Regional Ozone Attainment Plan commits to obtaining one ton per year of reactive organic gas (ROG) reductions and one ton per year of oxides of nitrogen (NO_x) reductions from Land Use and Transportation Control Measures. The plan lists land use mitigation and transit-oriented development as examples of the types of programs that SMAQMD will use to reach the one ton goal. SMAQMD does not develop specific rules to implement these programs, but instead does so mostly through the CEQA process. SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The

guidelines contain threshold of significance for criteria pollutants and toxic air contaminants, and also makes recommendations for conducting air quality analysis. Once SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the project may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD to determine if a permit is required, and to start the permit application process. Portable construction equipment such as generators, compressors, pile drives, and lighting equipment with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or California Air Resources Board portable equipment registration.

- Rule 402: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.

- Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, effective as of October 10, 2005, if modeled construction-generated emission for a project's ROG or NOx emissions are not reduced to SMAQMD's threshold of significance (85 pounds per day) after the standard construction mitigation is applied, then an off-site construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies. For mining projects grading permits are not used; instead a Work Authorization Permit (WAP) takes the place of the grading permit.

At the local level, air pollution control or management districts may adopt and enforce California Air Resources Board control measures. Under SMAQMD Rule 201, General Permit Requirements; Rule 202, New Source Review; and Rule 207, Federal Operation Permit, all sources that possess the potential to emit toxic air contaminates are required to obtain permits from the air district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SMAQMD limits emission and public exposure to toxic air contaminants through a number of programs. SMAQMD prioritizes toxic air contaminants, emitting from stationary sources, based on the quantity and toxicity of the toxic air contaminants emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people or facilities that generally house people such as schools, hospitals and residences that may experience adverse effects from unhealthful concentration of air pollutants.

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generate citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 (Nuisance) regulates odorous emissions.

SACRAMENTO VALLEY AIR BASIN

Because the Sacramento Valley Air Basin is in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, the SMAQMD requires the implementation of the following Basic Construction Emission Control Practices, regardless of the project's significance determination under the California Environmental Quality Act (CEQA).

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil stockpiles, graded areas, unpaved parking areas, staging areas, and access roads;
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, overburden, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph);
- All roadways, driveways, sidewalks, and parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;

- Minimize idling time by either shutting equipment off when not in use or reducing time of idling to 5 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site; and

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

If implementation of Basic Construction Emission Control Practices does not reduce construction emissions to below the regulatory thresholds, the following Enhanced Construction Emission Control Practices should be included to further reduce project NO_X, PM_{10}, and $PM_{2.5}$ emissions.

- The project shall provide a plan for approval by the District demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction and a 45 percent particulate reduction compared to the most recent California Air Resource Board fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available;

- The project shall ensure that emissions from all off-road, diesel-powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity shall be repaired immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey;

- If, at the time of construction, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this regulation. Consultation with the District prior to construction will be necessary to make this determination;

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site;

- Suspend excavation, grading, and/or demolition activities when wind speeds exceed 20 mph;

- Install wind breaks (e.g., plant trees, solid fencing) on windward sides of construction areas;

- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established;
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Treat site access to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads; and
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

SMAQMD issued its 2015 *Triennial Report* in May of 2015, which identifies "all feasible measures" SMAQMD would study or adopt over the ensuing three years to make progress toward attainment of state ozone standards. The measures include additional control programs for mobile and stationary sources, land use and transportation programs, community education programs, and ozone transport mitigation in order to reduce NO_X and ROG emissions and in order to achieve the State ozone standard. The 2015 Triennial Report shows the actual NO_X emission reductions were reduced to 3.53 tons per day which exceeded the projected estimates of 1.68 tons per day. The actual ROG emissions reductions achieved 1.30 tons per day. Which fell slightly short of the projected 1.32 tons per day this is due to delays in adopting and implementing two rules.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to air quality with applicability to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

AQ-3:

> Buffers and/or other appropriate mitigation shall be established on a project-by-project basis and incorporated during review to provide for

protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective", and the Air Quality Management's approved Protocol (Protocol for Evaluating the Location of Sensitive Land uses Adjacent to Major Roadways) shall be utilized when establishing these buffers.

AQ-16:

Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

AQ-19:

Require all feasible reductions in emission for the operation of construction vehicles and equipment on major land development and roadway construction projects.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8.11.E, Air Pollution Control Measures, states, the application for mining operations shall include dust control measures designed to comply with any relevant rules of the Sacramento Metropolitan Air Quality Management District (SMAQMD), including Rules 402 and 403. The air pollution control measures shall include signage and other notification that provides neighbors with information needed for reporting nuisance dust concerns to the operator and to SMAQMD. Such signage shall be placed at intervals of not more than 500 feet.

The Zoning Code gives further guidelines for suppressing dust in Section 4.8.14.H Guidelines for Suppressing Dust. This section states, the goal is to minimize the impacts of dust to surrounding residential and agricultural uses.

1) Overburden Stockpiles

   a) Should be treated with appropriate dust suppressants, watered regularly, or otherwise treated to minimize wind erosion.

   b) Every effort should be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water-spraying equipment should be used to cut dust emissions. Water-spraying equipment should likewise be used, as needed, when removing aggregate.

c) Seeding of stockpile overburden and exposed soils is required at the next appropriate planting time unless the site is excavated within six months of overburden removal, or if site has been partially excavated, but is to remain dormant for a period of more than one year. Saleable aggregate products produced by the processing plant are exempt for this provision.

2) Unpaved Haul Roads

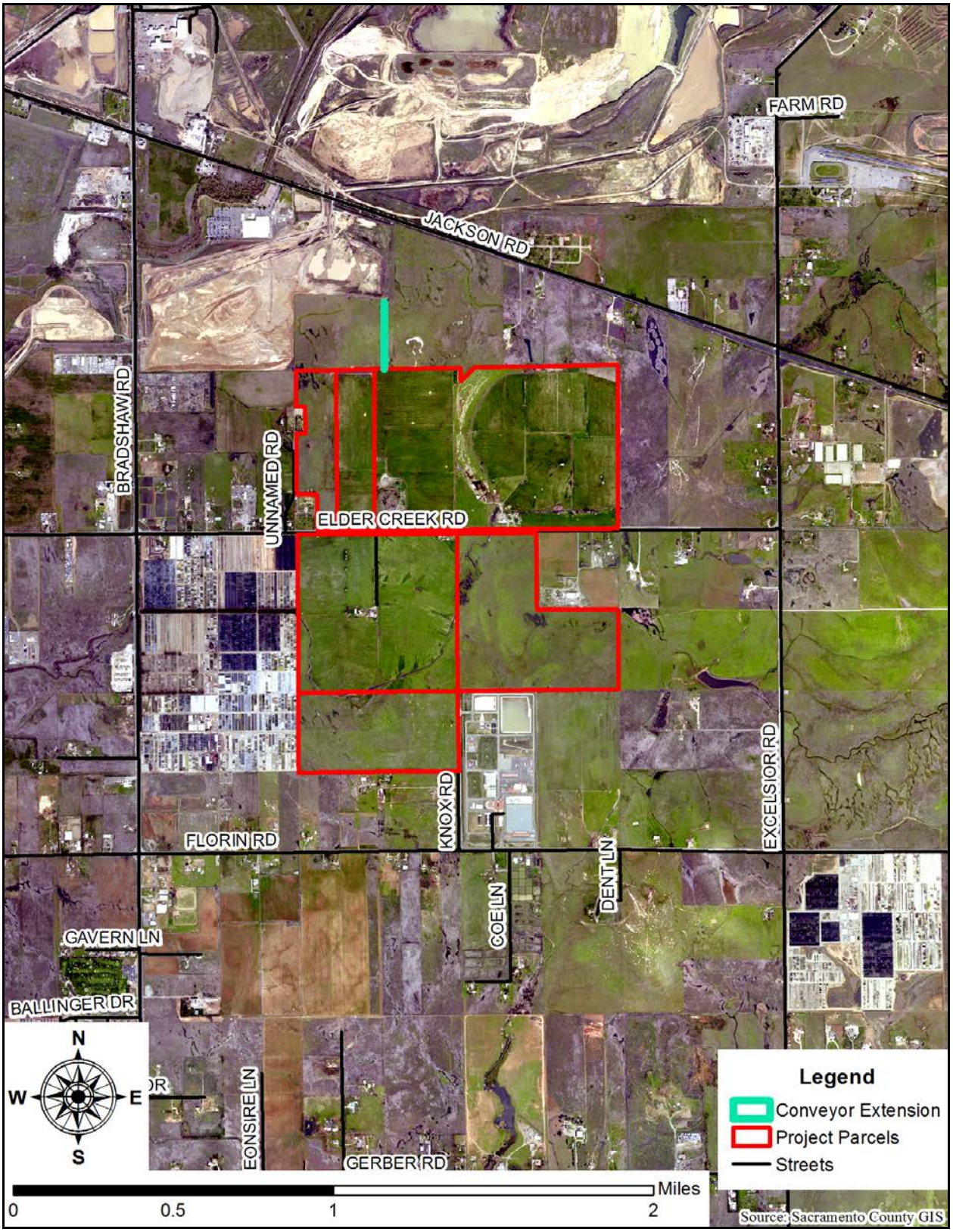
a) Unpaved haul roads should be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliative). The frequency of application should vary according to the water and moisture level of the soils on the site, but should be frequent enough to avoid visible dust plumes.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Road (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate AQ-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The project site is also located within the Sacramento Valley Air Basin (SVAB). The Sacramento Valley Air Basin also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties as well as the western portion of Placer County and the eastern portion of Solano County. The ambient concentrations of air pollutant emission are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight.

Plate AQ-1: Location Map



Topography, Meteorology, and Climate

Sacramento Valley Air Basin is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada Mountains to the east. Air flows into the Sacramento Valley Air Basin through the Carquinez Strait, the only breach in the western Costal Range mountain barrier, and moves across the Sacramento River – San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Sacramento Valley Air Basin has a Mediterranean climate that is characterized by hot, dry summers and cool, rainy winters. During the summer months the daily temperatures range from 50°F to more than 100°F. The inland location and surrounding mountains shelter the Sacramento Valley Air Basin from some of the ocean breezes that keep the coastal region's temperatures moderate. During the winter months the majority of the rain results from air masses that move in from the Pacific Ocean from the west or northwest. Furthermore, more than half of the total rain fall occurs during the winter rainy season which is from November through February. The average winter temperature is 49°F. Dense low-level fog also occurs in the Sacramento Valley Air Basin during winter. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Sacramento WSO station (one of the weather stations in Sacramento County; it is located at 11480 Riley Road, Wilton, CA 95693 apn: 134-0280-074). The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40° F to a normal maximum of 54° F. July temperatures range from a normal minimum of 59° F to a normal maximum of 92° F and the predominant wind direction is from the south.

The mountains surrounding the Sacramento Valley Air Basin create a barrier to airflow, which leads to the entrapment of air pollutants. The highest frequency of poor air movement occurs in the fall and winter when high pressure is present. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the Sacramento Valley Air Basin. This period is characterized by poor air movement in the morning with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_x, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the Sacramento Valley Air Basin. However, there is a phenomenon known as the Schultz Eddy that prevents this from occurring approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift

southward and blow air pollutants back into the Sacramento Valley Air Basin. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient air quality standards.

Existing Air Quality

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A description of key criteria of air pollutants in the Sacramento Valley Air Basin are provided below in Table AQ 3. Sacramento County's attainment status for the California ambient air quality standards and the national ambient air quality standards are shown in Table AQ 4. Monitoring data applicable to the project site is provided in Table AQ 5.

Table AQ 3: Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone (O_3)	Secondary pollutant resulting from reaction of ROG and NO_x in presences of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels: NO_x results from the combustion fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possible of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen Dioxide (NO_2)	Combustion devices: e.g. boilers, gas turbines, and mobile and stationary reciprocation internal combustion engines	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts

Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, and premature death	Alterations to the immune system, carcinogenesis
Lead (Pb)	Metal processing	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases.

1 “Acute” refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentration.

2 “Chronic” refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: http://www.epa.gov/airquality/urbanair/ Accessed 9-3-15

Table AQ 4: Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone (O_3)	Non-attainment (1-hour)[1] Classification= Severe	Non-attainment (1-hour) Classification Seriours[2]
	Non-attainment (8-hour)[3] Classification= Severe	Non-attainment (8-hour)
	Non-attainment (8-hour)[4] Classification= Severe	
Respirable Particulate Matter (PM_{10})	Attainment (24 hour)	Non-attainment (24 hour)
		Non-attainment (Annual)
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment (24 hour)	(No State Standard for 24-hour)
	Unclassified/Attainment (Annual)	Non-attainment (Annual)
Carbon Monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment (1-hour)	Attainment (1-hour)
	Unclassified/ Attainment (Annual)	Attainment (Annual)
Sulfur Dioxide (SO_2)[5]	(Attainment Pending) (1-hour)	Attainment (1-hour)
		Attainment (24 hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24 hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:

1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

2 Per Health and Safety Code (HSC) 40921.5(C), the classification is based on 1989 – 1991 data, and therefore does not change.

3 1997 Standard

4 2008 Standard

5 Cannot be classified

Source: http://airquality.org/aqdata/attainmentstat.shtml Accessed 9-3-15

Table AQ 5: Summary of Annual Data on Ambient Air Quality (2011-2013)[1]

	2011	2012	2013
Ozone (O_3)			
Maximum concentration (1 hour/8 hour average ppm)	0.123/0.094	0.125/0.107	0.105/0.084
Number of days state standard exceeded (1 hour/8 hour)	9/27	10/25	2/5
Number of days national standard exceeded (8 hour)	19	18	2
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24 hour µg/m^3)	50.7	29.0	40.0
Number of days nations standard exceeded (24 hour measured[2])	4	0	3
Respirable Particulate Matter (PM_{10})			
Maximum concentration (µg/m^3)	73.0	60.0	63.0
Number of days state standard exceeded (measured/calculated[2])	2/12.2	3/17.8	1/6.1
Number of days national standard exceeded (measured/calucated$_2$)	0/0	0/0	0/0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

1 Measurements from the Sloughhouse station for Ozone. Measurements of respirable particulate matter (PM_{10}) obtained from the Sacramento-Branch Center Road #2 air monitoring station. Measurements of fine particulate matter ($PM_{2.5}$) obtained from Sacramento – Health Department Stockton Blvd. station.

2 Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard year.

Source: http://www.arb.ca.gov/adam/index.html Accessed 9-3-15

OZONE

Ozone (O_3) is a photochemical oxidant which is a substance whose oxygen combines chemically with another substance in the presence of sunlight and is the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

CARBON MONOXIDE

Carbon monoxide (CO) is a colorless, odorless gas that forms when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes roughly 56 percent of all carbon monoxide emissions nationwide. Other sources of carbon monoxide emissions include industrial processes including metals processing and chemical manufacturing, residential wood burning, and natural sources such as forest fires. The highest levels of carbon monoxide in the outside air typically occur during the colder months of the year when inversion conditions are more frequent and the air pollution becomes trapped near the ground beneath a layer of warm air.

NITROGEN DIOXIDE

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human made sources of nitrogen dioxide are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devises emit primary nitric oxide (NO), which reacts through oxidation in the atmosphere to form nitrogen dioxide. The combined emission of nitric oxide and nitrogen dioxide are referred to as NO_X and are reported as equivalent nitrogen dioxide. Because nitrogen dioxide is formed and depleted by reaction associated with photochemical smog (ozone), the nitrogen dioxide concentration in a particular geographical area may not be representative of the local sources of NO_X emission.

PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors. Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the Sacramento Valley Air Basin are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the Sacramento Valley Air Basin between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the Sacramento Valley Air Basin are dominated by the same sources as emissions of PM_{10}.

SULFUR DIOXIDE

Sulfur dioxide (SO_2) is one of a group of highly reactive gasses known as oxides of sulfur. The largest sources of sulfur dioxide emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of sulfur dioxide emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur-containing fuels by locomotives, large ships, and non-road equipment.

LEAD

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent during the same time period. Today, the highest levels of lead in air are usually found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the Sacramento Valley Air Basin. The Sloughhouse station is the closest station to the project site with recent data for ozone. The closest station to the project site with data for PM_{10} is the Sacramento - Branch Center Road # 2 air monitoring station while $PM_{2.5}$ is monitored at the Sacramento – Health Department monitoring station. In general, the ambient air quality measurements from these stations are representative of the air quality near the project site. Table AQ 5 summarizes the air quality data from the last three years (2011-2013).

Both the California Air Resource Board and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants; the attainment designations are summarized in Table AQ 2.

TOXIC AIR CONTAMINANTS

Concentrations of Toxic Air Contaminants (TACs) are also used to indicate the quality of ambient air. A toxic air contaminant is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. Toxic air contaminants are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations.

The majority of the estimated health risks from toxic air contaminants can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other toxic air contaminants in that it is not a single substance, but rather a complex mixture of hundreds of substances. Unlike the other toxic air contaminants, no ambient monitoring data is available for diesel PM because no routine measurement method currently exists.

The California Air Resources Board has made preliminary concentration estimates based on a PM exposure method; this method uses the California Air Resource Board emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the toxic air contaminants for which data is available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among the 10 toxic air contaminants listed above. Based on receptor modeling techniques, the California Air Resource Board estimated the diesel PM health risk to be 360 excess cancer cases per million people in the Sacramento Valley Air Basin in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most toxic air contaminants, except para-dichlorobenzene and formaldehyde, have decreased since 1990.

The project area consists of multiple surface mining operations. Sources of toxic air contaminants near the project could include off-road diesel equipment, on-road diesel equipment and stationary sources such as aggregate processing plants and other industrial uses.

ODORS

Odors are generally regarded as on annoyance rather that a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological, such

as irritation, anger or anxiety, to physiological, such as circulatory and respirator effects, nausea, vomiting and headache.

The human nose is the sole sensing device for odors. The ability to detect odors varies considerable among the population and overall is quite subjective. Some people have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another. It is important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue. Odor fatigue is when a person becomes desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants.

For the proposed project, the nearest sensitive receptor is the Slavic Missionary Church which is located on the south side of Jackson Road (Hwy 16), approximately a quarter of a mile east of Bradshaw Road. There are a few rural residential properties located northeast and west of the project site.

METHODOLOGY

Ascent Environmental prepared the *Aspen VIII and Aspen IX Mining Project, Air Quality and Greenhouse Gas Study* that examined the air quality and greenhouse gas impacts for the project. The study can be found in Appendix AQ-1. Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from toxic air contaminants, CO (carbon monoxide) concentrations, and odors were assessed in accordance with SMAQMD recommend methodologies.

The project would not involve the construction of any permanent structures. The proposed project will have some site preparation activities that occur for a limited time before mining can begin. These include demolition of two homes and associated outbuildings, installation of perimeter landscaping, fencing, and assembly of the electric conveyors. These activities would require limited use of off-road equipment and emissions generated during this time-period would be minimal. The analysis presents emissions for a worst-case day when maximum on-site equipment use and off-site hauling would occur simultaneously, along with an average operations day.

Mining operations will begin on the Aspen VIII portion of the project site and generally move south onto Aspen IX. The applicant proposes to mine between one million and three million tons of material per year depending on market conditions with a maximum of 4.5 million cubic yards of material per year. Mining operations would begin in 2017 and proceed over a 15-year period. Mining operations will begin with the removal of approximately five to ten feet of topsoil and overburden that overlies the sand and gravel. The topsoil will be salvaged and stored on-site to be used for reclamation.

Originally the applicant proposed to sell up to one million cubic yards of overburden from the Aspen VIII site to be hauled via public County roads. After consulting with County staff, the applicant instead has chosen to transport via haul trucks on interior roads to the Aspen V South mine up to 500,000 cubic yards of overburden for use on-site and not for sale.

Removal of the up to 500,000 cubic yards of overburden is the first phase of the mining operation. This will involve the removal and salvage of topsoil and then the overburden material that lies above the aggregate material that will be mined. The applicant estimates that the overburden haul will use off-road diesel trucks that have a 20 cubic yard capacity. The haul route is approximately a two mile round trip on internal access roads.

The aggregate mining would occur over an area of 353 acres that will encompass two mining pits; Aspen VIII and Aspen IX. The applicant estimates the total material mined over the life of the project to be approximately 15 million cubic yards. A maximum of 4.5 million cubic yards of materials could be mined in a single year depending on market conditions. Moreover, the applicant estimates that average mining rates would

be 2.2 million cubic yards per year which is equivalent to approximately 7,500 cubic yards per day.

After the initial removal of the overburden has occurred, the mining of the aggregate material will begin. The mining operation's daily hours could range from eight to fourteen hours per day. A fourteen-hour day is the maximum amount that would occur under extremely favorable market conditions. Based on current market conditions the applicant will operate closer to a typical eight hour work day. In order to characterize the worst-case scenario, emissions were estimated based on the maximum levels of activity.

The applicant determined that the maximum daily off-road equipment operation would consist of six scrapers, two loaders, and one dozer along with a water truck. The equipment will be refueled on-site using a mobile fuel truck.

Quantification of air pollutant emissions were based on a combination of methods, including the use of emission factors from the EPA published AP-42 and emission rates for OFFROAD 2011 and EMFAC 2011 as contained in the Californian Emission Estimator Model (CalEEMod) Version 2013.2.2. Project-generated operational phase emissions were modeled based on this information and information provided in the project description to estimate reasonable worst-case conditions. The applicant's current fleet, used at other facilities is Tier 1 compliant; therefore, emission factors reduced from the California Air Resource Board's default fleet mix were used in the analysis.

In accordance with SMAQMD-recommended methodologies, ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions generated by the project were modeled using the methodology described above. It should be noted that NO_x emissions are the focus of SMAQMD's efforts to bring the Sacramento Valley Air Basin into attainment of the California Ambient Air Quality Standards and National Ambient Air Quality Standards for ozone. Emissions of PM_{10} and $PM_{2.5}$ were estimated based on the detailed construction parameters explained above.

The project involves a mining operation that utilizes heavy-duty off-road equipment and does not represent a construction project but instead is considered for analysis purposes as an operational phase. The applicant anticipates that up to one acre of the project site would be disturbed daily. The project proposes to implement all Basic Construction Emission Control Practices recommended by SMAQMD.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Air Quality the proposed project would have a significant impact if it:

AQ-1: Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard; or

AQ-2: Exposes sensitive receptors to pollutant concentrations in excess of standards; or

AQ-3: Creates objectionable odors affecting a substantial number of people.

Sacramento Metropolitan Air Quality Management District (SMAQMD) has guidelines of thresholds of significance for the operational phase that are as follows: NO_x 65 pounds per day; ROG 65 pounds per day; PM_{10} 80 pounds per day; and $PM_{2.5}$ 82 pounds per day. Table AQ 6 below shows the SMAQMD Thresholds of Significance for emissions of NO_x, ROG, PM_{10}, and $PM_{2.5}$. Note: the mining phase of the project was modeled using the operational phase standards.

Table AQ 6: SMAQMD Thresholds of Significance

	Construction Phase	Operational Phase
Mass Emission Thresholds		
NO_x (ozone precursor)	85 pounds/day	65 pounds/day
ROG (VOC) (ozone precursor	None	65 pounds/day
PM_{10}	Zero (0). If all feasible BACT/BMPs are applied, then 80 pounds/day and 14.6 tons/year	Zero (0). If all feasible BACT/BMPs are applied, then 80 pounds/day and 14.6 tons/year
$PM_{2.5}$	Zero (0). If all feasible BACT/BMPs are applied, then 82 pounds/day and 15 tons/year	Zero (0). If all feasible BACT/BMPs are applied, then 82 pounds/day and 15 tons/year

Impacts And Analysis

Impact Evaluation AQ-1: Does the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

The proposed project consists of an aggregate mining operation that will involve the use of diesel-powered off-road equipment for excavation and movement of materials. The mining activities will result in project-generated emissions of ROG, NO_x, PM_{10}, and

$PM_{2.5}$ from excavation, off-road equipment, overburden hauling, and worker commute trips.

Fugitive dust (PM_{10}, and $PM_{2.5}$) emissions are associated primarily with soil and aggregate excavation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled on and off the site. Ozone precursor emissions of ROG and NO_x are associated primarily with construction equipment and on-road mobile exhaust; PM_{10}, and $PM_{2.5}$ are also contained in vehicle exhaust.

Both maximum daily and average daily emissions were modeled based on the methodology and assumptions detailed above. Project emissions account for the applicant's cleaner fleet which achieves reductions in exhaust emissions above the California Air Resources Board default construction fleet. Daily construction emission of NO_x, ROG, PM_{10}, and $PM_{2.5}$ for both maximum daily emissions and average daily emissions are summarized in Table AQ 7 below. Detailed input parameters and modeling results are proved in appendix AQ-1. The proposed project will implement all Basic Construction Emission Control Practices.

Table AQ 7: Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_x	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Maximum Daily Emissions						
Off-road Equipment	19.8	270.6	6.7	-	6.3	-
Off-road Trucks (Overburden Haul)	52.3	590.1	21.9	41.6	20.2	4.2
On-road Travel (Worker and Vendor Trips)	0.2	0.6	0.6	<0.1	0.2	<0.1
On-site Fugitive Dust	-	-	-	8.8	-	1.4
Total Emissions	**72.3**	**861.3**	79.6		32.3	
SMAQMD Thresholds of Significance	65	65	80		82	
Average Daily Emissions						
Off-road Equipment	5.2	70.9	1.8	-	1.7	-

	ROG	NO_x	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Off-road Trucks (Overburden Haul)	21.8	245.9	9.1	34.7	8.4	3.5
On-road Travel	0.2	0.6	0.6	<0.1	0.2	<0.1
On-site Fugitive Dust	-	-	-	4.8	-	0.9
Total Emissions	27.2	317.1	51.0		14.7	
SMAQMD Thresholds of Significance	65	65	80		82	

Notes: Maximum daily emissions were calculated based on 14 hours of mining operations. Maximum daily emissions for PM_{10} and $PM_{2.5}$ are shown for disclosure purposes. Fugitive dust emissions from equipment use on-site (dozers and scrapers) area estimated using CalEEMod. Emissions from conveyor loading/unloading and off-road truck use (loading/unloading and travel on unpaved roads) are estimated using AP-42 emission factors. Emissions of PM shown account for application of best available control technology and best management practices

The applicant's construction fleet is Tier 1 compliant. Reduction percentages for each pollutant are based on compliance reports approved by SMAQMD. Detailed calculations are shown in appendix AQ-1.

ROG = reactive organic gases
NO_x = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
lb/day = pounds per day
SMAQMD = Sacramento Metropolitan Air Quality Management District
NA = not applicable
CAAQS = California Ambient Air Quality Standards

The Sacramento Metropolitan Air Quality Management District (SMAQMD) also recommends reporting annual PM_{10} and $PM_{2.5}$ emissions and comparing them to annual threshold of 14.6 tons/year for PM_{10} and 15 tons per for $PM_{2.5}$. The maximum annual PM_{10} emissions would be 10 tons per year while the maximum annual $PM_{2.5}$ emissions would be 4 tons per year. Annual emissions will be below the SMAQMD's applicable threshold and would decline once overburden haul is complete. Moreover, the maximum daily emission would only occur under extremely favorable market conditions.

ROG EMISSIONS

As shown in Table AQ 7 the maximum daily emissions for ROG is 72.3 pounds per day which is over the threshold of 65 pounds per day. The average daily emission for ROG is 27.2 pounds per day which is under the threshold of 65 pounds per day. The maximum daily emissions of ROG generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Therefore, ROG maximum daily emission impacts are significant.

Level of Significance: Significant

NOX EMISSIONS

Table AQ 7 indicates the maximum daily emissions for NOx is 861.3 pounds per day which is substantially above the 65 pound per day threshold and the average daily emissions for NO_X is 317.1 pounds per day which is substantially above the 65 pound per day threshold. The emissions of NO_x generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Therefore, the project's impact of NO_x emissions is significant.

Level of Significance Before Mitigation: Significant

AQ-1.1: Reducing ROG and NO_x Mitigation Measure

To mitigate construction-related ozone precursor emissions, the following shall apply:

A. The project shall provide a plan for approval by the District demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary

of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

D. To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.

Significance after Mitigation

Implementation of exhaust control measures outlined in Mitigation Measure AQ-1.1 would reduce ROG and NO_x emissions from off-road equipment by 20 percent. The 20 percent reduction of the maximum daily emissions for ROG emissions will reduce the emissions from 72.3 pounds per day to 57.84 pounds per day which is below the SMAQMD threshold of 65 pounds per day. However even after applying Mitigation Measure AQ1.1 which would reduce NO_x emission by 20 percent, the maximum and average daily emissions of NO_x will still exceed SMAQMD's recommended thresholds.

Level of Significance After Mitigation for ROG: Less than Significant

Level of Significance After Mitigation for NO_x: Significant and Unavoidable

PM EMISSIONS

As shown in Table AQ 7 the maximum daily emissions for PM_{10} are 79.6 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 32.3 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and $PM_{2.5}$ average daily emission is 14.7 pounds per day. These emissions exceed the SMAQMD significance threshold of zero emissions for both types of particulates. This impact is therefore considered significant.

However, the district's significance thresholds increase to 80 pounds per day for PM_{10} and 82 pounds per day for $PM_{2.5}$ if all feasible Best Available Control Technology (BACT) and Best Management Practices (BMPs) are applied. For the Aspen VIII and IX project, SMAQMD staff (P. Philley) recommended that the district's Basic Construction Emission Control Practices and Enhanced Dust Control Practices would be appropriate BACT/BMPs.

Implementation of BACT/BMPs outlined in Mitigation Measure AQ-1.2 will change the threshold for PM_{10} to 80 pounds per day and change $PM_{2.5}$ to 82 pounds per day. With the BACT/BMP's, the proposed project fugitive exhaust PM emissions are well under the 80 and 82 pounds per day as shown in Table AQ 7. Therefore, with mitigation, impacts are less than significant.

Level of Significance Before Mitigation: Significant

AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions Mitigation Measure

Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

UNPAVED ROADS (ENTRAINED ROAD DUST)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Level of Significance After Mitigation: Less than Significant

MOBILE SOURCE CO CONCENTRATIONS

Local mobile-source carbon monoxide (CO) emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect.

Carbon monoxide (CO) concentration is a direct function of vehicle idling time and thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-use, such as residential areas, schools, and hospitals. As a result, it is recommended that CO not be analyzed at the regional level but at the local level.

The proposed mining operations would result in approximately seven additional full-time employees which would result in up to 14 daily worker commute trips. No overburden will be hauled on public roadways.

SMAQMD provides a screening methodology to determine project impacts from localized CO emissions. This screening methodology was utilized to analyze local CO emissions from construction and operations of the project. The screening methodology has two tiers of screening criteria. If the first set is not met, than the second tier may be applied. It states that the following criteria must be met:

First Tier
The project will result in a less than significant impact to air quality for local CO if:

- Traffic generated by the project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F.

Second Tier
If all the following criteria are met, the project will result in a less than significant impact to air quality for local CO.

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project will not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below grade roadway; or other locations where horizontal or vertical mixing of air will be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average as identified by the EMFAC or CalEEMod models.

The proposed project related vehicle trips would not result in level of service (LOS) E or F at any intersection. The first tier can be answered in the affirmative which allows the project to screen out the CO emission impacts. As a result, the impact of project CO emissions would be less than significant.

Level of Significance: Less Than Significant– No Mitigation Required

Impact Evaluation AQ-2: Exposes sensitive receptors to pollutant concentrations in excess of standards?

Mining activities will result in temporary (15 years) project generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for excavation and other miscellaneous activates.

Particulate exhaust emissions from diesel-fueled engines such as diesel PM were identified as a toxic air contaminant by the California Air Resource Board in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts, so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Table AQ 7 above, the maximum daily exhaust emissions of $PM_{2.5}$ considered a surrogate for diesel PM will be 23.4 lb/day.

The dose to which receptors are exposed is the primary factor used to determine health risks. The dose is a function of the concentrations of a substance or substances in the environment and the duration of exposure to the substance. The dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor.

Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic air contaminant emissions, should be based on a 30-year exposure period. However, such assessments should be limited to the period/duration of activities associated with the project. Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to a period of 15 years, with peak daily activity occurring very rarely under extremely favorable market conditions.

The mine, if approved as is, could be in operation for 15 years and during this time the site will be excavated by heavy equipment such as scrapers and excavators for the life of the mine (15 years). The overburden haul is anticipated to take place during the first five years of the mining operations and is limited to 500,000 cubic yards of overburden material. Diesel haul trucks will be used to transport the overburden to the mine located directly north of the project site. The use of diesel powered haul trucks at the site would diminish substantially but the heavy equipment used to excavate the site will still be in use at the site.

Studies show that diesel PM is highly dispersive, for example, diesel PM emissions dissipate by 70% at 500 feet from the source. The nearest existing off-site sensitive receptors are residential units near the project site with the closest residence located 250 feet from the site.

Sacramento Metropolitan Air Quality Management District (SMAQMD) Toxic Air Contaminants thresholds for cancer risk for stationary sources, states that a

significant impact would result from, “An incremental increase in cancer risk greater than ten in one million at any off-site receptor” and for non-cancer a significant impact would result from, “Ground-level concentrations of project-generated Toxic Air Contaminants that would result in a Hazard Index greater than one at any off-site receptor”.

Diesel PM emissions dissipate at 70% at 500 feet from the source. The nearest residence or sensitive receptor is located 250 feet from the mining pit edge. Mitigation is recommended in the Noise chapter of this EIR (Mitigation Measure NO-1.0) that would limit the number of pieces of heavy equipment operating within 850 feet of this residence to a single piece of equipment. This mitigation for noise will also help lessen the cancer risks by reducing diesel PM emissions within 850 feet of the residence.

Given the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, combined with the limitation on heavy equipment usage in the vicinity of nearby residences, it is not anticipated that mining related toxic air contaminant emissions would expose nearby, off-site sensitive receptors to an incremental increase in cancer, chronic, and acute risk that exceeds applicable thresholds. Therefore, the project’s impacts to sensitive receptors from pollutants would be less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AQ-3: Does the project create objectionable odors affecting a substantial number of people?

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; atmospheric conditions; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to distress among the public and sometimes generating citizen complaints to local government.

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and would not be generated at any one location for an extended period because the equipment and trucks will be moving around the mining site. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Mining activities utilizing off-road equipment will not result in the frequent exposure of objectionable odorous emission. Therefore, the impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

11 NOISE

NOISE FUNDAMENTALS AND TERMINOLOGY

Noise is often described as unwanted sound, and thus is a subjective reaction to the physical phenomenon of sound. Sound is variations in air pressure that the ear can detect. Sound levels are measured and expressed in decibels (dB), which is the unit for describing the amplitude of sound[1]. Because sound pressure levels are defined as logarithmic numbers, the values cannot be directly added or subtracted. For example, two sound sources, each producing 50 dB, will produce 53 dB when combined, not 100 dB. This is because two sources have two times the energy (not volume) of one source, which results in a 3 dB increase in noise levels.

Most environmental sounds consist of several frequencies, with each frequency differing in sound level. The intensities of each frequency combine to generate sound. Acoustical professionals quantify sounds by “weighting” frequencies based on how sensitive humans are to that particular frequency. Using this method, low and extremely high frequency sounds are given less weight, or importance, while mid-range frequencies are given more weight, because humans can hear mid-range frequencies much better than low and very high frequencies. This method is called “A” weighting, and the units of measurement are called dBA (A-weighted decibel level). In practice, noise is usually measured with a meter that includes an electrical “filter” that converts the sound to dBA. The threshold at which one hears sounds is considered to be zero (0) dBA. The range of sound in normal human experience is 0 to 140 dBA. Decibels and other technical terms are defined in Table NO-1.

The ambient noise level is defined as the noise from all sources near and far, and refers to the noise levels that are present before a noise source being studied is introduced. A synonymous term is pre-project noise level.

[1] Equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

Table NO-1: Acoustical Terminology

TERM	DEFINITION
Ambient Noise Level:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
Intrusive Noise:	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
Community Noise Equivalent Level, CNEL*:	The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening form 7:00 p.m. to 10:00 p.m and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
Day/Night Noise Level, L_{dn}*:	The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
Equivalent Noise Level, L_{eq}:	The average noise level during the measurement or sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
L_{max}, L_{min}:	The maximum or minimum sound level recorded during a noise event.
L_n :	The sound level exceeded “n” per percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90}, L_{50} , etc.)
Noise Exposure Contours:	Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and L_{dn} contours are frequently utilized to describe community exposure to noise.
Sound Exposure Level, SEL; or Single Event Noise Exposure Level, SENEL:	The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time integrated A-weighted squared sound pressure level for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.
Sound Level, dBA:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

REGULATORY CONTEXT

STATE OF CALIFORNIA

The California Department of Health Services (DHS) office of Noise Control has studied the relationship between noise levels and different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land use. Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the "conditionally acceptable" range, some mitigation of exposure (as established by an acoustical study) would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it cannot be mitigated.

Title 24 of the California Administrative Code establishes standards governing interior noise levels that apply to all new multifamily residential units in California. The standards require that acoustical studies be performed prior to construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} noise levels to 45 dBA in any inhabitable room. The U.S. Department of Housing and Urban Development (HUD) has set an L_{dn} of 45 as its goal for interior noise in residential units built with HUD funding.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide County-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to noise that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

Policy NO-6:

> Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table NO-2 at existing noise-sensitive areas in the project vicinity.

Table NO-2: Noise Element Non-Transportation Noise Standards Median (L_{50})/Maximum (L_{max})[1]

New Land Use	Outdoor Area[2]		Interior[3]
	Daytime (L_{50})/Maximum (L_{max})	Nighttime (L_{50})/Maximum (L_{max})	Day and Night (L_{50})/Maximum (L_{max})
All Residential	55 / 75	50 / 70	35 / 55
Transient lodging[4]	55 / 75	---	35 / 55
Hospitals and nursing homes[5,6]	55 / 75	---	35 / 55
Theaters and auditoriums[6]	---	---	30 / 50
Churches, meeting halls, schools, libraries, etc.[6]	55 / 75	---	35 / 60
Office buildings[6]	60 / 75	---	45 / 65
Commercial buildings[6]	---	---	45 / 65
Playgrounds, parks, etc[6]	65 / 75	---	---
Industry[6]	60 / 80	---	50 / 70

1. Table NO-2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table NO-2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the acoustic terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Policy NO-13:

> Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8.12, Operating Standards for Aggregate Mining Operations, states all aggregate mining operations, including sand and gravel mines, hard rock quarries and dredger tailings mining operations, shall be subject to the requirements in this section. Section 4.8.12.A requires hours of operation for mining activities to be from 6:00 am to 9:00 pm Monday through Friday and maintenance operations beyond mining hours may occur from 9:00 pm to midnight Monday through Friday. On Saturdays the mine may operate from 7:00 am through 3:00 pm and maintenance operations beyond mining hours may occur from 3:00 pm to 4:00 pm. On Sundays and labor union holidays, no mining, processing or maintenance may be performed.

Zoning Code Section 4.8.12.E, Noise Standards, states that sound levels created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand and aggregates. A violation to the noise standard will occur if the noise level at the property line exceeds:

1. The noise limit for a cumulative period of more than 30 minutes in any hour, or;

2. The noise limit plus 5 dBA for a cumulative period of more than one minute per hour, or the noise limit plus 20 dBA for any period.

ENVIRONMENTAL SETTING

PROJECT SITE

The project includes two proposed mine pits that the applicant calls Aspen VIII and Aspen IX. Aspen VIII is approximately 319 acres and Aspen IX is approximately 363 acres in size. The project also includes an approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The proposed project is near many active mining operations. There are active mines located to the east, north and west of the project site. South of the proposed Aspen IX site is a water treatment facility and to the west is a whole sale plant nursery. A cemetery is located just to the west of the Aspen VIII site. The project site is located south of Mather Airport. There are six residences near the perimeter of the proposed site. Two of these residences will be removed as part of this project. And finally Elder Creek Road and Jackson Road are another source of noise in the project area.

EXISTING AMBIENT NOISE ENVIRONMENT

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Elder Creek Road and Jackson Road (Hwy 16), and by the intermittent aircraft overflights from Mather Airport.

To quantify the existing ambient noise environment near the project boundaries, Bollard Acoustical Consultants conducted continuous noise level measurement at three locations in August and October, 2013. The noise measurement sites are shown on Plate NO-1. Weather conditions present during the monitoring program were typical for the measurement periods. A summary of the ambient noise level measurements is provided in Table NO-3. The results of the ambient noise level measurements along with the Environmental Noise Analysis prepared by Bollard Acoustical Consultants are provided in Appendix NO-1.

Plate NO-1: Noise-Sensitive Receivers and Ambient Monitoring Locations

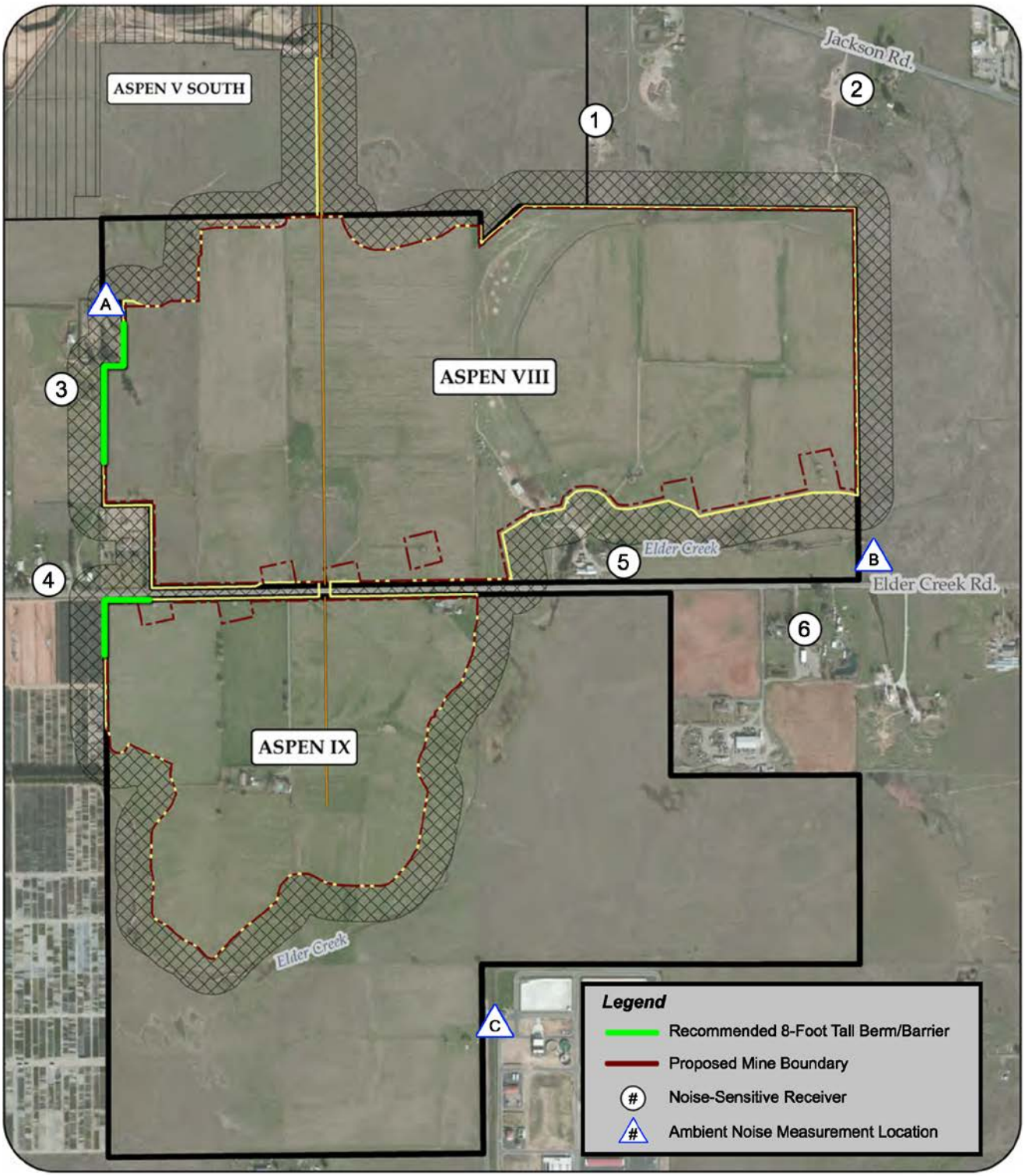


Table NO-3: Summary of Ambient Noise Measurement Results

Summary of Ambient Noise Measurement Results Teichert Aspen VIII and IX Excavation Site Property Lines					
Site	**Description**	**Date**	**L_{dn}**	**L_{50}[1]**	**L_{max}[1]**
A	Near Northwest Corner Aspen VIII	10/22/13 – 10/24/13	56-58	45-46	69-76
B	Southeast Corner Aspen VIII	8/30/13 – 9/2/13	53-59	39-43	69-73
C	Southern Portion of Aspen IX	8/30/13 – 9/2-13	48-53	42-43	60-63

1. See Table NO-1 for an explanation of acoustical terminology.
2. Because excavation activities would not occur during nighttime periods, the hourly maximum and median noise levels shown in this Table are provided for daytime hours only.

The data contained in Table NO-3 indicates that the existing ambient noise environment at the perimeter of the project site during the survey period consisted of fairly typical noise levels for rural areas affected mainly by local and distant traffic. Ldn values along the site perimeter ranged from 48-59 dB. Daytime median noise levels typically ranged from the mid to upper 30's to mid-40's, with average maximum values ranging from 60-76 dB Lmax.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Noise the proposed project would have a significant impact if it:

NO-1: Results in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies; or

NO-2: Results in a substantial temporary increase in ambient noise levels in the project vicinity.

IMPACTS AND ANALYSIS

Impact Evaluation NO-1: Does the project result in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies?

PROJECT-RELATED NOISE GENERATION

Table NO 4 shows the types of equipment which may be used at the project site and the reference maximum noise levels corresponding to the operation of that equipment. These noise levels were obtained from Bollard Acoustical Consultants; the noise level measurements were conducted at various locations in recent years.

Table NO 4: Major Noise-Producing Equipment and Anticipated Noise Emissions Levels

	Approximate Noise Level, dBA @ 100 feet Reference Distance		
Equipment Type	**Maximum (L_{max})**	**Average (Leq)**	**Median (L_{50})**
Excavating Equipment: (Combinations of loaders, scrapers, dozers, graders, and water trucks)	80	70	65
Note: Average noise levels represent any one-hour period and assume continuous operations of the excavation equipment.			

PROJECT NOISE LEVELS AT MINE BOUNDARIES

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the project site would be approximately 50 feet. At this distance the consultant estimated that the excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. Zoning Code Section 4.8.12.E states a violation to the noise standard will occur if the noise level at the property line exceeds the noise limit of 70 dBA for a cumulative period of more than 30 minutes in an hour (thus setting a L_{50} standard of 70 dBA) or if the noise level at the property line exceeds 70 dBA plus 20 dBA for any period of time (thus setting a L_{max} standard of 90 dBA). The noise levels for the project site would satisfy the Zoning Code requirements of less than 90 dB L_{max} and 70 dB L_{50} at the project site boundaries. Therefore, no noise mitigation measures would be required to meet the Zoning Code standards.

PROJECT NOISE LEVELS AT NEAREST RESIDENCES

The nearest six residences to the project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site's property lines vary. The closest residence to the proposed excavation is residence 3 (9895 Elder Creek Road: APN 063-0180-022) as

shown on Plate NO-1. Table NO 5 below shows the predicted outdoor noise levels during initial mining activities at the closest positions to the receivers (residences) identified in Plate NO-1. It should be noted that residential structures with windows closed typically attenuate noise levels by approximately 20dB. The General Plan interior noise standards for residences (shown in Table NO-2, above) are 20 dB less than the applicable exterior noise standards; therefore, the interior noise standards would be met so long as the exterior noise standards are met.

The initial mining activities are considered to be worst-case since mining noise levels will decrease as the equipment descends deeper into the mining pit and the pit walls begin to serve as noise barriers.

Table NO 5: Predicted Noise Levels at Nearest Sensitive Receivers

Residence	Distance (Feet)	Maximum (L_{max})	Median (L_{50})
1	490	65	50
2	750	61	46
3	250	72	**57**
4	300	70	55
5	320	69	54
6	830	60	45
Sacramento County Daytime Noise Limits		**75**	**55**

1. The locations of the nearest residences are indicated on Plate NO-1.

The data contain in Table NO 5 indicates that the General Plan standard of 75 dB L_{max} applicable to outside residential uses during daytime hours would be satisfied at each of the nearest residences. Furthermore, the table indicates the General Plan standard of 55 dB L_{50} for outside areas would be satisfied at each of the nearest residences with the exception of Residence 3. Residence 3 is located 250 feet from the proposed excavation and the predicted median hourly outside noise level is 57 dB which would exceed the County's outside or exterior noise standard by 2 dB. With the noise mitigation measures below, the project's impacts are less than significant.

The noise consultant recommended mitigation restricting nighttime operations. Nighttime is defined as 10:00 pm to 7:00 am. This mitigation was to lessen the impacts of nighttime operations noise levels. This mitigation is not needed as the Zoning Code does not permit mining operations after 9:00 pm and the applicant has not requested

night operations as part of the project. Therefore, the mitigation measure was not included in the EIR.

Level of Significance Before Mitigation: Significant

NO-1: Median Noise Levels Mitigation Measure

A. One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time.

B. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

C. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.

Level of Significance After Mitigation: Less Than Significant

<u>Impact Evaluation NO-2: Does the project result in a substantial temporary increase in ambient noise levels in the project vicinity?</u>

According to Appendix G of the CEQA guidelines, a project will normally have a significant impact if it results in a substantial increase in ambient noise levels in the project vicinity above levels existing without the project. It is generally recognized that an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable; a common practice is to assume that a clearly noticeable increase of 5 dB is required for a finding of significance.

Ambient Noise Measurement Location Sites A and B (see Plate NO-1) generally represent the ambient noise conditions at the nearest residences to the project site. For the analysis of ambient noise levels the L_{max} will not be utilized because the site is near the Mather Airport and the L_{max} may be affected by the small number of aircraft that fly near the project site. According to Table NO-3, the L_{50} ambient noise measurement for Site A is 45-46 dB; Site A and residence 3 are located within approximately 400 feet of one another and are to the west of proposed Aspen VIII. As shown on Table NO 5, residence 3 has a L_{50} level of 57 dB.

When determining if the addition of the project's mining noise would significantly elevate the ambient noise levels at the nearest receivers, the two noise levels, ambient plus predicted project noise, must be added together. Since the decibel scale is logarithmic, decibels cannot be added, subtracted, multiplied or divided arithmetically. Decibels must be converted back to sound energy prior to manipulating them

mathematically. In simpler terms, the following conventions, as shown in Table NO 6 can be used for decibel addition.

Table NO 6: Decibel Addition

When two dB values differ by:	Add the following to the higher value:
0 to 1	3
2 or 3	2
4 to 8	1
9 or more	0

When the ambient noise measurement for Site A (45-46 dB) is combined with the predicted noise level at residence 3 (57 dB), the resulting total is approximately 57 dB (existing ambient noise and project noise) which is an increase of approximately 11 dB to ambient noise. As noted above an increase of 5 dB for the ambient noise is considered an impact. Thus, the project is predicted to result in a significant increase of ambient noise levels.

In order to reduce the ambient noise levels impacts to less than significant the ambient noise will have to be reduced by approximately 11 dB. Using the Fixed and Moving Noise Attenuation Model, the distance to the residence from the noise sources needs to be increased to 850 feet. Therefore, the mitigation measure sets the distance at 850 feet from the residence where only one piece of equipment is permitted to operate. The mitigation measure to reduce the noise impacts that are in excess of standards can be used to mitigate this impact as well. Therefore, the project impacts to ambient noise levels are significant but with mitigation the impacts are reduced to less than significant.

Level of Significance Before Mitigation: Significant

NO-2: Increases in Ambient Noise Mitigation Measure

See Mitigation Measures NO-1.0.

Level of Significance After Mitigation: Less Than Significant

12 HYDROLOGY AND WATER QUALITY

REGULATORY CONTEXT

WATER QUALITY LEGISLATION

Government agencies regulate potential impacts to water quality in order to comply with legislative acts such as: the Clean Water Act (CWA), the Porter-Cologne Water Quality Act (Porter-Cologne), the Rivers and Harbors Act, and the California Environmental Quality Act (CEQA). The Clean Water Act contributes to the dramatic improvement of surface water bodies in the United States. The Rivers and Harbors Act prevents obstructions to navigation, including dumping of trash and sewage. CEQA prevents avoidable damage to water quality by requiring changes in projects through the use of alternatives or mitigation measures [15002(a)(3)]. Coordinated efforts by the following agencies protect water supplies from degradation:

- County of Sacramento
- Sacramento Area Flood Control Agency (SAFCA)
- California Department of Fish and Wildlife (CDFW)
- State Water Resources Control Board (State Water Board)
- Regional Water Quality Control Board (Regional Water Board)
- State Lands Commission
- U.S. Coast Guard (Coast Guard)
- National Park Service (NPS)
- State Department of Water Resources Reclamation Board
- U.S. Army Corps of Engineers (Army Corps)

FEDERAL

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

Federal Emergency Management Agency (FEMA) maintains and updates the National Flood Insurance Program maps, called the Federal Insurance Rate Maps (FIRM), that define areas of federal flood hazard. In Sacramento County and elsewhere the floodplains are identified based on U.S. Army Corps of Engineers (Army Corps) studies. Federal Insurance Rate Maps denote the location of the federal 100-year flood area, 500-year flood area, and the Base Flood Elevation. In a 100-year floodplain, there is a 1% chance of flooding in a given year, and in a 500-year floodplain, there is a 0.2% chance of flooding in a given year. If an area

is within a 100-year floodplain, flood insurance is required by most mortgage companies. FEMA is also responsible for the accreditation of levee systems (certification is by the Army Corps).

CLEAN WATER ACT

The Clean Water Act (CWA) is the Federal regulation covering surface water quality – it does not address either groundwater or water quantity. Surface waters protected by the Clean Water Act must either be navigable or hydrologically connected to a navigable water. The provisions of the Clean Water Act are administered and regulated primarily by the Environmental Protection Agency (EPA), the California EPA (Cal EPA), the Army Corps, and the State and Regional Water Boards. Under the "umbrella" of Cal EPA, the State and Regional Water Boards are responsible for administration of the National Pollutant Discharge Elimination System program, which deals with stormwater pollution from construction, industrial areas, and municipal areas. The Army Corps is responsible for issuance of the Clean Water Act Section 404 permit, which deals with the discharge of dredged or fill material in a surface water, and the State and Regional Water Boards are responsible for issuance of the Clean Water Act Section 401 permit, which covers the same activity. Section 303(d) of the Clean Water Act also requires States to identify waters that do not meet water quality standards, and to develop plans to address polluted water bodies on the 303(d) list (called Total Maximum Daily Load plans, or TMDLs).

STATE OF CALIFORNIA

STREAMBED ALTERATION

Section 1603 of the Fish and Wildlife Code requires applicants to notify the California Department of Fish and Wildlife (CDFW) before beginning a project if the project will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed. Notification is generally required for any project that will take place in the vicinity of a river, stream, or lake. The recommendations of CDFW may include steps to protect water quality.

PORTER-COLOGNE WATER QUALITY ACT

Porter-Cologne is enacted as part of the California Water Code, and is intended to protect the quality of waters within the State. Porter-Cologne covers many of the same issues as the Federal Clean Water Act (see above), but is specific to the needs and objectives of the State. Waters protected by the Clean Water Act must be navigable or hydrologically connected to navigable waters, whereas Porter-Cologne protects non-navigable, or "isolated", waters. The State Water Resources Control Board (Water Board) and the Regional Water Quality Control

Boards (Regional Water Board) are responsible for the coordination and control of water quality protection efforts related to Porter-Cologne.

LOCAL REGULATIONS

SACRAMENTO COUNTY DEPARTMENT OF WATER RESOURCES

Not all 100-year floodplains are mapped by FEMA, because the focus of the FEMA Federal Insurance Rate Maps is to provide information for insurance programs. Areas that have very little development that would be at risk from flooding, such as rural areas and wilderness areas, typically are not mapped. In Sacramento County, some of the rural areas of the eastern part of the County with watersheds that are generally less than 1 square mile in size have not been mapped by FEMA. Areas not mapped by FEMA, or areas where there are additional site-specific constraints that change the shape of the floodplain, are referred to as local floodplains in this Environmental Impact Report (EIR).

Though not mapped by FEMA, many local 100-year floodplains have been identified by the Sacramento County Department of Water Resources (County DWR). Local floodplains in the County are typically mapped either in response to an area having flooding problems, or in response to a request by a property owner to make modifications to their parcel. In such circumstances, Sacramento County Department of Water Resources staff investigate the property and either decide if there is sufficient existing information to determine the floodplain elevation on the property or that a drainage study is required before a determination can be made. Floodplains, whether local or FEMA, are regulated by the provisions of the Sacramento County Floodplain Management Ordinance, Improvement Standards, and Local Floodplain Management Plan.

SACRAMENTO COUNTY LAND GRADING AND EROSION CONTROL ORDINANCE

Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) permit program to prohibit the unauthorized discharge of pollutants from a point source to U.S. waters. The County of Sacramento has obtained a Municipal Stormwater National Pollutant Discharge Elimination System permit from the Central Valley Regional Water Quality Control Board under the requirements of the Clean Water Act, to reduce pollutants found in urban stormwater runoff to the maximum extent practicable. The County complies with this permit by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff from areas within the County.

Sacramento County must verify compliance with permit requirements by monitoring effluent, maintaining records, and filing periodic reports. A provision of the National Pollutant Discharge Elimination System permit is the requirement that Sacramento County develop a Construction Site Management Program. The Construction Site Management Program is intended to help protect the water

quality of surface waters by minimizing the amount of sediment runoff from a construction site. This is accomplished by enforcement of the existing County Land Grading and Erosion Control Ordinance.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. In the case of mining permits such as the proposed project, the work authorization permit (WAP) takes the place of a grading permit. To obtain a grading permit or work authorization permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to SCC 16.44 are subject to the Stormwater Ordinance (SCC 15.12) described above.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. The Construction General Permit is issued by the State Water Resources Control Board (http://www.waterboards.ca.gov/stormwtr/construction.html Accessed 3-8-16) and enforced by the Regional Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Board prior to construction. The General Permit requires preparation and implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on site at all times during construction for review.

Applicable projects applying for a County grading permit must show proof that a Notice of Intent (NOI) has been filed and must submit a copy of the Stormwater Pollution Prevention Plan. Although the County has no enforcement authority related to the Construction General Permit, the County is required by its Municipal Stormwater Permit (Order Number R5-2008-0142) to verify that the Stormwater Pollution Prevention Plan program includes six minimum components (public education and outreach on storm water impacts, public involvement participation, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management in new development and redevelopment, and pollution prevention/good housekeeping for municipal operations).

In addition to the above construction controls, new development is required to include treatment of urban runoff using the best management practices (BMPs) required by the current standard defined in the *Stormwater Quality Design Manual*

for the Sacramento and South Placer Regions, 2007. The BMPs include a number of options for treatment including simple grassy swales and rain gardens, to more complex systems that use cisterns, pumps, and sand filters. Updates and background on the County's requirements for post-construction stormwater quality treatment controls, along with several downloadable publications, can be found at the following websites (accessed 1-26-16):

http://www.waterresources.saccounty.net/stormwater/Pages/construction.aspx

HTTP://WWW.WATERRESOURCES.SACCOUNTY.NET/STORMWATER/PAGES/NEWDEVELOPMENT.ASPX

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to hydrology and water quality that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CI-65 Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc. LID techniques may include but are not limited to:

- Bioretention techniques, such as filtration strips, swales, and tree filters
- Permeable Hardscape
- Green roofs
- Erosion and sediment controls
- Reduced street and lane widths where appropriate

CO-24 Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits, issued by the Central Valley Regional

Water Quality Control Board (Regional Board) to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

CO-28 Comply with other water quality regulations and NPDES permits as they apply to County projects or activities, such as the State's Construction General Permit and Aquatic Pesticides Permit.

CO-30 Require development projects to comply with the County's stormwater development/design standards, including hydromodification management and low impact development standards, established pursuant to the NPDES Municipal Permit.

CO-31 Require property owners to maintain all required stormwater measures to ensure proper performance for the life of the project.

CO-93 Discourage fill in the 100-year floodplain (Please also refer to CO-117).

CO-117 Public roads, parking, and associated fill slopes shall be located outside of the stream corridor, except at stream crossings and for purposes of extending or setting back levees. The construction of public roads and parking should utilize structural materials to facilitate permeability. Crossings shall be minimized and be aesthetically compatible with naturalistic values of the stream channel.

CO-118 Development adjacent to waterways should protect the water conveyance of the system, while preserving and enhancing the riparian habitat and its function.

CO-126 Prohibit obstruction or underground diversion of natural waterways.

ENVIRONMENTAL SETTING

PROJECT SITE CHARACTERISTICS

The project site (Plate HW-1) is in the central portion of unincorporated Sacramento County and consists of fields for cattle grazing and feeding, three residences, agricultural buildings, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west.

The project site consists of 683 acres of land, of which 355 acres will be mined. The limits of disturbance for the project, which includes mining and all site preparation activities, will be 383 acres. The project also includes an

approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system. The site includes irrigated pasture, annual grassland, irrigation ditches and ponds, ephemeral drainage, seasonal wetlands and vernal pools. In the early 1950s, ranchers channelized the portion of Elder Creek in the eastern part of Aspen VIII and created an artificial pond for ranching use. Downstream of this pond, the creek continues in its natural channel under Elder Creek Road and flows through the Aspen IX property. However, due to extensive agricultural uses on-site and on surrounding properties, the entire stretch of Elder Creek is heavily manipulated.

Plate HW-2 shows that the project site includes four FEMA flood zones: AO, AE, X (shaded), and X. Zone AO is an area subject to inundation by a 1-percent-annual-chance of shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Zone AE is an area subject to inundation by the 1-percent-annual-chance flood where base flood elevations are known. Shaded Zone X is an area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Finally, Zone X is an area of minimal flood hazard usually depicted on flood insurance rate maps as above the 500-year flood level (0.2% annual chance).

The northwest corner of Aspen IX is FEMA Zone AO and the southwest corner of Aspen VIII is FEMA Zone X (shaded). These areas will be mined but the culvert improvements on Elder Creek Road are expected to remove them from the floodplain (Plate HW-3). FEMA Zone AE occurs along Elder Creek and will not be mined. The remainder of the site is in FEMA Zone X which is the main area to be mined.

After implementation of the culvert improvements, the entire area proposed for mining will be outside of Elder Creek's 200-year flood limits.

Plate HW-1: Project Location

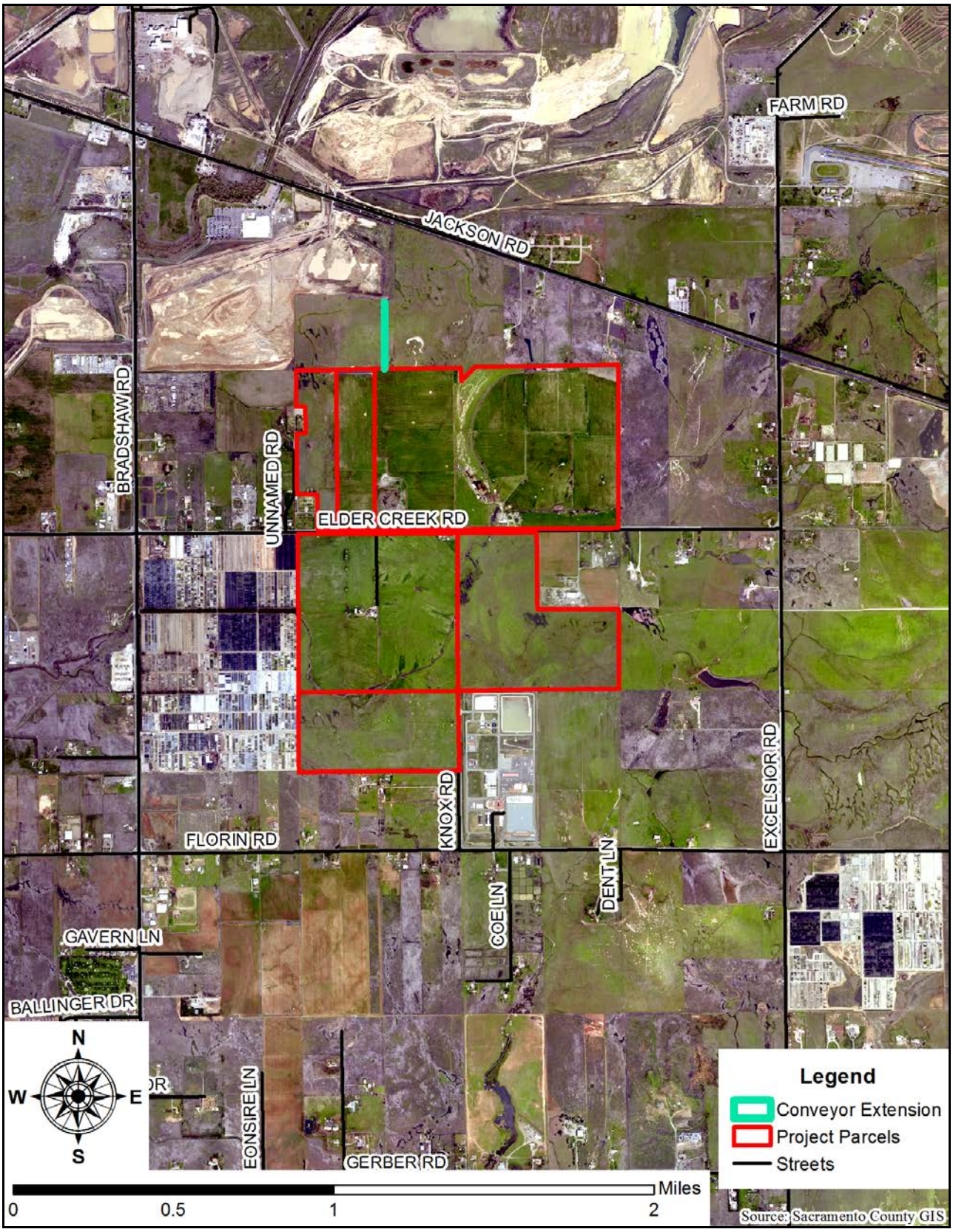


Plate HW-2: Existing FEMA Flood Limits

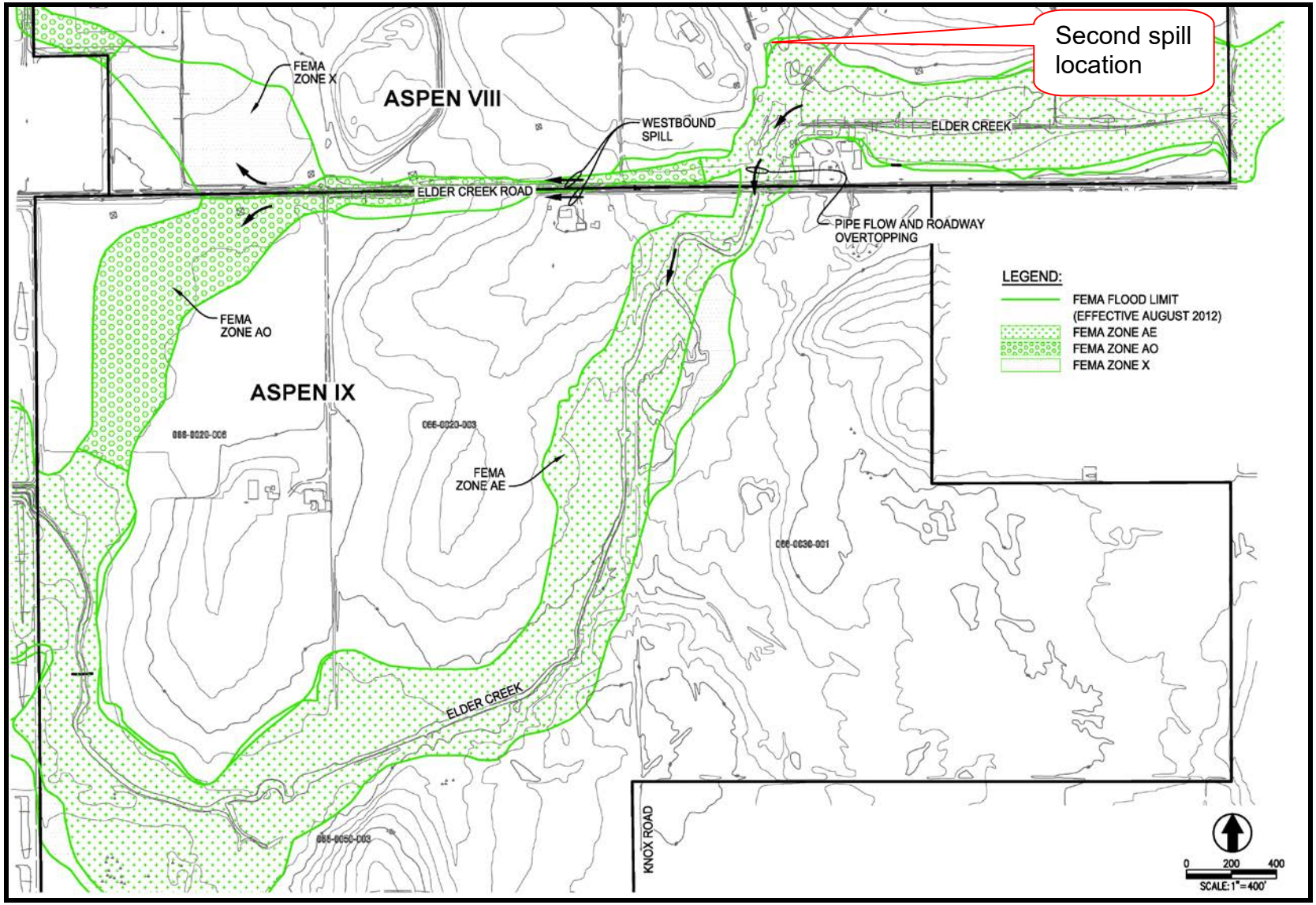
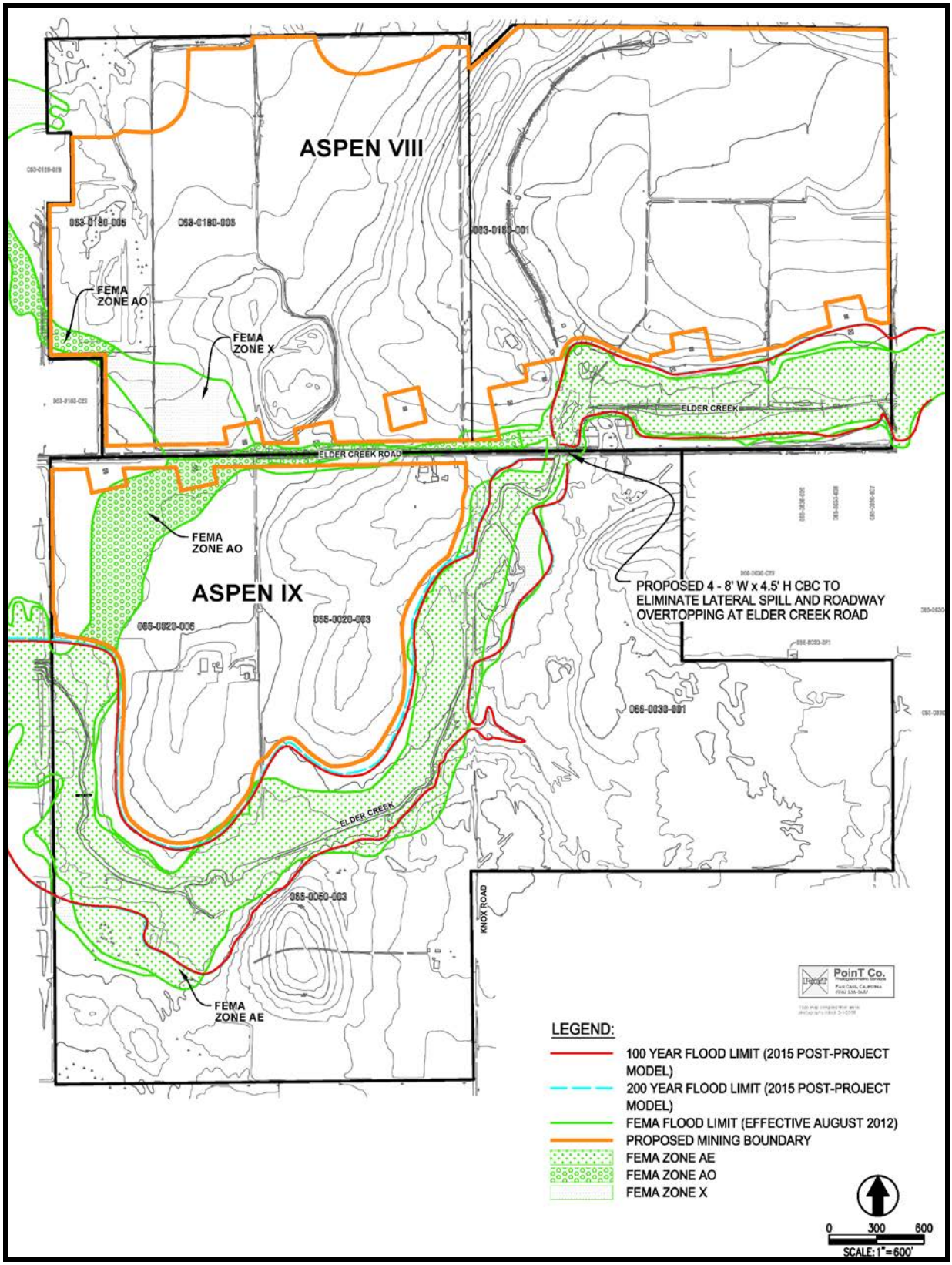


Plate HW-3: Proposed Flood Limits and Mining Boundary



Existing Conditions (Pre Mining)

Within existing stream systems, hydrologic conditions can be modeled using software that allows predictions of future conditions (water surface elevations) to be made in response to proposed projects such as this one.

Elder Creek has been the subject of previous hydraulic studies and the hydraulic models used for such studies have changed over time. The Sacramento County Department of Water Resources (DWR) updated its system-wide hydrology and hydraulics models for Elder Creek in 2015. The model uses updated hydrological input, and the model's stream geometry is based on more detailed and current topographical information (sourced in part from Sacramento County lidar and Central Valley Floodplain Evaluation and Delineation (CVFED) lidar data). The 2015 DWR model was used for Cunningham Engineering's hydrological analysis for the Aspen VIII and IX project. Their analysis is summarized in a report titled *Aspen VIII and IX Hydraulic Analysis of Elder Creek, dated January 13, 2016.* The report can be found in Appendix HW-1.

In May 2016, an updated baseline (pre-project) hydraulic model of Elder Creek was developed by Sacramento County DWR. This model is still in the process of being refined.

Hydrology and Hydraulics

For the 100-year event, the 2015 DWR existing-conditions Hydrologic Engineering Center – River Analysis System (HEC-RAS) model yields results that indicate a right-bank westbound spill (westbound spill) between river station (RS) 10.65 and RS 10.619 on the Aspen VIII site immediately upstream of Elder Creek Road. Furthermore, the model indicates this spilled floodwater generally flowing west along the Elder Creek Road corridor. Most of this spilled water continues overland in the northwest part of the Aspen IX site, returning to Elder Creek on the Aspen IX site near its western boundary. This is shown on Plate HW-2, as the FEMA Zone AO areas along Elder Creek Road and on the northwest portion of Aspen IX.

The 2015 DWR model's 100-year analyses predicted a second spill on the Aspen VIII site. This spill is also located along the creek's right bank, located between river station (RS) 10.720 and RS 10.65 which is roughly 300 to 400 feet upstream of Elder Creek Road. During high flows, the 2015 DWR model indicates water from this second spill flowing northward along an existing south-to-north irrigation ditch corridor that bisects the Aspen VIII site and eventually discharges north from the Aspen VIII site at its northerly boundary.

For the 100-year event, the 2015 DWR model estimates a peak northbound spill rate of 62 cfs (cubic feet per second) at the second spill location. In the model, this northbound spill is represented via a lateral weir element, whose crest profile is based on the Central Valley Floodplain Evaluation and Delineation (CVFED) topographic mapping. Cunningham Engineering reviewed the CVFED lidar mapping near the

second spill location and the Cunningham Engineering interpretation of the CVFED topographic results in a slightly different lateral weir definition. This in turn produced a lower peak spill rate of 18 cfs for the second spill than was predicted by the 2015 DWR model.

Cunningham Engineering modified the 2015 DWR model's overbank elevations. The purpose of this change is to reflect the engineer's lower bank elevation. The modified bank elevation will result in a slightly lower computed peak water surface elevation (WSEs).

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Hydrology and Water Quality the proposed project would have a significant impact if it:

HW-1: Substantially alters the existing drainage pattern of the project area and/or increases the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site; or

HW-2: Develops within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard; or

HW-3: Creates substantial sources of polluted runoff or otherwise substantially degrades ground or surface water quality; or

HW-4 Substantially depletes groundwater supplies or substantially interferes with groundwater recharge; or

HW-5 Places structures that would impede or redirect flood flows within a 100-year floodplain; or

HW-6 Exposes people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

HW-7 Creates or contributes runoff that would exceed the capacity of existing or planned stormwater systems.

The project is not proposing any type of structures that impede or redirect flood flows within the floodplain. Additionally, the project will not expose people or structures to a substantial risk of loss due to flooding. The mining operations will have only limited

structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather. In other words, if there is a chance for the mine pit to flood the employees will have ample time remove the equipment and themselves for danger. Finally the project would not contribute runoff to the stormwater system. The mine is a pit in the ground that would collect water and will not add to the existing stormwater system. Therefore, HW-5, HW-6, and HW-7 will not be further analyzed.

Impacts And Analysis

Impact Evaluation HW-1: Does the project substantially alter the existing drainage pattern of the project area and/or increase the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site?

This impact analysis is based on the results of modeling conducted by Cunningham Engineering; the detailed report can be found in Appendix HW-1. The proposed project will mine into the FEMA-mapped Zone X and Zone AO on-site. The proposed project will eliminate the westbound spill from Elder Creek's right bank just upstream of the Elder Creek Road culvert. The modeling indicates that by upsizing the Elder Creek Road culvert as proposed it will increase its conveyance capacity. In addition, some minor fill (6 to 12 inches) will be needed on the right overbank extending about 100 linear feet upstream of the culvert entrance, in order to contain the creek flows on the culvert approach.

The existing Elder Creek Road culvert currently experiences significant roadway overtopping in flood events, the proposed increase in culvert capacity will eliminate the existing overtopping. The existing corrugated metal pipe (CMP) will be replaced with a 4-8 foot wide by 4.5 foot high concrete box culvert (CBC). The intent of the up sized culvert is to prevent pit capture due to roadway overtopping. The existing culvert length is approximately 45 feet and it is recognized that future widening of Elder Creek Road may occur. The CEC 2015 post project model confirms that the proposed concrete box culvert will provide sufficient capacity to pass the 200-year peak flow (956 cfs) under Elder Creek Road. The new concrete box culvert's corresponding maximum headwater elevation is at an elevation 77.1 feet at the model cross-section immediately upstream of the concrete box culvert entrance. For the 100-year peak flow (983 cfs), the corresponding headwater elevation is at 76.8 feet.

The proposed mining and reclamation plans for Aspen VIII and IX call for the construction of a low, compacted-earth berm located near the top of the proposed mining slope. The berm will lie generally outside the 200-year flood limit, will have a 12-foot minimum top-width and 2H:1V (2 units of horizontal to on unit of vertical) side slopes, and is intended to provide the proposed mining pit with three feet of freeboard in the 200-year event. The proposed pit-side berm will run the full length of the creek on both the Aspen VIII and IX mining sites. At the proposed concrete box culvert crossing of Elder Creek Road, the Aspen VIII and IX berms will each tie to the west

wingwalls of the new culvert structure, maintaining three feet of freeboard on the pit-side of the Elder Creek.

While the berms are expected to provide some flood protection for the proposed mining operations, it is not intended that the berms will be certified with a FEMA accreditation. Absent such FEMA accreditation, all mining pit areas that will lie below the base flood elevation will be mapped into a 'Zone A' Special Flood Hazard Area. Sacramento County Department of Water Resources (DWR) staff requested that this statement be added to the drainage study conducted by Cunningham Engineering so it is clearly understood that the mine areas which lie below the base flood elevation will be mapped into the FEMA floodplain. Moreover, DWR staff also requested these conditions to be added to the mining Use Permit.

On the non-pit-side of Elder Creek, the peak 100-year water surface elevations (WSE) will continue to be naturally contained within limits of the Aspen VIII and IX properties. As such, abutting properties are not impacted by the local increase in peak water surface elevations within Aspen VIII and IX.

The elimination of the right-bank (second spill) northbound spill on Aspen VIII will result in the flow component being conveyed downstream in Elder Creek. This will result in a flow increase downstream in Elder Creek. The increase in downstream peak flow is accompanied by a small increase in Elder Creek's computed peak water levels. Downstream from the project site to Bradshaw Road, the computed average increase in Elder Creeks' peak water surface elevation is 0.01 feet for (100-year) and 0.04 feet (200-year) and from Bradshaw Road to Florin Road the average increase is 0.00 feet (100-year) and 0.01 feet (200-year). DWR also modeled Elder Creek's down stream flow and peak water elevations. DWR's modeling indicated a slight increase of peak water surface elevations above what the Cunningham Engineering model indicated. For comparison purposes DWR's higher estimate of the average increase in Elder Creek's peak water surface elevation from the project site to Bradshaw Road is 0.03 inches (100-year) and 0.05 feet (200-year) and between Bradshaw Road and Florin Road is 0.01 feet (100-year) and 0.02 (200-year). The post-project 100-year/200-year water surface profiles (WSPs) are tabulated in Appendix HW-1.

In May 2016, an updated baseline (pre-project) hydraulic model of Elder Creek was developed by Sacramento County DWR. This model is still in the process of being refined.

Preliminary review of the project by Cunningham Engineering utilizing the modified May 2016 baseline model to try to gauge the downstream effects of the proposed mining plan has resulted in WSE increases that are mostly in the 0.0-0.1 foot range. At all locations downstream of Bradshaw Road, the computed increase was less than 0.1 feet. However, within that reach of the creek between Aspen IX and Bradshaw Road, the model computed the water surface at twelve stream cross-sections. At these twelve cross-sections, the computed WSE increase ranged from 0.05 to 0.11 feet, with a reach-averaged increase of 0.08 feet. Of the twelve cross-section locations, only three indicated a WSE increase of 0.1 feet or more: A pair of adjacent cross-sections at the

very east edge of the property indicated 0.10 and 0.11 feet respectively. The WSE increase of 0.11 was roughly midway between Aspen IX and Bradshaw.

However, preliminary review by Sacramento County DWR found increases in water surface elevations that were greater than those reported above. DWR found that the water surface elevation increases by more than 0.1 feet downstream of Bradshaw Road and there are increases ranging up to 0.17 feet between Bradshaw Road and the western project boundary. DWR staff noted, however, that the models are in flux and that variable results can be expected until the model is finalized.

The 2014 Sacramento County Floodplain Management Ordinance (CFMO) defines maximum allowable increments in post-project water surface elevations resulting from the implementation of projects. The Sacramento County Floodplain Management Ordinance Section 906-06 (H) requires that a project not have an adverse impact, as defined in Sacramento County Floodplain Management Ordinance Section 902-01. The definition of adverse impact includes but is not limited to an increase in the base flood elevation equal or greater than 0.1 foot. For the proposed project the computed downstream increments in peak water surface elevations for both the 2015 DWR and Cunningham Engineering models (see above) are less than the 0.1-foot threshold. However, the May 2016 updated model may have results that exceed the 0.1 foot threshold of significance; if so, the project would result in a potentially significant impact as defined in the Sacramento County Floodplain Management Ordinance.

CONCLUSIONS

Cunningham Engineering utilized Sacramento County's Department of Water Resources most current (August 2015) system-wide hydraulic model for Elder Creek, with minor local adjustments to compute the 100-year/200-year flood limits within the proposed project site. The existing roadway overtopping at Elder Creek Road, together with the two existing creek spills on the Aspen VIII site, will be eliminated for events up to the 200-year storm. This will be accomplished by replacing the existing under-capacity corrugated metal pipes with a 4-8 foot wide by 4.5 foot high concrete box culvert sized for the 200-year peak discharge. The pit-side freeboard of 3 feet will be provided by the proposed earthen berm.

The elimination of the existing spills on the Aspen VIII site will result in an increase in Elder Creek's peak flow downstream from the project site. Cunningham Engineering's 2016 analysis which is based on the 2015 DWR model indicates that downstream of the project site the increase in peak water levels of 0.01 feet (100-year) and 0.04 feet (200-year) from the project site to Bradshaw Road would not exceed the Sacramento County Floodplain Management Ordinance threshold of 0.1 feet. However, relative to the emerging May 2016 DWR model, the increase in peak water levels may exceed 0.1 feet. Therefore, this impact is considered potentially significant.

Based on the above analysis, the proposed project could substantially alter the existing drainage patterns of the project area and/or increase the rate of amount of surface

runoff in a manner that would result in flooding on- or off-site. Thus, the drainage and flooding impacts are potentially significant.

Level of Significance Before Mitigation: Potentially Significant

HW-1 Elder Creek Base Flood Elevations Mitigation Measure

Prior to approval of the Work Authorization Permit, the applicant shall prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:

1. If the analysis demonstrates to the satisfaction of the County of Sacramento Department of Water Resources that the project related increase in base flood elevation of less than 0.1 feet, without mitigation, then no further mitigation is required.

2. If the analysis concludes that the project may result in an increase in base flood elevation of 0.1 or greater, the applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.

   - Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.

   - Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit.

   If mitigation measures are required to reduce the Project's increase in base flood elevations to below 0.1 feet, such measures shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. Dependent upon the measures selected, additional CEQA compliance may be required prior to implementation. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to the issuance of the Work Authorization Permit for the Project.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation HW-2: Does the project develop within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard?

Although the project is in a 100-year floodplain, it does not propose any development within the floodplain. The southwest corner of Aspen VIII is in FEMA zone AO and X. The northwest corner of Aspen IX is in FEMA Zone AO see Plate HW-2. These areas will be excavated as part of the mining operation. The excavated mine pit will create more storage for the flood waters. The project will create additional storage for flood waters and does not proposed any development within the floodplain; therefore the projects impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation HW-3: Does the project create substantial sources of polluted runoff or otherwise substantially degrade ground or surface water quality?

During the wet season (October 1 – April 30), the project must include an effective combination of erosion, sediment and other pollution control best management practices (BMPs) in compliance with the County ordinances and the State's Construction General Permit. During the rest of the year, typically erosion controls are not required, except in the case of predicted rain.

Erosion controls should always be the first line of defense, to keep soil from being mobilized in wind and water. Examples include stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers and anchored blankets. Sediment controls are the second line of defense; they help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

In addition to erosion and sediment controls, the project must have BMPs in place to keep other construction-related wastes and pollutants out of the storm drains. Such practices include, but are not limited to: filtering water from dewatering operations, providing proper washout areas for concrete trucks and stucco/paint contractors, containing wastes, managing portable toilets properly, and dry sweeping instead of washing down dirty pavement.

It is the responsibility of the project proponent to verify that the proposed BMPs for the project are appropriate for the unique site conditions, including topography, soil type and anticipated volumes of water entering and leaving the site during the construction phase. In particular, the project proponent should check for the presence of colloidal clay soils on the site. Experience has shown that these soils do not settle out with conventional sedimentation and filtration BMPs. The project proponent may wish to conduct settling column tests in addition to other soils testing on the site, to ascertain whether conventional BMPs will work for the project.

If sediment-laden or otherwise polluted runoff discharges from the construction site are found to impact the County's storm drain system and/or Waters of the State, the property owner will be subject to enforcement action and possible fines by the County and the Central Valley Regional Water Quality Control Board.

Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, slit fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.

During the mining phase, the stockpiles for topsoil and overburden will be vegetated with native grasses to guard against erosion. The vegetation of the stockpiles is required by the approved reclamation plan and will be inspected at least once per year to insure compliance. Upon completion of mining activities the site will be reclaimed to open space grassland and upon signoff of the approved reclamation plan the site will be fully revegatated with an approved seed mix. Project compliance with requirements outlined above, as administered by the County of Sacramento and the Central Valley Regional Water Quality Control Board will ensure that project-related erosion and pollution impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation HW-4: Does the project substantially deplete groundwater supplies or substantially interfere with groundwater recharge?

The mining operation will not excavate to a depth that will interfere with groundwater recharge. Data collected in February 2014 from existing on-site groundwater wells show groundwater between 112 to 118 feet below existing grade. It is anticipated that the final excavation depths will not exceed 60 below existing grade. Thus, the mining operation will not directly interfere with the groundwater. Furthermore, the proposed project will not substantially interfere with groundwater recharge. The project does not construct or propose any impervious surfaces that would limit water percolation. In fact, it could be argued that because the mine operation is removing overburden and aggregate materials the groundwater can be recharge more easily. Therefore, the projects impacts to groundwater are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

13 GEOLOGY AND SOILS

REGULATORY CONTEXT

STATE REGULATIONS

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The intent of the Alquist-Priolo Earthquake Fault Zoning Act of 1972 is to reduce the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors and prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive and establishes a process for reviewing building proposals in Earthquake Fault Zones. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. However, no Alquist-Priolo Zones are mapped within the project site (see http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed 1-12-16).

SEISMIC HAZARDS MAPPING ACT

The intent of the Seismic Hazards Mapping Act of 1990 is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. However, no Seismic Hazard Zones are mapped in the project site (see http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed 1-12-16.

SURFACE MINING AND RECLAMATION ACT

The State of California Surface Mining and Reclamation Act of 1975 (SMARA) is the primary regulation governing mining operations and mine reclamation. Its purposes are to ensure that adverse environmental effects are prevented or minimized; mined lands are reclaimed to a useable condition; production and conservation of minerals are encouraged while giving consideration to recreational, ecological, and aesthetic values; and residual hazards to public health and safety are eliminated. Local agencies are

responsible for ensuring compliance with SMARA requirements for mine operation and reclamation.

SMARA mandates that the Mineral Resources Project, which is administered by California Geologic Survey and provides objective geologic expertise and information about California's diverse non-fuel mineral resources, classify lands throughout the state that contain regionally significant mineral resources. Through the SMARA Mineral Land Classification Project, the State Geologist identifies and maps mineral resources of the state (not including oil and gas) to show where economically significant mineral deposits occur and where they are likely to occur based upon the best available scientific data. See, Environmental Setting, below for information on the Mineral Land Classifications present in the project area.

Mineral resources classified under the Mineral Land Classification Project include metals; industrial minerals; and construction aggregate, which include sand, gravel, and crushed stone. Special emphasis has been given to construction aggregate because it is the state's most important mineral commodity in terms of tonnage, value, and societal infrastructure. Local agencies are required to use the classification information when developing land-use plans and when making land-use decisions.

ASBESTOS AIRBORNE TOXIC CONTROL MEASURE FOR CONSTRUCTION, GRADING, QUARRYING, AND SURFACE MINING OPERATIONS

The California Air Resources Board (ARB) has adopted an Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. This statewide regulation requires use of control measures to minimize emissions of asbestos-laden dust. The ATCM applies to any size construction project although there are more stringent mitigation requirements for projects that exceed 1 acre. Naturally Occurring Asbestos is known to be present in eastern Sacramento County. See Environmental Setting, below for further information on the locations of Naturally Occurring Asbestos on the project site. In the project area, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has regulatory authority to ensure compliance with the Asbestos ATCM.

LOCAL REGULATIONS

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to geology and soils that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-39:

> Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

CO-40:

> Extractive uses and associated processing uses and facilities shall maintain adequate minimum setbacks to protect adjoining land uses.

CO-41:

> Surface mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

CO-57:

> In areas where topsoil mining is permitted, it shall be done so as to maintain the long-term productivity of the soil.

SA-1:

> The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

ENVIRONMENTAL SETTING

REGIONAL GEOLOGY

The present-day landscape of Sacramento County has been shaped over time by the ongoing processes of erosion and deposition. Material eroded from the ancestral Sierra Nevada, formed over 100 million years ago, was deposited onto the Sacramento Valley floor. Approximately 10 to 15 million years ago tectonic uplifts altered the geomorphology of the Sierra Nevada. Glaciation, volcanism, and erosion followed the uplifting, adding layers of sediment to the valley floor. Under the present geologic conditions, the alteration of the local geomorphology continues through stream erosion of the valley sediments and subsequent deposition in adjacent floodplains.

A "geomorphic province" is comprised of an area of similar geologic origin and erosional/depositional history. Sacramento County is situated in portions of two geomorphic provinces. By far the largest portion of the County lies in the Great Valley province which extends from Redding in the north to approximately Bakersfield in the south and is bounded by the coastal mountain ranges on the west and the Sierra Nevada to the east. A small area in the eastern part of the County is in the Sierra Nevada province. The project site is located within the Great Valley province.

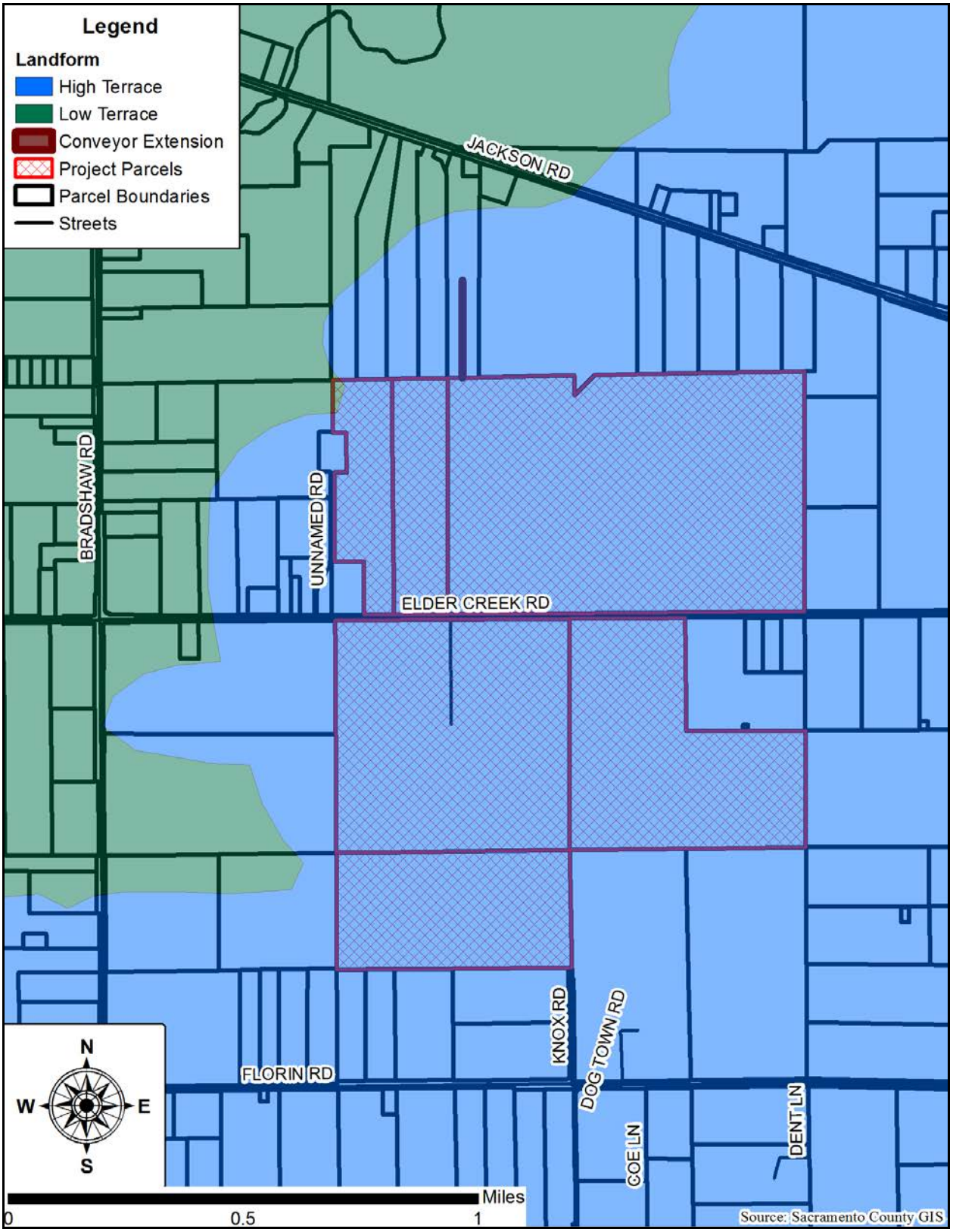
LANDFORMS

A landform is a geomorphological unit, and is largely defined by its surface form and location in the landscape. As part of the terrain, a landform is an element of topography. Landforms are categorized by characteristic physical attributes such as elevation, slope, orientation, stratification, rock exposure, and soil type. The development of the existing landforms in the project site took place during the Pleistocene (1.6 million to 10,000 years ago) and Holocene (10,000 to 200 years ago) Epochs. The predominant landforms in the project site are, low terrace, and high terrace (Plate GS-1). The high terrace landform is the majority of the site; the low terrace landform is found only in the northwest corner of the project site.

LOW TERRACE LANDFORM

Low terraces (also referred to as “young terrace”), are of relatively recent geologic origin. They contain late Pleistocene-age (100,000 years ago) geomorphic surfaces that are underlain by stream alluvium. Low terrace landforms occur on the broad, nearly level plain of alluvial deposits that make up the Sacramento Valley floor. Low terrace landforms are relatively young when compared to the high terrace or the mudflow landforms. Low terrace soils are not as well developed when compared to high terrace landforms, but have been forming long enough to have undergone significant pedogenesis (soil forming processes), and claypans and duripans are common.

Plate GS-1: Geographic Landforms



HIGH TERRACE LANDFORM

The high terrace landform (also referred to as “old terrace”) is restricted to the east side of the Central Valley. The high terrace landform was laid down from 600,000 to over 1 million years ago in the mid- to early Pleistocene to late Pliocene (5 million years ago), and lies topographically above low terraces. In the project site, high terraces are ancient deposits of the Pleistocene American River, which was located south of its present-day site. Very strong soil development has occurred in relatively flat areas on these terraces where the geomorphic surfaces are very old. The most pronounced erosion-induced mound-depression microtopography and vernal pool landscapes are found on the high terraces. The soils and vernal pools of the high terrace landform have essentially been developing for more than a half-million years. Consequently, the high terrace landform exhibits well-developed soils and floristically rich habitat. Similar to the low terrace landform, perched aquifers are common in high terrace landform soils.

GEOLOGIC FORMATIONS

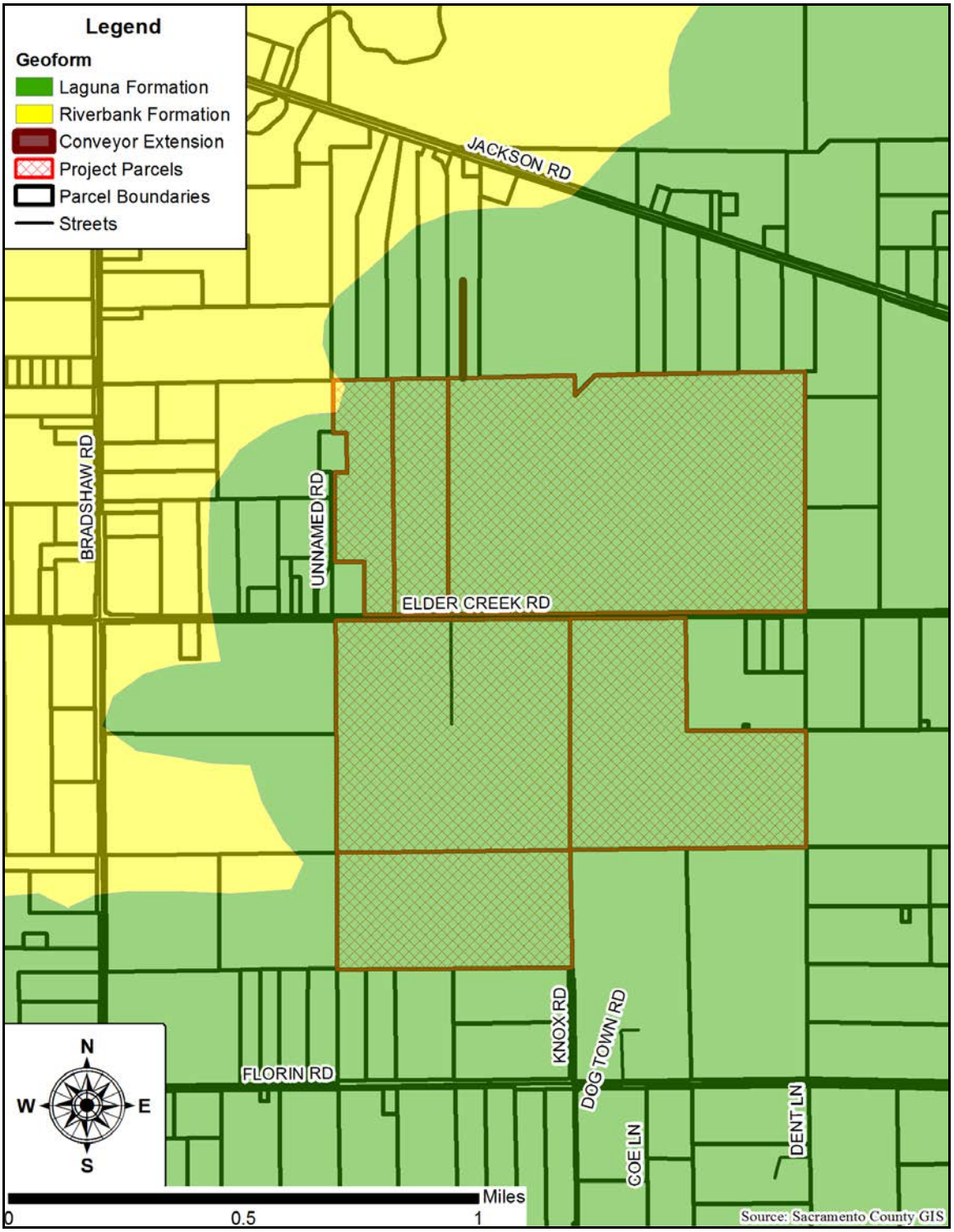
The landforms of the Central Valley can be further subdivided by specific geologic surficial deposits (formations). A geologic formation is a geomorphic feature on the earth’s surface representative of an episode of landscape development. Geologic formations are differentiated by various criteria, including age, physical structure, layering of materials, compaction, texture, depositional history, geomorphology, and soil-profile development. The geologic formations described below are derived from the Geologic Map of the Sacramento Quadrangle prepared by the California State Geological Survey (Plate GS-2). The majority of the project site is located in the Laguna formation; the northwest corner of the project site is located in the Riverbank formation.

LAGUNA FORMATION

The Laguna Formation is part of the high terrace landform; the Laguna Formation, ranging in age from late Miocene to early Pliocene, rests over the older Mehrten Formation. The Laguna Formation is composed of interbedded alluvial gravel, sand, and silt deposited from ancient river channels draining from the Sierra Nevada range, including the Feather, Yuba, American, Cosumnes, and Merced Rivers.

The Laguna Formation occurs in a band several miles wide running north to south in the project area. Its central outcrop extends northward from Deer Creek to its northernmost exposure along U.S. 50. The Redding soil series and Red Bluff-Redding complex are the characteristic soil series associated with the Laguna Formation north of the Cosumnes River (soils types are described further below).

Plate GS-2: Geologic Formations



RIVERBANK FORMATION

The Riverbank Formation is part of the low terrace landform. The Riverbank Formation was deposited on a plain of stream alluvium that has been partially dissected. The upper surface of this plain, in most places, represents the upper surface of the Riverbank Formation. The upper surface is characterized by a gently undulating surface. In the vicinity of Elk Grove, the Riverbank Formation is about 10 miles wide from west to east. To the east, it laps onto older materials composed of the Laguna Formation. To the west, it is in turn overlain by younger alluvial materials. The Riverbank Formation is generally confined to the eastern portions of the project site. Soils with claypans and duripans are common, as are vernal pools. The San Joaquin soil series is most closely associated with the Riverbank Formation. Other associated soil series in the project site include Redding, Red Bluff, and Corning.

SOILS

Many different kinds of soils are found within the project site (Plate GS-3) with a wide range of characteristics, including depth to rock, the presence of hardpans, erodibility, clay content, and soil slopes. Soils in the project site vary from very deep, nearly level alluvial soils, to undulating shallow soils over restrictive duripans or clay-rich soil horizons, to shallow hilly soils overlying bedrock. These soils also vary from well-drained to poorly drained mineral soils and, to a lesser extent, organic soils. Individual soil units are organized into map units called soil associations, which consist of soil units of the same texture and composition that occur in a geographic position.

LOW TERRACE SOILS

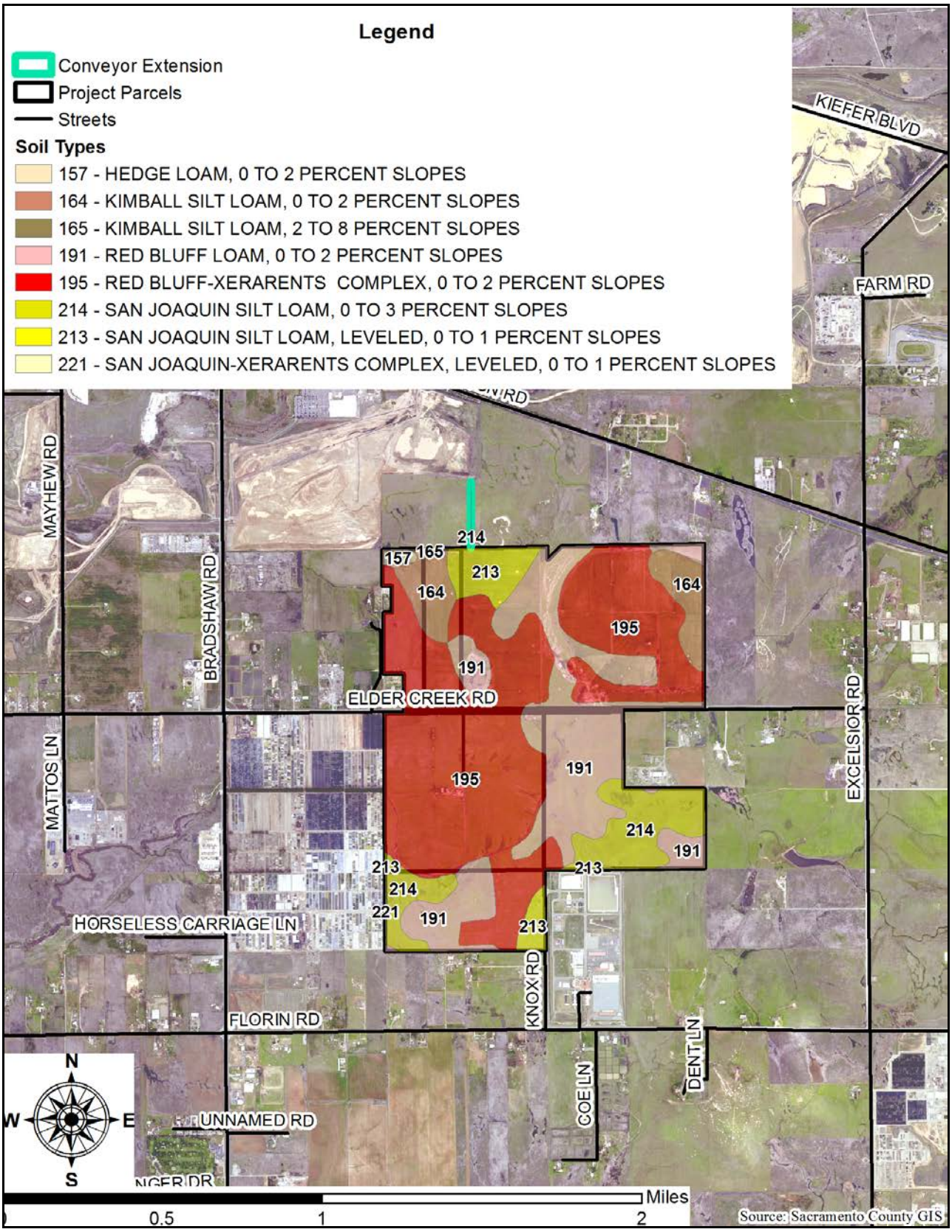
SAN JOAQUIN

The San Joaquin soil series, as well as others it is geographically associated with, developed on Riverbank-age alluvial terraces along the eastern flank of the Central Valley (in the later Pleistocene, 100,000 to 200,000 years old). San Joaquin soils formed in old alluvium on hummocky topography. A cemented hardpan (duripan) typically 2-4 few feet beneath the surface restricts roots and water percolation. The soil series consists of well and moderately well-drained soils above the duripan that formed in alluvium derived from mixed but dominantly granitic rock sources. The San Joaquin series is found on undulating low terraces with slopes of 0% to 9%. Some areas have been leveled. San Joaquin soils account for approximately 17% of soils within Sacramento County and San Joaquin soil complexes comprise an additional 8%, for a total of approximately 25% of Sacramento County. San Joaquin soils are the predominant soil series on the Riverbank Formation occurring on both the high floodplain and low terrace landforms in the county.

HEDGE LOAM

The Hedge loam soil series is moderately deep, moderately well drained soil that is in low areas on low terraces commonly adjacent to drainageways, on flood plains, and on

Plate GS-3: Soils Map



low stream terraces. It formed in alluvium derived from granitic rocks. Slopes generally are flat and level. In areas that have not been leveled, however, they are complex and are incised by many, shallow meandering drainageways and depressions. The native vegetation is mainly annual grasses and forbs.

KIMBALL SILT LOAM

The Kimball silt loam soil series is very deep, will drained soil in low, leveled areas on low terraces. It formed in alluvium derived from mixed granitic rocks. Slopes are flat and level. The vegetation in uncultivated areas is mainly annual grasses and forbs.

HIGH TERRACE SOILS

REDDING

Redding soil series developed on older, higher alluvial terrace landforms of the Laguna Formation (Pliocene to early-Pleistocene age).. The Redding soil series is a well-drained, gravelly loam mineral soil that is moderately deep over a hardpan and supports primarily annual grassland. It formed in gravelly old valley fill from mixed sources but primarily derives from the Laguna Formation. The hardpan occurs at a depth of 2 to 4 feet below surface level. The series is found on nearly level or dissected and undulating to hilly high terraces. Slopes are 0% to 30%.

Typically, the Redding series surface layer is strong brown gravelly loam about 7 inches thick. The upper part of the subsoil is yellowish-red loam and gravelly loam. The lower part is a claypan of reddish brown and yellowish-red gravelly clay about 8 inches thick, at about 20 inches depth with a weighted average clay content of 35% to 60%. Below this to a depth of 66 inches is a very gravelly hardpan that is strongly cemented with silica.

Therefore, the Redding soil series restrictive layer is both claypan and hardpan. In some areas, the surface layer is gravelly sandy loam, loam, or sandy loam. The shrink–swell potential is high. Surface runoff is very slow or slow. The hazard of water erosion is slight to moderate. Permeability is very slow in the Redding soil. Water is perched above the claypan/hardpan for short periods after heavy rainfall in winter and early spring. The soil between depths of 4 and 18 inches is usually dry all of the time from June until September or early October, and is moist in some or all parts the rest of the year. Redding soils are on nearly level or dissected and undulating to hilly high terraces. Microrelief may be hummocky. Gravel and cobbles tend to concentrate in the intermound in hummocky areas. This soil is used as rangeland or for dryland crops, such as wheat. It may provide wetland functions and values. Redding soils account for approximately 6% of Sacramento County, predominantly in the eastern portion of the County. Redding soils are the predominant soil series occurring on the Laguna Formation on low and high terraces.

RED BLUFF

The Red Bluff series consists of very deep, well-drained loamy mineral soils formed in high (older) terraces of the Laguna Formation. Red Bluff soils are dominant on high and intermediate terraces and have 0% to 9% slopes in elevations of 75 to 1,500 feet at mean sea level (amsl). Soil horizons nearest the surface may have maximum clay contents of 3% to 10% and deeper soil horizons have clay content ranging from 27% to 60%. The restrictive layer in the Red Bluff series is claypan at a depth of approximately 35 inches. A high content of clay, reddish color, and a significant amount of iron and manganese staining distinguish these soils from other soils in the project area. The soil between a depth of 7 and 21 inches is dry in all parts from June to October and moist in some or all parts the rest of the year. Red Bluff soils are among the oldest soils in the county. Parent materials for Red Bluff soils are gravelly and cobbly alluvium from mixed sources and laid down by an ancestral channel of the American River. This parent material consists of rounded pebbles and cobbles including dark metamorphic, quartzitic, and volcanic rocks in a granitic sand matrix. These American River channel pebbles are approximately 600,000 years old, consequently, they are of mid-Pleistocene age.

SOIL HAZARDS

SUBSIDENCE

Subsidence is the gradual settling or sinking of the Earth's surface with little or no horizontal motion. Lands in Sacramento County may be affected by five types of subsidence; compaction of unconsolidated soils by earthquake shaking, compaction by heavy structures, the erosion of peat soils, peat oxidation, and fluid withdrawal. As discussed below, the likelihood for substantial seismic activity in the project area is low; thus earthquake shaking is not a major source of subsidence. Subsidence related to peat soils and heavy structures has not been an issue in the project area. The pumping of water for residential, commercial, and agricultural uses from aquifers is the most common cause of subsidence in the County via the fluid withdrawal mechanism. Known subsidence areas generally occur in the far western portions of Sacramento County, west of I-5. Although subsidence has caused substantial problems in portions of the Delta and the San Joaquin Valley, it has not been a major concern in the project area.

LANDSLIDES

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. This process typically involves the surface soil and an upper portion of the underlying bedrock. Expansive soil on slopes tends to shrink and swell in response to moisture content changes. During this shrinking and swelling process, gravity tends to work the soil downslope. Movement may be very rapid, or so slow that a change of position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles. The vast majority of the topography in the project area is relatively flat and not subject to landslides.

NATURALLY OCCURRING ASBESTOS

Asbestos is a naturally occurring mineral that is classified as a known human carcinogen. In California, serpentinite and ultramafic rock (two specific rock types) may contain asbestos minerals, especially near fault zones. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock.

Asbestos poses a health risk only when it becomes friable, which means that it can be easily broken into tiny pieces, which can then be become airborne and then inhaled. All types of asbestos are hazardous and may cause lung disease and cancer. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading, and at quarry operations (due to broken or crushed serpentinite and ultramafic rocks). All of these activities may have the effect of releasing potentially harmful asbestos into the air.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) has determined that Naturally Occurring Asbestos is present within areas of eastern Sacramento County. The unincorporated areas in eastern Sacramento County with a moderate likelihood for the presence of naturally occurring asbestos include portions of Rancho Murieta and areas south of U.S. 50 in the City of Folsom's sphere of influence. The project site is not near these areas therefore, the project site is not likely to contain naturally occurring asbestos.

GEOLOGICAL HAZARDS

SEISMICITY AND EARTHQUAKE

The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking could potentially result in the damage or collapse of buildings, levees, and other structures. Most earthquakes occur along faults, which are fractures or geological areas of weakness, along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep.
No major active faults transect Sacramento County, and the County has experienced relatively little seismic activity. There are several subsurface faults in the Delta; but most are considered inactive. While it is possible for the project site to be subject to seismic shaking, according to the "Probabilistic Seismic Hazard Assessment for the State of California" report prepared by the California Department of Conservation (DOC), Division of Mines and Geology, the probability for such shaking in this area is low.

LIQUEFACTION

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a

fluid. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, and silty clays are generally stable under the influence of seismic ground shaking. Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Sites underlain by relatively loose sandy soils and saturated deposits of fill combined with a shallow groundwater table, which typically are located in alluvial river valleys/basins and floodplains, are susceptible to liquefaction.
As identified in the General Plan, Sacramento County has two areas that may pose liquefaction problems: the City of Sacramento downtown area and the Delta. The project area is outside both the downtown area and the Delta.

Mineral Resources

Under Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. SMARA requires the office of the State Geologist to classify lands within California based on mineral resource availability. The State Geologist is responsible for classifying lands subject to urban development by Mineral Resource Zones according to the presence or absence of significant sand, gravel, stone, or other deposits of value that may be suitable for mining. The process is based solely on underlying geology without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that local government decision-makers recognize and consider the mineral potential of the land before making land use decisions that could preclude mining.

In compliance with SMARA, the California Geological Survey (CGS) has established the following Mineral Resource Zone (MRZ) classification system to denote both the location and significance of key extractive resources.

MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.

MRZ-3 Areas containing mineral deposits, the significance of which cannot be evaluated from existing data.

MRZ-4 Areas where available information is inadequate for assignment to any other MRZ zone.

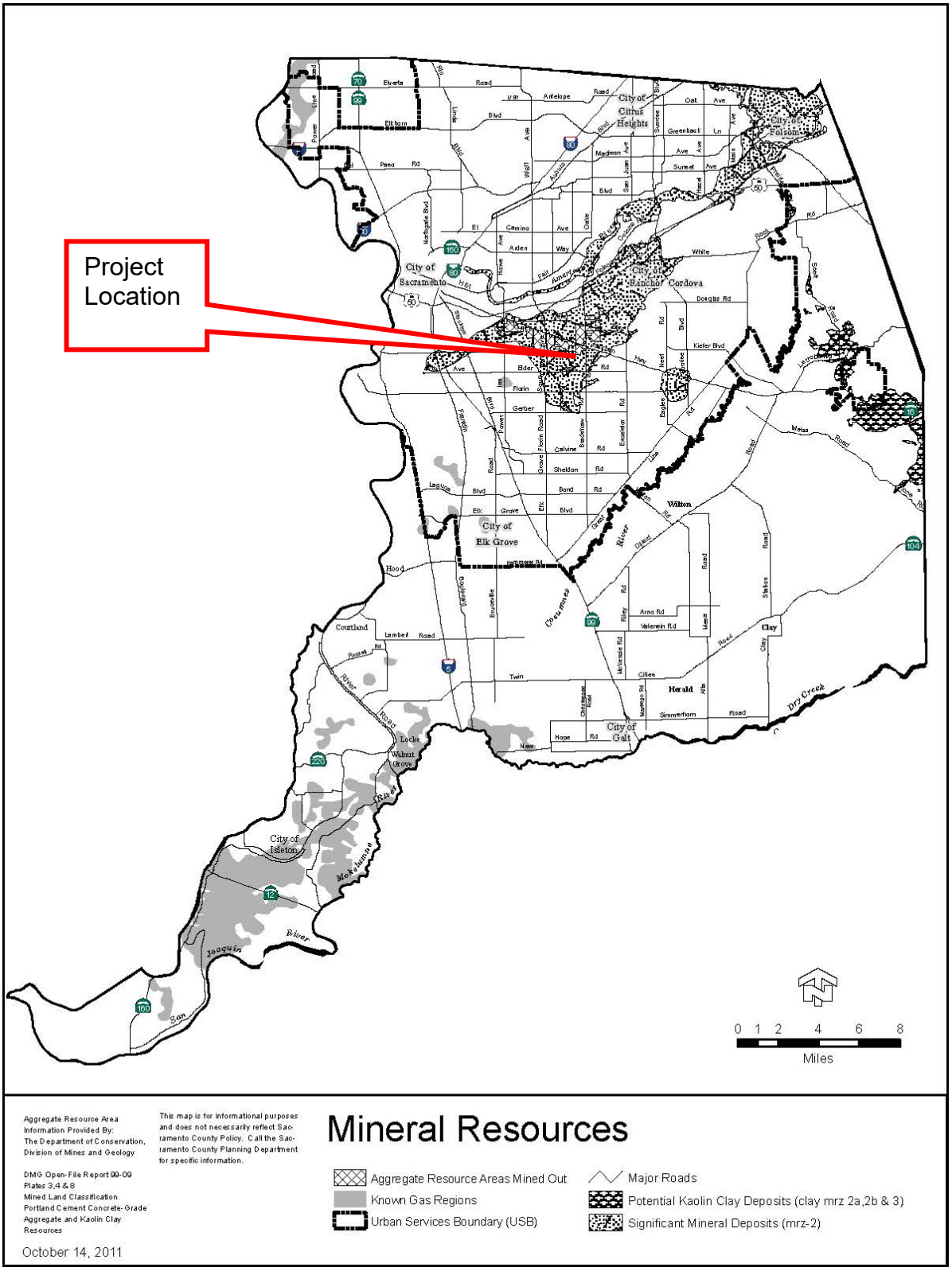
The project site is located in the MRZ-2 designation (Plate GS-4). The MRZ-2 designation is defined as areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presences exits.
The primary mineral resource in the project area that is currently in production is aggregate. Other mineral resources that have, or could support commercial operations include clay, gold, silver, peat, topsoil, lignite, natural gas and petroleum. Clay is surface mined in at least two locations within the county including along the Cosumnes River. At present, peat and lignite deposits in the Delta are not commercially mined.

Existing Site Conditions

The project includes two proposed mine pits, Aspen VIII and Aspen IX. The total area for Aspen VIII is approximately 319 acres and the total area for Aspen IX is approximately 363 acres while the mining pits total 355 acres. The project also includes an approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County (Plate GS-5) east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community. The site currently consists of fields for cattle grazing, three residences, agricultural buildings associated with grazing and farming, and high-voltage power line towers.

The project site's topography generally slopes down from east to west with the project site elevation ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet above mean sea level along the west side.

Plate GS-4: Mineral Resources



Aggregate Resource Area Information Provided By: The Department of Conservation, Division of Mines and Geology

DMG Open-File Report 99-09 Plates 3,4 & 8 Mined Land Classification Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources

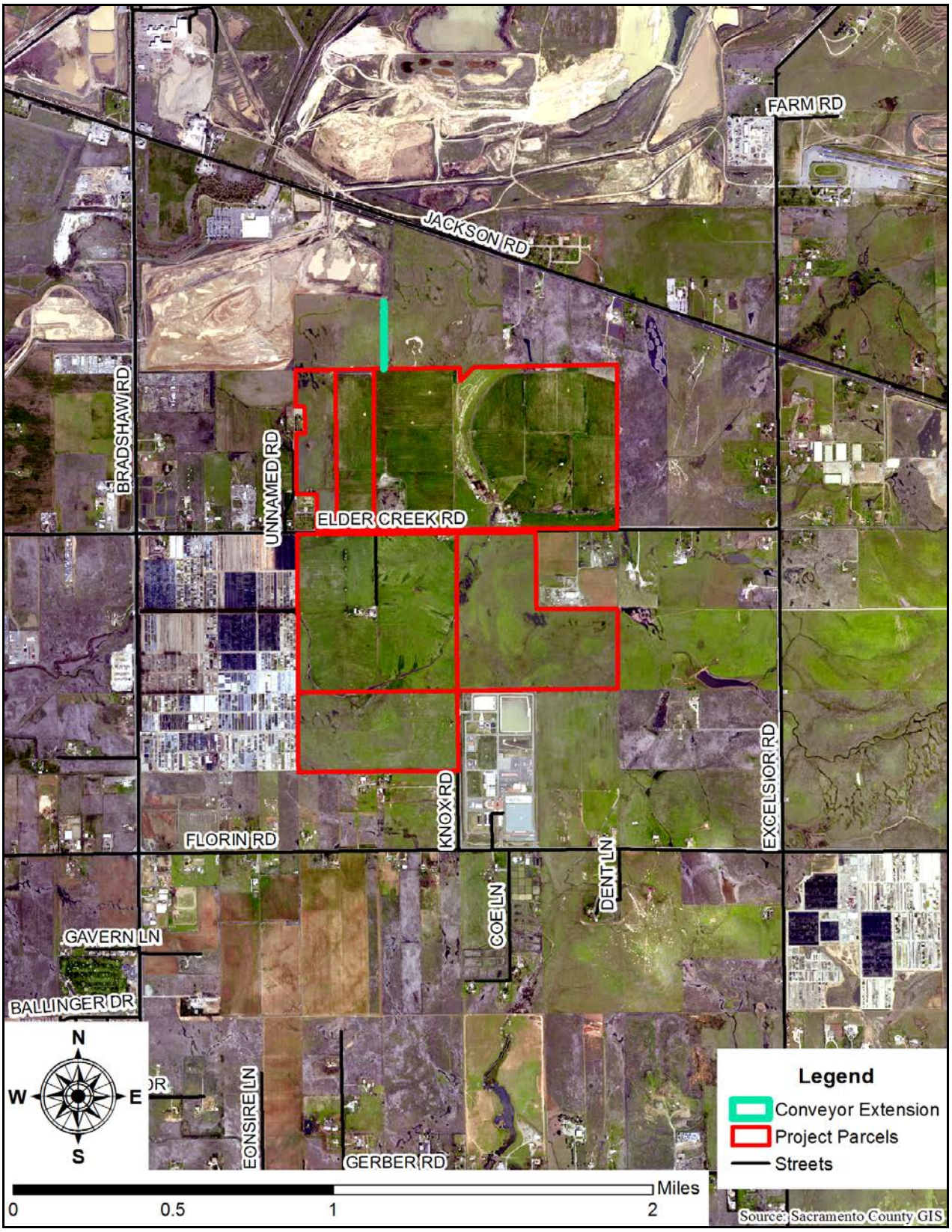
October 14, 2011

This map is for informational purposes and does not necessarily reflect Sacramento County Policy. Call the Sacramento County Planning Department for specific information.

Mineral Resources

- Aggregate Resource Areas Mined Out
- Known Gas Regions
- Urban Services Boundary (USB)
- Major Roads
- Potential Kaolin Clay Deposits (clay mrz 2a,2b & 3)
- Significant Mineral Deposits (mrz-2)

Plate GS-5: Project Location



Soil and Geologic Existing Conditions

Geocon Consulting drafted a Geotechnical Memorandum for the site. The following site-specific information is taken from that memorandum, which may be found in Appendix GS-1.

The project site is underlain predominantly by consolidated Pliocene-Age alluvium of the Laguna Formation. The on-site soil consists of two characteristic layers: clayey overburden and underlying clayey gravel with cobbles. The upper layer (overburden) consists primarily of firm to very stiff sandy lean clay and variable occurrences of medium dense clayey sand. Geocon Consulting, Inc stated that during prior investigation the overburden thickness ranged from 1 to 11 feet.

Furthermore, the soil below the overburden generally consists of medium dense to very dense clayey gravel with cobbles up to 8 inches. The gravel and cobble includes weathered to fresh metavolcanics and cemented sandstones and will be the aggregate source for the mining projects. The strata proposed for mining overlays variably weathered, fine-clastic deposits of sandstone, siltstone, mudstone, and claystone.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Geology and Soils the proposed project would have a significant impact if it:

GS-1: Is located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; or

GS-2: Results in substantial soil erosion or the loss of topsoil; or

GS-3: Directly or indirectly destroy a unique paleontological resource or site; or

GS-4: Exposes people or structures to substantial risk of loss, injury or death involving ruptured of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; or

GS-5: Results in a substantial loss of an important mineral resource; or

GS-6: Has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available.

As discussed above there are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to know earthquake faults and seismic hazards are minimal. The proposed project is a surface mine that will extract mineral resources from the site. Furthermore, the proposed project will not construct any septic tanks or wastewater disposal systems. Therefore, GS-4, GS-5 and GS-6 are not applicable to the project.

Impacts And Analysis

Impact Evaluation GS-1: Is the project located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Seepage and Slope Stability Analysis Background Basics

This section provides background on the basic mine site operations. The proposed mining slopes will be setback from Elder Creek by a minimum of 150 feet. The proposed perimeter berm will be approximately three feet high and will be constructed at existing grade using overburden and topsoil.

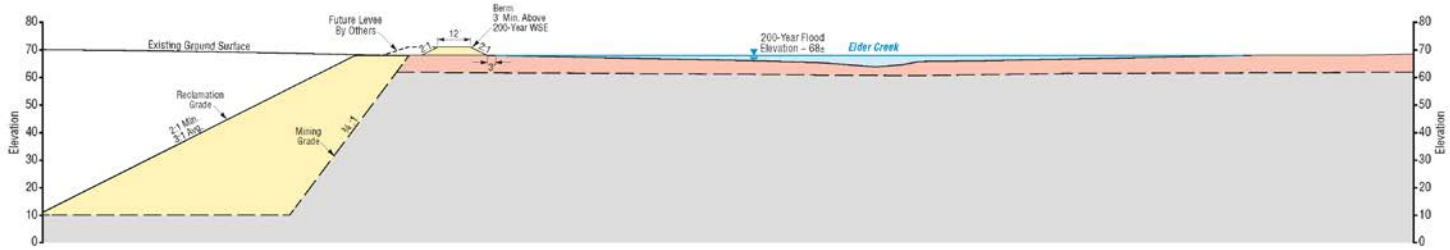
The project site has a topsoil layer and under the topsoil is the overburden layer. Below the overburden, dense gravel deposits are present above weathered sandstone, siltstone, mudstone, and claystone and these deposits are the aggregate material that is to be mined. Static groundwater is at approximately 30 feet below mean sea level, which is below the planned depth of the mine pits.

The topsoil will be maintained and stored in accordance to SMARA code section 3711 standards. The mine pit slopes will descend at slopes of 3/4H:1V (3/4 unit of horizontal to one unit of vertical) and no steeper than 2H:1V (2 units of horizontal to one unit of vertical), from the high side or land side toe of the embankment to the planned mining depth. The side slopes are assumed to be 2H:1V for the berms and berms will have a width of 12 feet (Plate GS-6).

According to Geocon Consultants, Inc., the berms and reclamation slopes will be constructed with engineered fill derived from on-site sources. After the side slopes and pit floors are created the side slopes and pit floor will be reclaimed using the topsoil from the site that has been salvaged, stored and maintained according to SMARA code section 3711.

The following analysis of the geology and soil is based on Geocon Consulting technical study titled a Geotechnical Memorandum. The technical study was peer reviewed by staff at the County of Sacramento Department of Water Resources.

Plate GS-6: Side Slopes Cross-Section

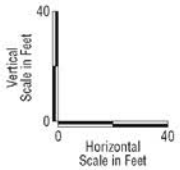


LEGEND:

- EMBANKMENT/RECLAMATION FILL (Reclaimed Overburden)
- OVERBURDEN – Interbedded Sandy SILT, lean CLAY, Silty/Clayey SAND
- GRAVEL DEPOSITS – Clayey GRAVEL, Silty GRAVEL

LAGUNA FORMATION

WSE Water Surface Elevation



GEOCON CONSULTANTS, INC.
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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

TYPICAL CROSS-SECTION

S9304-05-02 | December 2014

MATERIAL PARAMETERS

Geocon Consultants, Inc performed a seepage and slope stability analysis for the project site. To select the appropriate material parameters for the seepage and slope stability analyses Geocon Consultants used the information derived from their previous geotechnical investigation; drill hole and laboratory grain size distribution information; published correlations (e.g., Alyamani and Sen, 1993); engineering judgment; and experience with similar soils in the local area. The prior investigation was associated with the Aspen VIII and IX project that was submitted in 2007 and ultimately was withdrawn by the applicant. The material parameters used in the analysis are summarized in Table GS 1. The consultant assumed a generally flat soil layer stratigraphy consistent with the depositional and erosional geology of the site.

Table GS 1: Soil Parameters for Seepage and Slope Stability Analyses

Material Type	Total Unit Weight (pcf)	Cohesion, C (psf)		Friction Angle, ϕ (degrees)		Permeability (ft/sec)	
		Total	Effective	Total	Effective	Vertical	Horizontal
Embankment/ Reclamation Fill	120	800	100	20	34	3.28×10^{-7}	3.28×10^{-6}
Overburden	120	200	150	28	30	3.28×10^{-6}	3.28×10^{-5}
Gravels	135	50	50	32	40	3.6×10^{-3}	3.6×10^{-2}

Notes: pcf = pounds per cubic foot psf = pounds per square foot

SEEPAGE ANALYSIS AND RESULTS

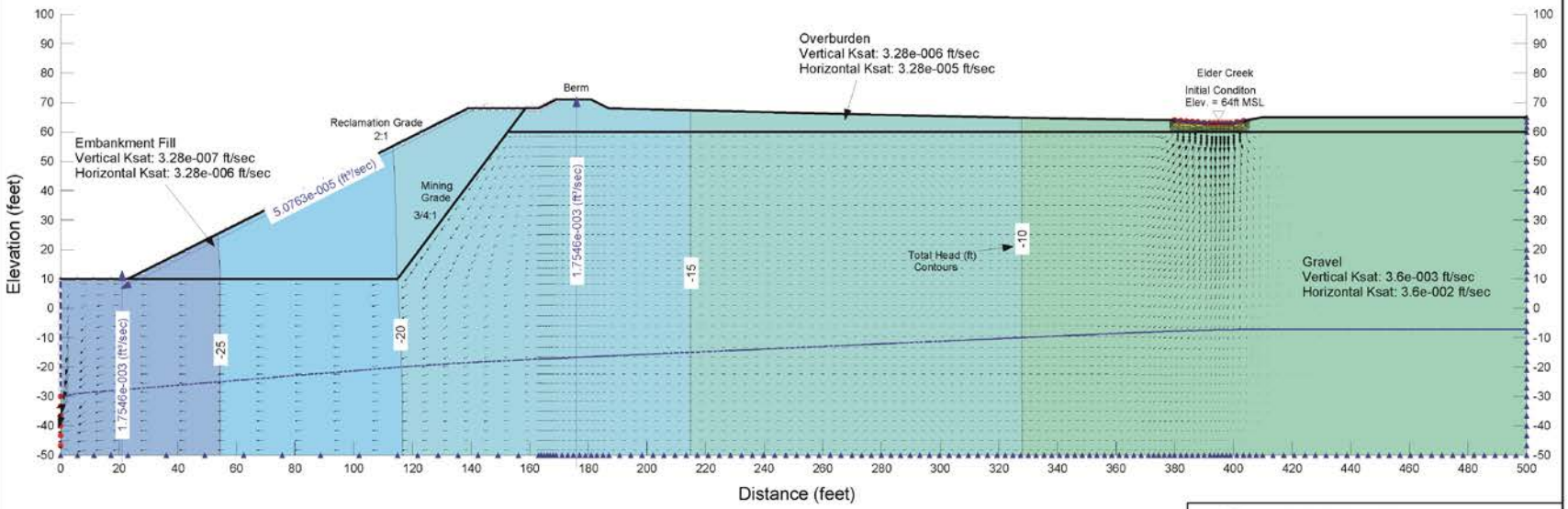
The proposed slopes for the project will be setback from Elder Creek by a minimum of 150 feet (Plate GS-6). To model seepage conditions Geocon Consulting Inc. used the computer program *SEEP/W, Version 7* (Geo-Slope International). In their analysis, they considered the initial condition for the site to be the average low-flow water elevation of 64 feet Mean Sea Level. They modeled the seepage front over a 100-year time period to mimic steady-state conditions. Next they modeled a transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. The seepage analysis results are shown in Plate GS-7 and Plate GS-8

Plate GS-7: Seepage at Low Flow

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:53:36 AM

Analysis: Low-Flow Channel
Method: Transient
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



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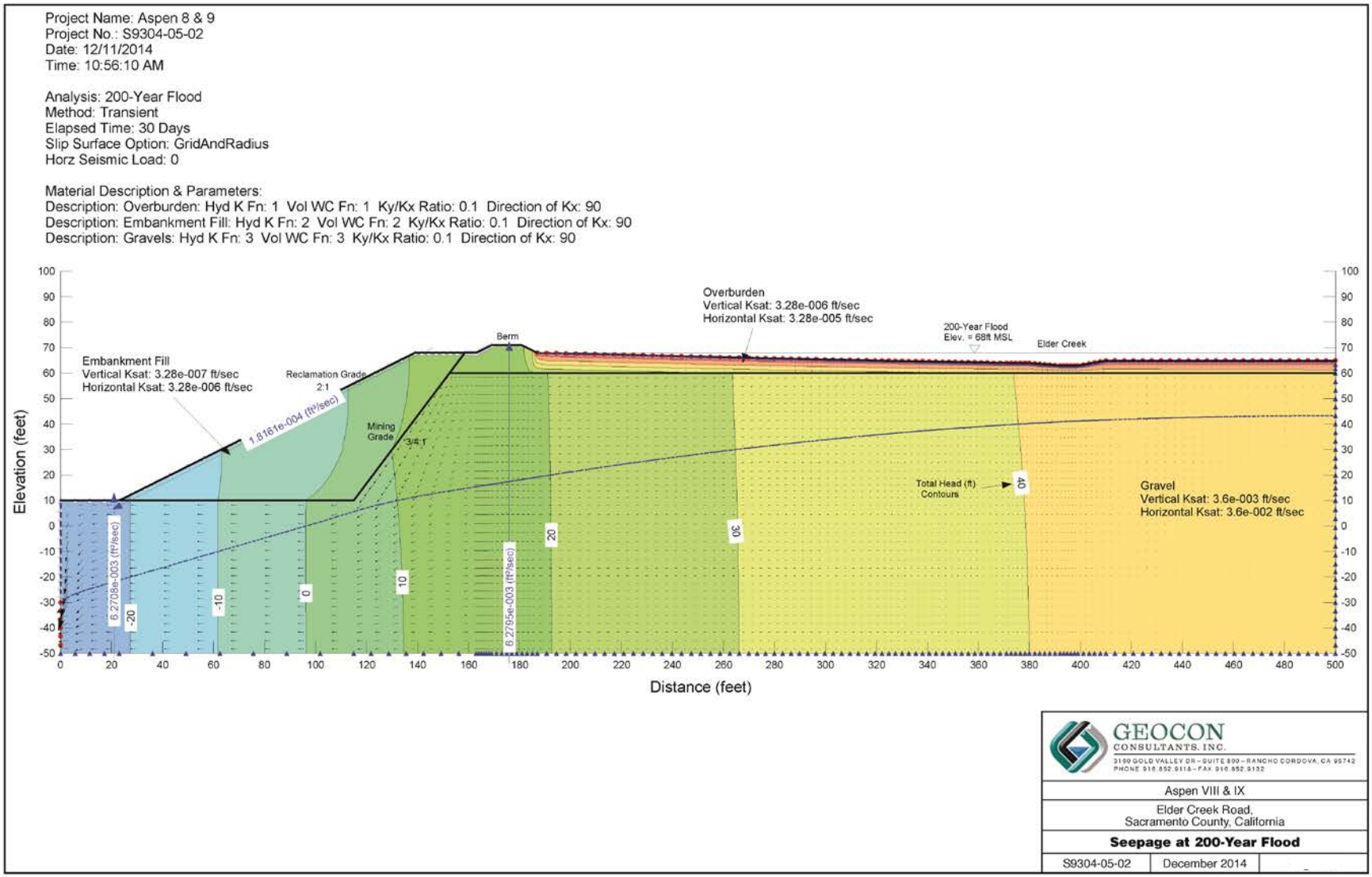
Aspen VIII & IX	
Elder Creek Road, Sacramento County, California	
Seepage at Low Flow	
S9304-05-02	December 2014

Plate GS-8: Seepage at 200-Year Flood



The results of the analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).

SLOPE STABILITY ANALYSIS AND RESULTS

The stability of the proposed final slopes were analyzed using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for both the steady-state (low-flow) and 200-year flood conditions.

SLOPE/W uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety (FOS) against deep-seated failure. For the analysis, Spencer's Method with a circular failure mechanism is used. Spencer's Method satisfies both moment and force equilibrium. The computer program searches for the critical failure surface based on user-provided input parameters. The critical failure surface for each analysis is shown on computer-generated output as hatched lines on the slopes. The factor of safety is shown on each figure directly above the failure surface. For a circular failure surface, a grid of search midpoints and radii are specified and the computer search for the critical failure surface. The critical failure surface is shown as the hatched area on the following plates; Plate GS-9, Plate GS-10, Plate GS-11, and Plate GS-12. The results of the slope stability analysis under the different conditions of analysis (e.g. low-flow, 200-year, static and seismic) are summarized in Table GS 2. A 1.5 factor of safety is the commonly required minimum factor of safety for long-term static stability and the project has a static FOS of 1.7. A 1.1 factor of safety is the commonly required minimum factor of safety for pseudo-static (seismic) stability and the project has a seismic FOS of 1.5.

Table GS 2: Slope Stability Analysis Results

Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Steady-State Low-Flow Conditions	1.7	1.5
200-Year Flood Event (30-day duration)	1.7	1.5

Plate GS-9: Static Slope Stability at Low-Flow

(The Critical Failure surface is shown as the hatched area)

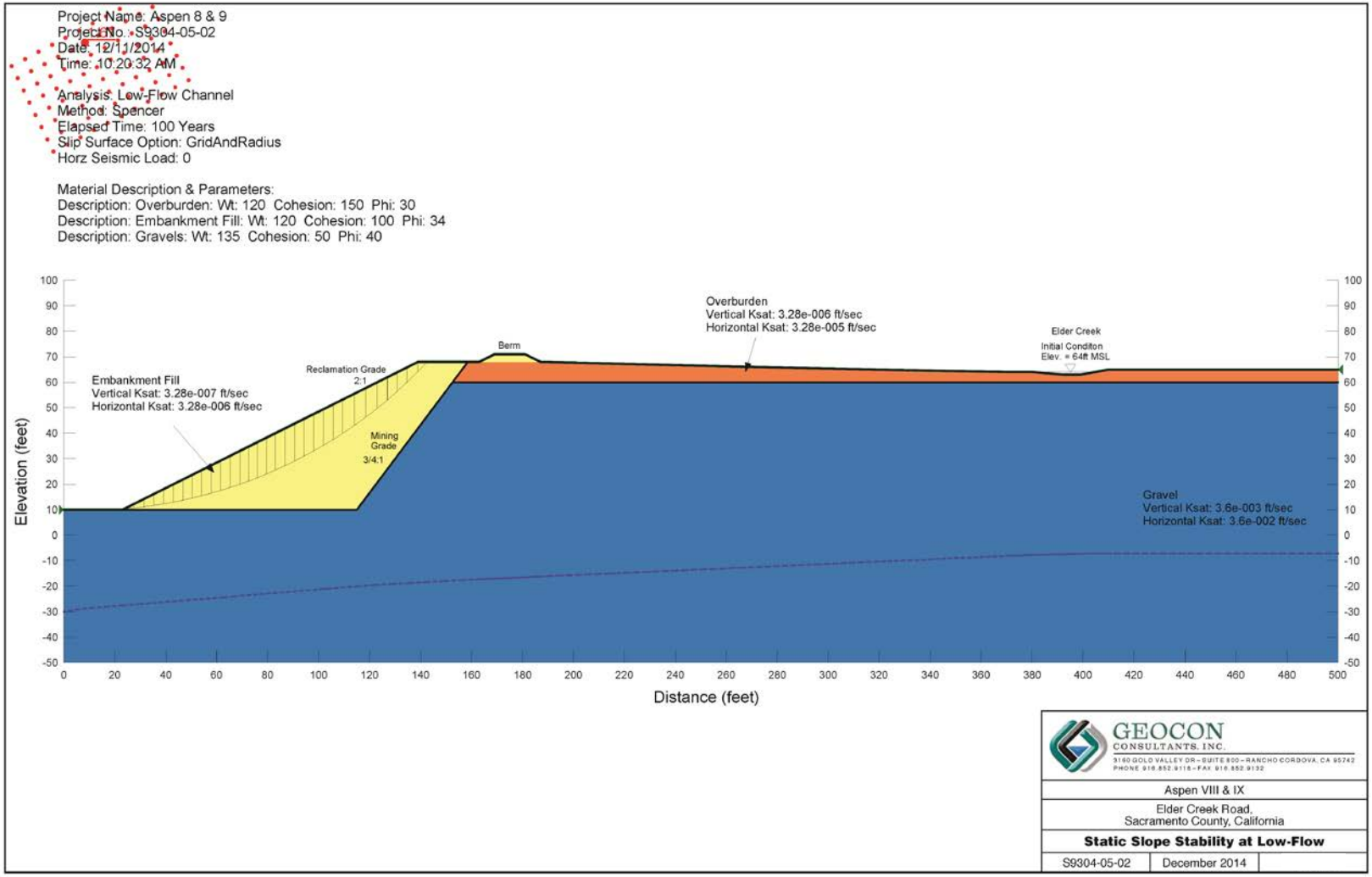


Plate GS-10: Seismic Slope Stability at Low-Flow

(The Critical Failure surface is shown as the hatched area)

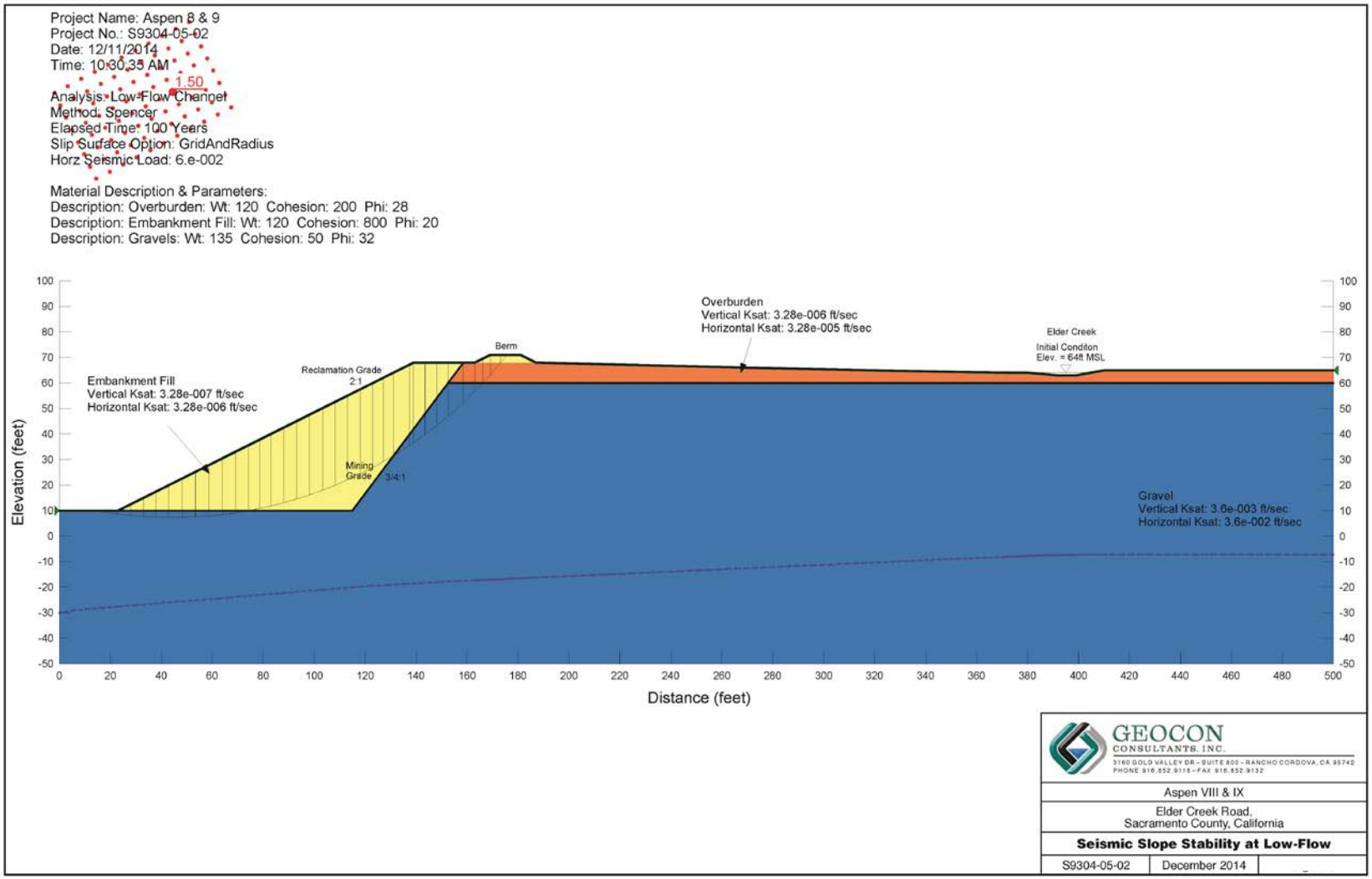


Plate GS-11: Static Slope Stability at 200-Year Flood
(The Critical Failure surface is shown as the hatched area)

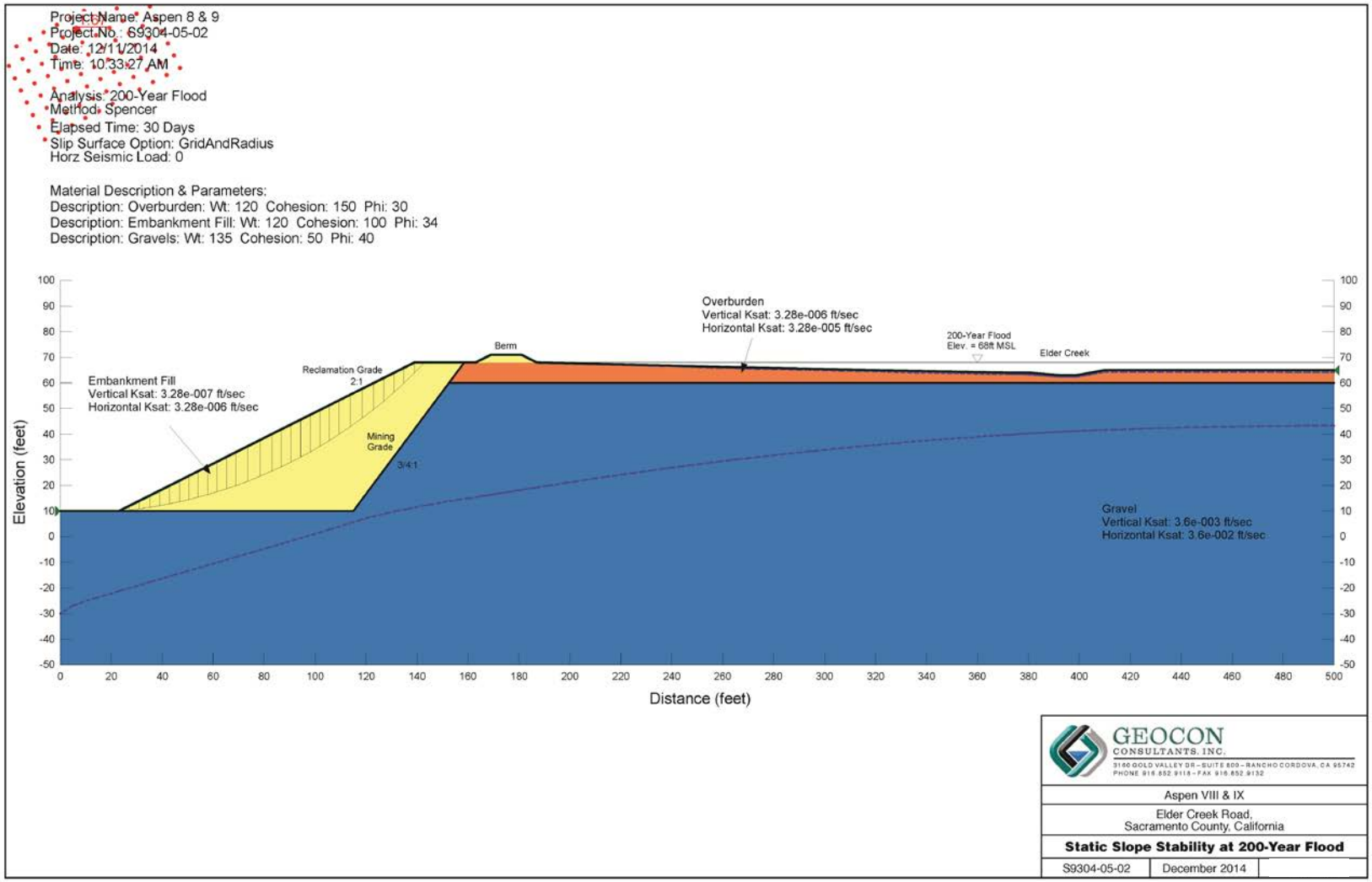
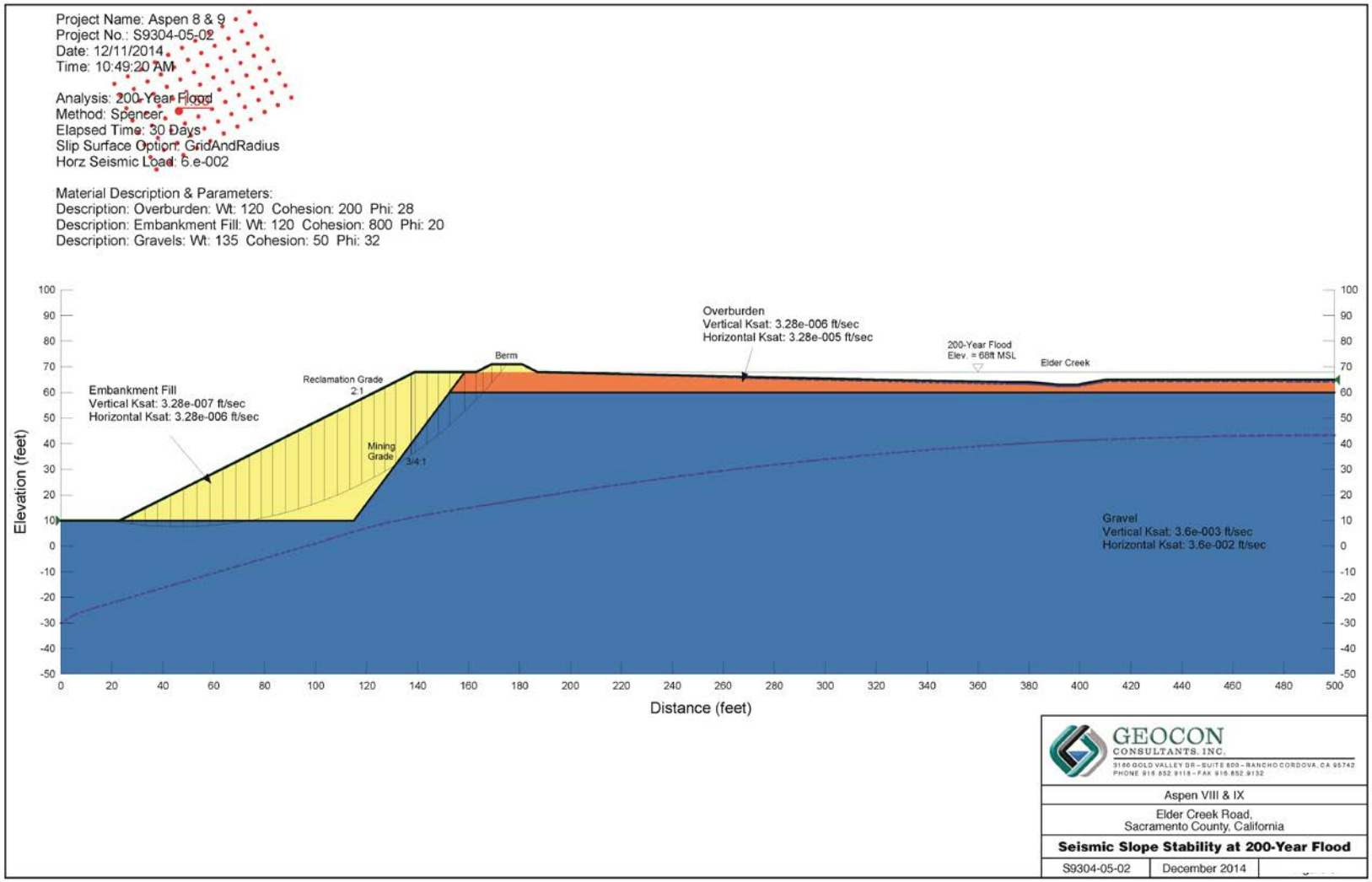


Plate GS-12: Seismic Slope Stability at 200-Year Flood
(The Critical Failure surface is shown as the hatched area)



CONCLUSION

The results of the analyses indicate that the seepage front does not intercept the proposed mine slopes under low-flow or 200-year flood conditions, even with the low-flow conditions sustained indefinitely (100 years). Furthermore, the results of Geocon Consultants Inc, slope stability analyses for a 2:1 reclamation slope indicate that the factor of safety (FOS) is above the commonly required minimum factor of safety of 1.5 for long-term static stability and factor of safety of 1.1 for pseudo-static (seismic) stability. If the modeling indicates a FOS less than 1, then that would indicate an unstable configuration. The slope failure area (hatched area) indicates where and how the slope will fail when the failure occurs. Therefore, the proposed reclamation slopes appear to be appropriate for the proposed end use of the site from a static and seismic standpoint provided the consultant's recommendations contained below (Mitigation Measure: Reclamation Slopes and Berms) are incorporated into the design and construction of the project. The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are potentially significant but with mitigation the impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-1: Reclamation Slopes and Berms Mitigation Measure

A. Reclamation slopes shall be constructed at 2H:1V or flatter.

B. To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment/berm located around the perimeter of the mine operation, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources.

C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources.

D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes.

E. At the beginning of each year (in the month of January) a written maintenance plan that specifies specific actions that ensure the slopes are in good repair, stable and safe shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. The report shall also include an evaluation of the prior year recommended actions to ensure that the actions have gone into effect and how the actions corrected any deficiencies. This report shall be prepared by a registered and licensed civil engineer in good standing.

F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation GS-2: Does the project result in substantial soil erosion or the loss of topsoil?

The project is a surface mining operation that will excavate the site for aggregate materials. The topsoil will be removed from the site prior to mining. When the mining operation is complete, the site will be reclaimed using the topsoil from the site that has been salvaged and maintained for reclamation. The use of the topsoil could be many years in the future and the storage of the topsoil at the site should be conducted so as to not result in erosion or loss of topsoil.

The potential for the topsoil to get mixed up with overburden or otherwise eroded is a significant issue because the topsoil is the growth media of the soil. In other words, the topsoil contains organic materials that assist in plant growth and overburden does not contain the same organic materials. The topsoil is used to reclaim the site back to open space grassland. If the topsoil is gone, then overburden will have to be heavily fertilized to obtain the same results as topsoil. Furthermore, if the topsoil stockpile is not properly maintained the topsoil has the potential of blow away with the wind or run off in a rain event. The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil handling measures in that plan is therefore recommended to mitigate this potentially significant impact. With mitigation the project's impacts to substantial soil erosion or loss of topsoil are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-2: Topsoil Management Mitigation Measure

Comply with the topsoil handing and stockpiling measures contained in Section 6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation GS-3: Does the project directly or indirectly destroy a unique paleontological resource or site?

The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. The mitigation for unanticipated cultural discoveries (CR-2; see Cultural Resources chapter) includes provisions for paleontological resources and will prevent the direct or indirect destruction of a unique paleontological resource or site. Compliance with Mitigation Measure CR-2 will assure that impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-3: Paleontological Resources Unanticipated Discoveries Mitigation Measure

Comply with Mitigation Measure CR-2.

Level of Significance After Mitigation: Less than Significant

14 BIOLOGICAL RESOURCES

REGULATORY CONTEXT

FEDERAL

FEDERAL ENDANGERED SPECIES ACT

Under the Federal Endangered Species Act (FESA) of 1973, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as endangered or threatened. The Federal Endangered Species Act protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS). In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction. Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

FEDERAL CLEAN WATER ACT SECTION 404

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The U.S. Army Corps of Engineers (Army Corps) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into Waters of the United States (Waters of the U.S.) under Section 404 of the CWA. The definition of "Waters of the U.S." includes all navigable waters; interstate waters and wetlands; all intrastate waters and wetlands that

could affect interstate or foreign commerce; impoundments of the above-listed waters; tributaries of the above-listed waters; territorial seas; and wetlands adjacent to the above-listed waters. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions".

As part of the wetland delineation and verification process, the Army Corps will determine whether wetlands and other features in a project site are considered Waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters, the proponent must seek a permit from the Army Corps. The Army Corps can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). The EPA also has authority over wetlands and may override an Army Corps permit.

FEDERAL CLEAN WATER ACT, SECTION 401

Section 401 of the Clean Water Act requires any person applying for a Section 404 permit for activities resulting in a discharge into Waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board (Regional Water Board). The goal of this program is to protect Waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the Clean Water Act, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by the Army Corps under Section 404 (above).

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt.

STATE REGULATIONS

CALIFORNIA ENDANGERED SPECIES ACT (CESA)

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the Federal Endangered Species Act, but unlike its federal counterpart, CESA pertains to state-listed endangered and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. The California Endangered Species Act allows the CDFW to authorize exceptions to the state's prohibition against "take" of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under California Environmental Quality Act (CEQA) (Fish and Game Code Section 2081).

FULLY PROTECTED SPECIES

California Fish and Game Code Sections 4700 (mammals), Section 3511 (birds), Section 5050 (reptiles and amphibians), and Section 5515 (fish) designate certain species as "fully protected." The State of California first began to designate species as "fully protected" prior to the creation of the California Endangered Species Act and Federal Endangered Species Act. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Fully protected species, or parts thereof (e.g., feathers, wings, talons), may not be taken or possessed by any individual at any time. Furthermore, CDFW prohibit any state agency from issuing incidental take permits for fully protected species. CDFW may issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

MIGRATORY BIRD SPECIES AND BIRDS OF PREY (RAPTORS)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. These stipulations are similar to the federal Migratory Bird Treaty Act and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act.

NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the California Department of Fish and Wildlife. The Native Plant Protection Act is administered by the California Department of Fish and Wildlife and set forth in California Fish and Game Code Sections 1900-1913. The California Endangered Species Act (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the Native Plant Protection Act remains part of the Fish and Game Code.

CALIFORNIA STREAMBED ALTERATION NOTIFICATION/AGREEMENT

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement (SAA) be submitted to California Department of Fish and Wildlife for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." California Department of Fish and Wildlife must be notified prior to any such activities and will review the proposed action(s). If necessary, the California Department of Fish and Wildlife will propose measures to protect affected fish and wildlife resources. The Streambed Alteration Agreement is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the California Department of Fish and Wildlife and the Applicant. Often, projects that require a Streambed Alteration Agreement also require a permit from the Army Corps under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The State Water Resources Control Board (State Water Board) and the local Regional Water Quality Control Board (Regional Water Board) have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). This Act (State Water Code Section 13020) mandates that all the waters of the state be protected, that activities and factors affecting water quality be regulated to attain the highest water quality "within reason", and that the state be prepared to exercise its power and jurisdiction to protect water quality from degradation.

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the Regional Water Board (Water Code 13260(a)). The Regional Water Board will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the Waste Discharge Requirements program, the Regional Water Board also regulates discharges to "isolated" water features which are not considered Waters of the U.S. under the Federal Clean Water Act. Porter-Cologne also requires compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water

National Pollutant Discharge Elimination System General Construction Permit for discharge of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

SPECIES OF SPECIAL CONCERN

Species of Special Concern (SSC) is a category used by the California Department of Fish and Wildlife for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of Special Concern are defined by the California Department of Fish and Wildlife as a species, subspecies, or distinct population of an animal native to California that are not legally protected under Federal Endangered Species Act, California Endangered Species Act, or the Fish and Game Code, but may be considered under CEQA Guidelines Section 15380.

CALIFORNIA RARE PLANT RANKS

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California*, which provides a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks (CRPRs). The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by California Department of Fish and Wildlife and the California Native Plant Society. The California Rare Plant Ranks are currently recognized in the California Natural Diversity Database (CNDDB). The following definitions of the California Native Plant Society California Rare Plant Ranks include:

- CRPR 1A – presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B – rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – presumed extirpated in California, but more common elsewhere;
- CRPR 2B – rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 – a review list of plants about which more information is needed; and
- CRPR 4 – a watch list of plants of limited distribution.

California Rare Plant Ranks List 1A and 2A are presumed extirpated in California. In general, CRPR List 3 and 4 plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA Section 15380.

CALIFORNIA NATURAL DIVERSITY DATA BASE

The California Department of Fish and Wildlife administers the California Natural Diversity Data Base (CNDDB), which maintains a list of special-interest plants, animals, and natural communities that occur within California. These particular species, natural communities, or habitat types are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat such as development or off-road vehicles, to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these species or communities afforded by these CNDDB listings.

LOCAL REGULATIONS

SACRAMENTO COUNTY TREE PRESERVATION AND PROTECTION ORDINANCE

Sacramento County outlines requirements for the protection of oak trees in County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any “tree,” as defined, within the urban area of the unincorporated area of Sacramento County, or any property, public or private. The ordinance defines “trees” as follows:

> ”Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground diameter at breast height (dbh).”

SOUTH SACRAMENTO COUNTY HABITAT CONSERVATION PLAN

The South Sacramento Habitat Conservation Plan (SSHCP) is currently in preparation and is undergoing environmental review; the working draft was released in 2010. The SSHCP is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region, including the cities of Galt and Rancho Cordova. The specific geographic scope of the SSHCP includes U.S. Highway 50 to the north, the Sacramento River levee and County Road J11 to the west, the Sacramento county line with El Dorado and Amador counties to the east, and San Joaquin County to the south. The SSHCP Study Area excludes the City of Sacramento, the City of Folsom and the Folsom Sphere of Influence, the City of Elk Grove, the Sacramento-San Joaquin Delta, and the Sacramento community of Rancho Murieta.

The SSHCP will consolidate and enhance wetlands, primarily vernal pools and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory hurdles and facilitate the permitting process for development projects. The SSHCP will cover 28 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be

an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP. Sacramento County is partnering with the incorporated cities of Rancho Cordova, and Galt, as well as the Sacramento Regional Sanitation District, Sacramento County Connector JPA (Joint Powers Authority), and Sacramento Water Agency to further advance the regional planning goals of the South Sacramento Habitat Conservation Plan.

SWAINSON'S HAWK MITIGATION FEE PROGRAM

The California Department of Fish and Game requires that mitigation for foraging habitat be provided within the known foraging radius of a nesting Swainson's hawk. In 1997, in response to the need to mitigate for the loss of Swainson's hawk foraging habitat in Sacramento County, the County Board of Supervisors adopted an ordinance that established a Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code). The Program has been amended several times; the latest amendment went into effect December 2009. By adopting the Program, the Board of Supervisors found that "the most effective means of mitigation for the loss of suitable Swainson's hawk foraging habitat is the direct preservation, in perpetuity, of equally suitable foraging habitat on an acre-per-acre basis based on the Project's determined acreage impact".

Under the Swainson's Hawk Impact Mitigation Program, only projects which have an impact of less than 40 acres are eligible to pay fees. Projects impacting 40 acres or more of foraging habitat must provide land acceptable to Fish and Game and the County. Land can be provided in fee title or through conservation easement. The Sacramento County Community Planning and Development Department, Planning Division (Planning Division) administers the Swainson's Hawk Impact Mitigation Program.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to biological resources that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-39 Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

CO-58 Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.

CO-59 Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:

- vernal pools,
- wetlands,
- riparian,
- native vegetative habitat, and
- special status species habitat.

CO-138 Protect and preserve non-oak native trees along riparian areas if used by Swainson's Hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.

CO-139 Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.

CO-145 Removal of non-native tree canopy for development shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the 15-year shade cover values for tree species.

ENVIRONMENTAL SETTING

EXISTING CONDITIONS OF PROJECT SITE

The project includes two proposed mine pits, Aspen VIII and Aspen IX. Aspen VIII is approximately 319 acres and Aspen IX is approximately 363 acres in size. The project also includes an approximately one acre parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County (Plate BR-1) east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The site currently consists of fields for cattle grazing, three residences, agricultural buildings associated with grazing and farming, and high-voltage power line towers. The existing habitat includes annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek. The majority of the site is used for rangeland for livestock and irrigated pasture for forage production. The surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries, a nursery facility, a wastewater treatment facility, and other surface mines.

Teichert Materials prepared a technical study titled Aspen VIII & IX Biological Resources Assessment. Portions of the report are utilized below and the entire report is provided in appendix BR-1. Academic citations from the original work are reproduced below when needed for clarity and understanding of methodology. The bibliography for these citations is included with the original report.

HABITAT COMMUNITIES/VEGETATION

Annual grasslands and irrigated pastures dominate the project site's landscape. Elder Creek traverses the project site from northeast to southwest direction. There are other wetland features present at the site including, vernal pools, seasonal wetlands and swales, ephemeral drainage, freshwater marshes, ditches, and ponds (Plate BR-2). Scattered areas of riparian woodland habitat also exist along some of these wetlands (i.e., Elder Creek, ponds and ditches). The project site also includes three residential homes and associated farm structures. Dirt and graveled access roads to homes, farm buildings, and pastures are also located throughout the site.

Plate BR-1: Project Location

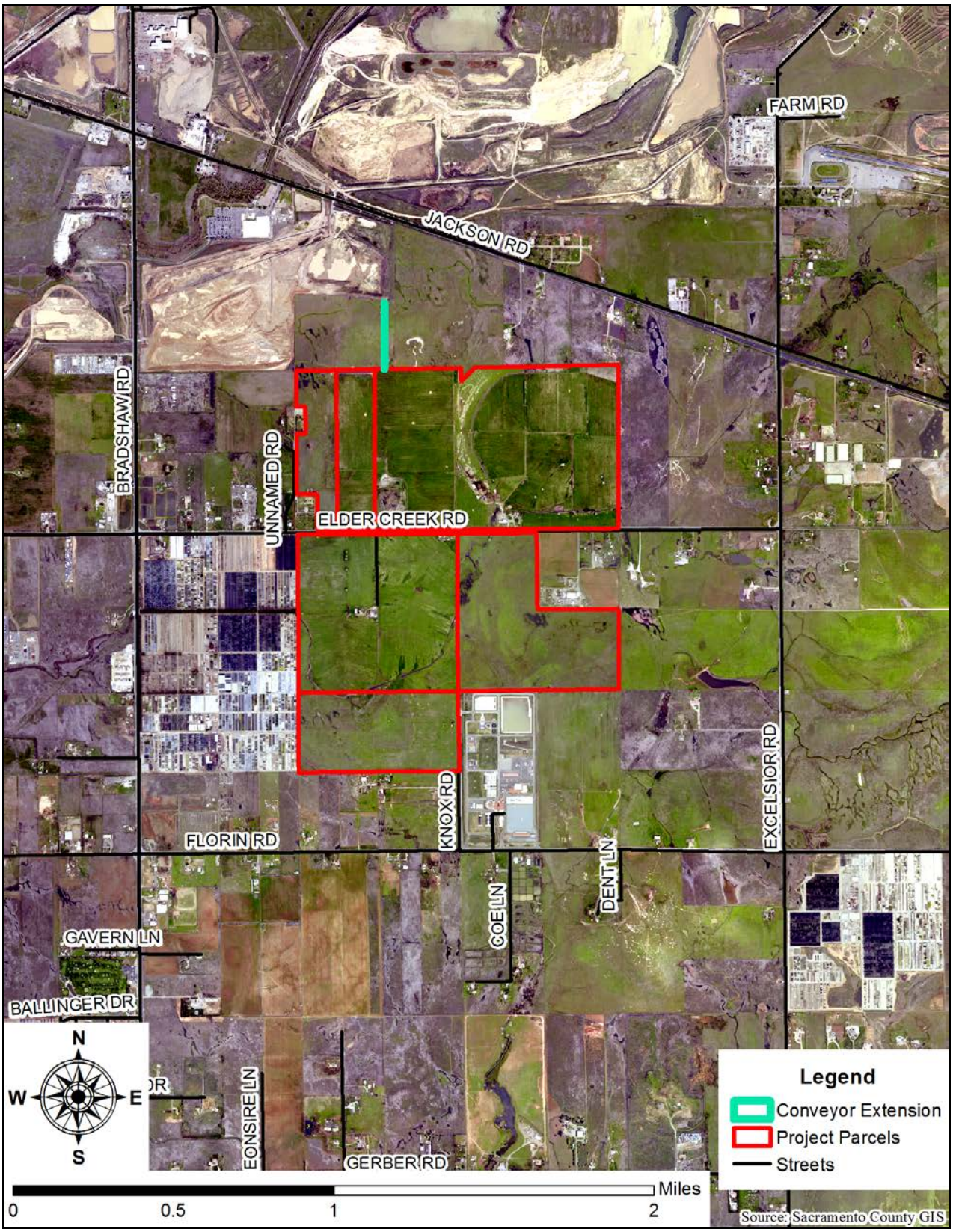
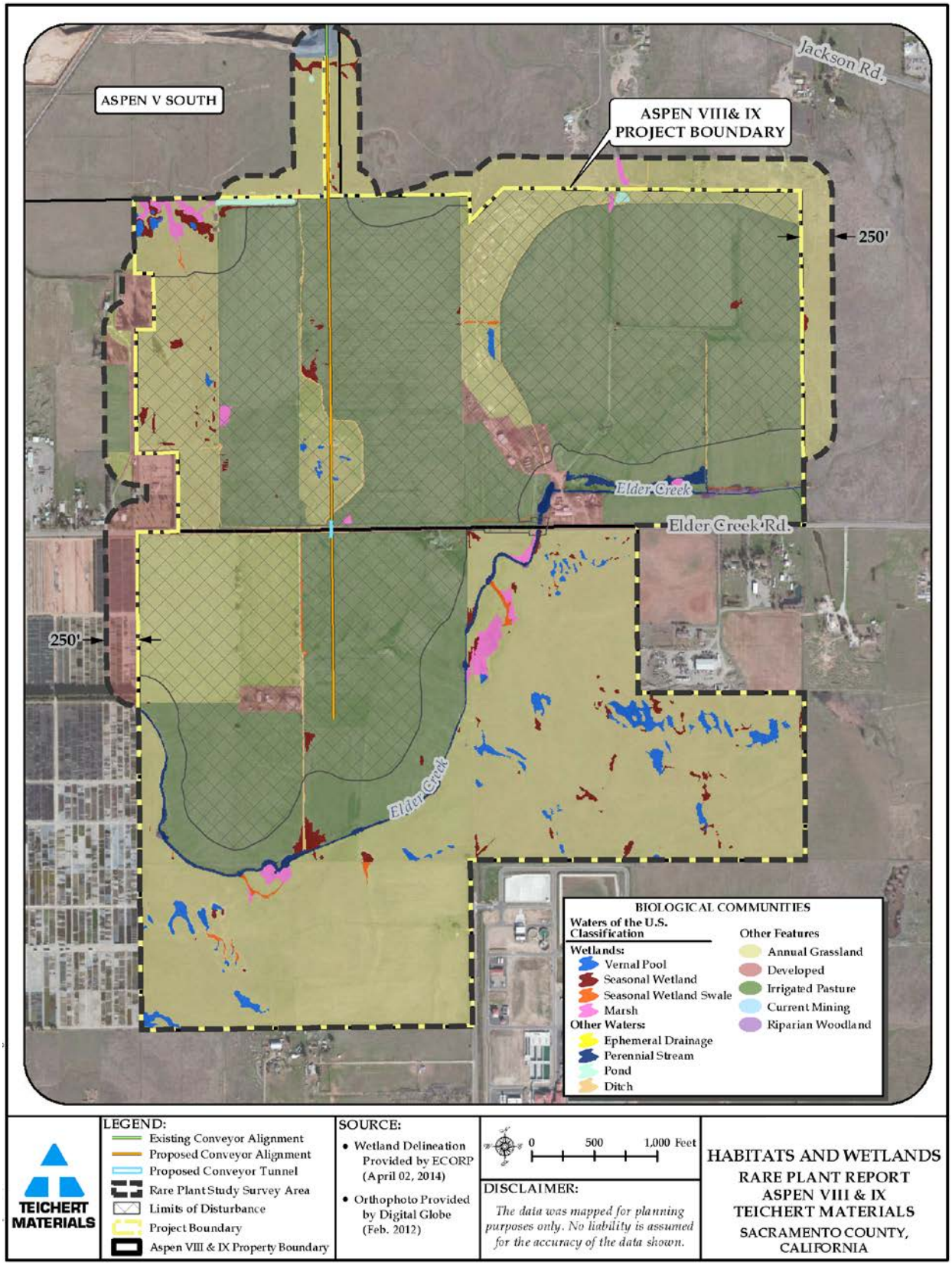


Plate BR-2: Habitats and Wetlands



IRRIGATED PASTURE

The project site's irrigated pastures total 331 acres north of Elder Creek and are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures including tall fescue (*Festuca arundinacea)*, Kentucky blue grass (*Poa pratenis subsp. Partensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex pragegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria vericolor subsp. Faucibarbata*).

ANNUAL GRASSLAND

The project site's annual grasslands are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and including grazing by cattle (Plate BR-2). Annual grasslands that have not been leveled are generally located south of Elder Creek Road, within the southern and eastern portions of Aspen IX. These similar landscapes are also located within the north-western corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft-chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa var. varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and blindweed (Convolvulus arvenis). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum subsp. gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist such as roads and ditches. Most trees on-site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulenis*) occurs within the western section of Aspen VIII near an existing cemetery.

WETLANDS AND WATERS OF THE U.S.

A delineation of wetlands and other Waters of the U.S. for the project site was prepared by Foothill Associates in 2006. ECORP revised the delineation in November 2009 and March 2010 and again in March 2014 (ECORP 2009, ECORP 2010, ECORP 2014) as part of continued work on the project. The Army Corps issued a preliminary jurisdictional determination on June 3rd, 2014. Table BR 1 below summarizes acreages of Water by wetland type.

Table BR 1: Wetlands and Waters of the U.S.

Wetland Type	Aspen VIII (acres)	Aspen IX (acres)	Conveyor (acres)	Totals
Perennial Stream	2.351	3.064	----	5.415
Vernal Pool	0.988	6.243	0.029	7.260
Seasonal Wetland	2.195	3.486	0.060	5.741
Seasonal Swale	0.299	0.959	----	1.258
Freshwater Marsh	2.017	2.735	----	4.752
Ephemeral Stream	0.001	0.005	----	0.006
Pond	0.920	----	----	0.920
Ditch	1.756	0.688	----	2.444
Totals	**10.527**	**17.180**	**0.089**	**27.796**

The project site has a total of 27.769 acres of wetlands which includes a perennial stream, vernal pools, seasonal wetlands, seasonal swales, freshwater marches, ephemeral streams, ponds, and ditches. Each of the aquatic vegetation communities/Waters, including associated common plant species, are summarized below.

PERENNIAL STREAM (ELDER CREEK)

A total of 5.415 acres of perennial stream have been delineated on the project site. The total includes approximately 8,470 linear feet of Elder Creek. Most of the time the creek is bordered by wetland vegetation communities and cover with varying composition depending on the flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (*Paspalum distichum*), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is limited throughout much of the creek, probably due to present and past grazing pressures. The trees along portions of Elder Creek within the project site consist of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*). This area of the creek also supports dense stands

of Himalayan blackberry (*Rubus armeniacus*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted that this creek is hydrologically sustained from late-spring through summer by irrigation runoff from adjacent pastures.

VERNAL POOLS

Vernal pools totaling 7.260 acres occur throughout the undisturbed grassland areas of the project site (Plate BR-2). A vernal pool is characterized by a shallow depression underlain by an impermeable geomorphic layer that captures and stores seasonal rainfall in its basin. Water is lost primarily through evaporation rather than through drainage. The vernal pools at the site vary in maximum water depth between a few inches to 20 inches deep and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the project site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Vernal pool habitat supports breeding and foraging habitat for many aquatic invertebrates such as flatworms (Phylum Platyhelminthes), snails (*Helisoma* spp. and *Physa* spp.), dragonflies and damselflies (Order Odonata), predaceous diving beetles (Family Dytiscidae), aquatic beetles (Family Hydrophilidae), and various crustaceans (branchiopods, ostracods, copepods). These habitats also provide feeding areas and resting sites for migratory birds. The vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the project site and adjacent areas.

SEASONAL WETLANDS, SWALES, AND EPHEMERAL DRAINAGE

The project site contains and supports numerous seasonal wetlands, swales, and ephemeral drainages, which total 7.004 acres (Plate BR-2). Some of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic

rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other cases, seasonal wetlands and swales associated with irrigated pastures and affected by summer irrigation will remain inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean breardgrass, and waxy mannagrass.

FRESHWATER MARSH

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the project site (Plate BR-2). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

DITCHES AND PONDS

A network of ditches totaling 2.444 acres and ponds totaling 0.920 acers are located throughout the irrigated pastures (Plate BR-2). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall fescue, dallis grass, mannagrass, and annual beard grass. One ditch on Aspen VIII was dominated by Sanford's arrowhead (*Sagittaria sanfordii*).

Ponds on the project site are relatively deep, and tend to lack vegetation. Pond levels also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

RIPARIAN WOODLAND

Riparian woodland vegetation, on the project site occurs in limited patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Plate BR-2). Most of Elder Creek lacks riparian woodland vegetation; this may be due to past and present grazing pressures. The riparian species consist of Fremont cottonwood, willows,

Himalayan blackberry, and California wild rose. The site's ditches also lack riparian woodland species due to routine maintenance activates.

RUDERAL

Ruderal vegetation is frequently found within equipment storage areas and access roads. In addition, disposal areas along ditches are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), and soft-chess brome.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to biological resources the proposed project would have a significant impact if it:

BR-1: Has a substantial adverse effect on any special status species; or

BR-2: Has a substantial adverse effect on any riparian habitat or other sensitive natural community; or

BR-3: Has a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act; or

BR-4 Adversely affects or result in the removal of native or landmark trees; or

BR-5 Conflicts with any local policies or ordinances protecting biological recourses; or

BR-6 Has a substantial adverse effect on the movement of any native resident of migratory fish or wildlife species; or

BR-7 Conflicts with the provisions of an adopted Habitat Conservation Plan or other approved local, regional, state or federal plan for the conservation of habitat.

The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife

or migratory fish. Moreover, the excavation of the aggregate materials will most likely not effect wildlife movement because the vastness of the site. In other words, there should be ample room for the wildlife to maneuver around and through the project site. The final mining pit side slopes are at a 2:1 ratio which means for every two units of horizontal there is one unit of vertical; these slopes should not prevent wildlife from accessing the pit floor. Additionally, the project will be excavated in phases so that the entire site will not be in active excavation at one time. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish. Finally, the project site is not located in any adopted habitat conservation plan. Therefore, BR-6 and BR-7 will not be further analyzed.

Impacts And Analysis

Impact Evaluation BR-1: Does the project have a substantial adverse effect on any special status species?

The implementation of proposed project would result in temporary, direct, and/or indirect impacts on a number of special-status plant and animal species. Table BR 2 shows the Special-Status Species known or potentially known to occur within the Aspen VIII and IX project area.

Table BR 2: Special-Status Species Known or Potentially Known to Occur within the Aspen VIII and IX Project Vicinity

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
PLANTS				
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B.	Vernal pools & swales, ephemeral drainages & margins of other seasonal wetlands. Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. <450 m.	March - May	Could Occur
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B.	Swales, vernal pools, moist flats & ephemeral drainages. North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	May - August	Unlikely to Occur
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B.	Marshy lake margins, cattle ponds & in vernal pools. Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	April - August	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4.	Vernal pools & seasonally saturated clay flats. Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Luis Obispo Co. Elev. < 500 m.	March - June	Could Occur
AHART'S DWARF RUSH *Juncus leiospermus* var. *ahartii*	— / — / 1B.	Vernal pools, swales & ephemeral drainages. Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	March - May	Could Occur
LEGENERE *Legenere limosa*	— / — / 1B.	Vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	April - June	Could Occur
HOARY NAVARRETIA *Navarretia eriocephala*	— / — / 4.	Seasonally wet flats, usually in heavy soil. Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	May - June	Unlikely to Occur
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4.	Typically growing heavy soils, vernal pools, & drying flats. Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	April - June	Unlikely to Occur
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B.	Vernal pools, usually with acidic soils. E. Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	April - May	Could Occur
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B.	Generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev.30-1700 m.	May - October	Could Occur
SACRAMENTO ORCUTT GRASS *Orcuttia viscida*	FE / SE / 1B.	Generally found in larger, deeper vernal pools. Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	April - September	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B.	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	May - August	Known to Occur
INVERTEBRATES				
ANDRENID BEE *Andrena subapasta*	— /—/CNDDB	Inhabits upland areas near vernal pools. Females collect pollen primarily from *Arenaria*, but also *Triphysaria eriantha* and *Lasthenia* flowers. Occurs in vernal pool grassland habitats in El Dorado, Placer, Sacramento and San Joaquin Cos.	Late February - early May	Could Occur
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	November - May	Known to Occur
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	November - May	Likely to Occur
HAIRY WATER FLEA *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento Co., as well as from Solano Co. Little information exists regarding the species' habitat or life history requirements.	November - May	Could Occur
RICKSECKER'S HYDROCHARA *Hydrochara ricksecker*i	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	November - May	Could Occur
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	November - May	Likely to Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to Fresno County, across the Central Valley and some of the coast ranges.	November - May	Likely to Occur
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/—	The subspecies occurs at scattered locations in the Central Valley & adjacent foothills of the Sierra Nevada & Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., *Sambucus* spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant).	Year round (exit holes)	Could Occur
AMPHIBIANS				
WESTERN SPADEFOOT TOAD *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, & quiet in-channel pools for breeding & larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley & surrounding foothills from Colusa Co. to Tulare Co. In Sacramento Co., known from southeastern county (mostly south of the Cosumnes River), but also at Mather Field vernal pool complex.	March - May	Could Occur
REPTILES				
WESTERN POND TURTLE *Emys marmorata*	—/—/ SSC	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers). Loose soils in adjacent banks, grasslands, and open woodland for nesting.	March - Oct	Could Occur
BIRDS				
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near	Year round	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
		dense-topped trees (for nesting and roosting). Occurs throughout Sacramento County.		
NORTHERN HARRIER *Circus cyaneus* (nesting)	—/—/ SSC	Nests in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Occurs throughout Sacramento County.	Year round	Could Occur
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— / ST / —	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Scattered throughout Sacramento County.	April - September	Could Occur
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Hunts in expansive, open vegetation communities. Winter visitor in small numbers throughout Sacramento County.	October - April	Could Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. It is less often found in open desert. It typically requires dense stands of trees for cover and roosting. It is most often found where there are substantial populations of small birds (the primary prey item). It is a regular winter visitor to Sacramento County.	October - March	Could Occur
BURROWING OWL *Athene cunicularia* (burrow sites & some wintering sites)	—/—/ SSC	Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Forages in similar habitats.	Year-round	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging. Occurs throughout Sacramento County in small numbers.	April - July	Could Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting & communal roosts)	—/—/ CNDDB	Found as a resident & wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, & other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts). Scattered throughout Sacramento County.	Year-round	Likely to Occur
TRICOLORED BLACKBIRD *Agelaius tricolor* (nesting)	—/ SE / —	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or grasses. Forages in grassland or rangeland providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within at least three miles of the nest colony. Nesting colonies are scattered throughout Sacramento Co.	April - July	Known to Occur

SPECIAL STATUS CODE ABBREVIATIONS AND DEFINITIONS	
FE	Federally listed as Endangered
FT	Federally listed at Threated
FD	Federally De-listed
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threated
FC	Federal Candidate Species (former Category 1 candidates)
SE	California listed as Endangered
ST	California listed as Threated
SR	California listed as Rare

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
SD	American Peregrine Falcon Email Barry			
CFP	California Department of Fish and Wildlife designated “Fully Protected”			
SSC	California Department of Fish and Wildlife designed “Species of Special Concern”			
1A	California Rear Plant Rank- Presumed extinct			
1B	California Rear Plant Rank- Rare or Endangered in California and elsewhere			
2A	California Rear Plant Rank- Presumed extirpated in California, more common elsewhere			
2B	California Rear Plant Rank- Rare or Endangered in California, more common elsewhere			
3	California Rear Plant Rank- Plants about which more information is needed, a review list			
4	California Rear Plant Rank- Plants of limited distribution, a watch list			
CNDDB	Species is tracked by the California Department of Fish and Wildlife’s “California Natural Diversity Database”			
LIKELIHOOD OF OCCURRENCE DEFINITIONS				
Know to Occur	Taxon was observed at the project site during recent surveys.			
Likely to Occur	Taxon previously reported within or immediately adjacent to the project site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the project site.			
Could Occur	Suitable habitat is available at the project site, however, there is little to no other indicators that the taxon might be present.			
Unlikely to Occur	Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the project area.			

DWARF DOWNINGIA

Dwarf downingia is not listed pursuant to either the federal or California Endangered Species Acts (ESAs); however, it is listed as a CRPR 2B species by the CNPS. Dwarf downingia is known from vernal pools and other seasonal wetlands. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively ‘flashy’ hydrology. The species will also frequently occupy ephemeral drainages and swales

and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes. Flowering typically occurs between March and May.

In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north, generally below 500 feet elevation. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern Sacramento Valley.

There is one known occurrence of dwarf downingia within 5 miles of the project site (CNDDB Occurrence No. 54), approximately 4.9 miles to the south of the project site. This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is still presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014, dwarf downingia is not expected to occur at the project site at this time.

BOGGS LAKE HEDGE-HYSSOP

Boggs Lake hedge-hyssop is listed as threatened by the California ESA. The CNPS also includes Boggs Lake hedge-hyssop as a CRPR 1B plant. The species blooms between April and June; the species occurs over a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. Boggs Lake hedge-hyssop has been reported to grow in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau. There are six known occurrences of Boggs Lake hedge-hyssop within 5 miles of the project site. The nearest known location is approximately 2.5 miles northwest of the site, at Mather Field (CNDDB Occurrence No. 84; CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014, Boggs Lake hedge-hyssop is not expected to occur at the project site at this time.

HOGWALLOW STARFISH

Hogwallow starfish is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 4 species by the CNPS. Hogwallow starfish is typically associated with shallow vernal pools and seasonally saturated clay flats. The species has also been found from a fallow (formerly irrigated) pasture. Hogwallow starfish has a wide distribution throughout the Central valley and adjacent foothills from Tehama County south to Kern County. It has also been recorded in San Luis Obispo County. Flowering typically occurs between March and June. CRPR List 4 plants are not tracked by the CDFW, thus occurrence records for hogwallow starfish are not included in the CNDDB. A previous survey conducted by ECORP Consulting did identify a population of hogwallow starfish at the Piliken Ranch near Sloughhouse in eastern Sacramento County, approximately 10 miles southeast of the project site. This population was recorded growing in a rocky, sparsely vegetated upland area. Some of the shallow vernal pools and seasonal wetlands at the project site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, May and June 2013 and 2014, hogwallow starfish is not expected to occur at the project site at this time.

AHART'S DWARF RUSH

Ahart's dwarf rush is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to be restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions may fluctuate considerably and may even empty between storm events in winter. In addition, this species is also known to occur on gopher mounds along the margins of these wetlands. Flowering generally occurs from late-March through May.

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 90 to 300 feet. Most occurrences are from Butte and Sacramento County. The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast from the project site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in shallow vernal pools and along vernal swales and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014, Ahart's dwarf rush is not expected to occur at the project site at this time.

LEGENERE

Legenere is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*). Flowering typically occurs from April to June.

This species' range includes the northern Central Valley from Shasta to San Joaquin County and the Inland Coast Range from Lake to Santa Clara County. Populations are reported from 78 occurrences, ranging in elevation from less than 950 meters. The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties. The nearest known occurrence of Legenere is approximately 1.4 miles south of the project site (CNDDB Occurrence No. 29; CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the project site. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014, Legenere is not expected to occur at the project site at this time.

PINCUSHION NAVARRETIA

Pincushion navarretia is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Pincushion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils. Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations. Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may fluctuate considerable and may even empty between storm events in winter. The species may be seen flowering from mid-April through May.

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 60 and 1,100 feet elevation. The nearest known location of this species is approximately 10.6 miles northeast of the project site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3; CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within

the project site. Based on negative findings of protocol-level rare plant surveys conducted in April and May 2013 and 2014, pincushion navarretia is not expected to occur at the project site at this time.

SLENDER ORCUTT GRASS

Slender Orcutt grass is listed as threatened under the federal ESA and endangered under the California ESA. The CNPS also includes slender Orcutt grass as a CRPR 1B species. Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic origin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range. The lowest reported elevation is 88 feet in Sacramento County and the highest is 5,760 feet in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region. The nearest documented occurrence of Slender Orcutt grass is approximately 2 miles south of the project site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek. The population is still presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and May, June and July 2014; slender Orcutt grass is not expected to occur at the project site at this time.

SACRAMENTO ORCUTT GRASS

Sacramento Orcutt grass is listed as endangered under both the federal and California ESAs. The CNPS also includes Sacramento Orcutt grass as a CRPR 1B species. Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grow in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses. Flowering typically occurs in May and June.

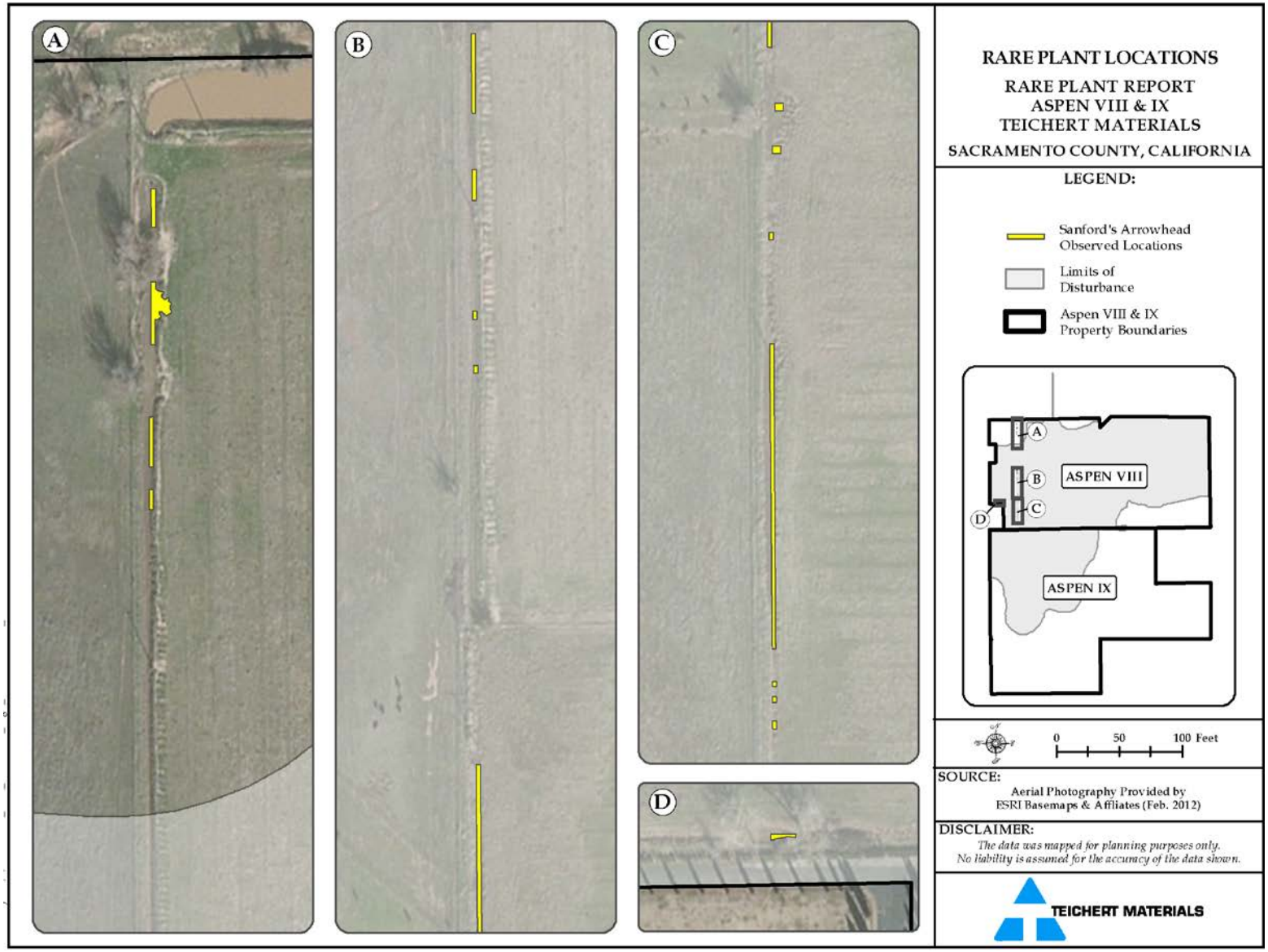
Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences,

most of which are still presumed extant. The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south. The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the project site (CNDDB Occurrence No. 20); however, this population is presumed extirpated. This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery. The nearest possible extant location is approximately 3.6 miles northeast of the project site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and 2014, Sacramento Orcutt grass is not expected to occur at the project site at this time.

LOSS OF HABITAT FOR AND INDIVIDUALS OF SANFORD'S ARROWHEAD

Sanford's arrowhead is a plant that was identified at the site through protocol-level rare plant surveys performed in 2014. Sanford's arrowhead colonies were observed growing in two irrigated ditches near the western part of Aspen VIII (Plate BR-3). Approximately 2,000 plants occur within an irrigated ditch, extending approximately 2,779 lineal feet in a north to south direction. Some additional plants were identified in a connected ditch running east to west along the northern border of an adjacent cemetery. The majority of the Sanford's arrowhead would be directly impacted by the proposed project, including approximately 2,278 linear feet of irrigation ditch supporting the plants. The other portions of the irrigation ditch not proposed to be disturbed is expected to be indirectly impacted, since irrigation to existing pastures would likely cease through implementation of the project. Therefore, the proposed project's impacts to Sanford's arrowhead would be significant.

Plate BR-3: Sanford's Arrowhead Location Map



Level of Significance Before Mitigation: Significant

BR-1.1: Sanford's Arrowhead Mitigation Measure

A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a suitable habitat that is within 2 miles of the project site with preference given to the Elder Creek watershed. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants.

B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.

Level of Significance After Mitigation: Less than Significant

VALLEY ELDERBERRY LONGHORN BEETLE

The valley elderberry longhorn beetle (VELB) is listed as threatened by the federal ESA. The VELB is entirely dependent upon its host plant, elderberry (i.e., *Sambucus spp*.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. The VELB life cycle consists of four stages: egg, larva, pupa, and adult. Eggs are typically deposited within the bark crevices of live elderberry shrubs. Upon hatching, the larvae bore through the bark where they tunnel and feed in the pith of the stem for up to 2 years. Prior to pupating, the larvae bore back out of the stem (thereby creating the "exit hole") and then return into the stem to enter the pupil stage. Exit holes are more frequently found in trunks or branches between 2 and 7 inches in diameter, or at least 1.0 inch or greater in diameter at ground level. Between March and early June, about the same time the elderberries flower, VELB adults emerge from the exit holes. Adults feed on the leaves of elderberry shrubs and possibly the flowers. The life span of adults is unknown, but they are presumed to die after reproducing.

This taxon occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. At the time the VELB was federally listed, it was known from less than 10 locations along the American and Merced Rivers, and along Putah Creek. The known range now extends from southern Shasta County to Fresno County and across the Central Valley, with approximately 204 records (mostly based on exit holes) in existence. The nearest occurrence record for this taxon is approximately 5.6 miles north of the project site (CNDDB Element Occurrence No. 01). This occurrence is described as being located on elderberry shrubs within dense riparian habitat along the American River Parkway from River Bend Park up to the lower southeast shore of Lake Natoma. Considering the relatively close proximity of nearby populations and wide geographical range of elderberry shrubs, the VELB could be expected to occur within the study area. Focused surveys for elderberry shrubs were conducted on the project site as part of a rare plant survey, carried out over a two year period from March 2013 through August 2014. No elderberry shrubs were present on the project site; therefore, the species is considered to have no potential to occur within the study area due to a lack of required habitat.

IMPACTS TO AND LOSS OF HABITAT FOR VERNAL POOL INVERTEBRATES

The andrenid bee, vernal pool fairy shrimp, mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, vernal pool tadpole shrimp, and California linderiella occur in or utilize seasonally inundated depressions such as vernal pools, seasonal wetlands, and seasonal wetland swale. The vernal pool fairy shrimp, vernal pool tadpole shrimp, and California fairy shrimp have been observed from numerous vernal pools and seasonal wetlands at the project site. Based on these previous observations, it is assumed that all suitable habitat (i.e., non-irrigated) for special-status vernal pool invertebrates within the affected area is occupied by vernal pool invertebrates.

Table BR 3 below summarizes the total acreage of habitat that the project would affect, including potential indirect impacts. Note that several seasonal wetlands are located in irrigated pastures that are continuously affected by summer irrigation by remaining saturated or inundated for prolonged periods. These irrigated seasonal wetlands do not provide habitat for the special-status species invertebrates discussed above due to their extended hydro periods.

Table BR 3: Direct and Indirect Effects on Special-Status Vernal Pool Invertebrates

Potential Habitat	Total Acres (Aspen VIII/IX)	Direct Impacts (acres)	Indirect Impacts (acres)
Vernal Pool	*6.964	0.301	0.031
Seasonal Wetland (non-irrigated)	3.524	0.572	0.182
Seasonal Swale (non-irrigated)	0.362	0.021	0.047
Totals	**11.146**	**0.894**	**0.260**

*Note: 0.296 acres of vernal pools were field confirmed as irrigated based on recent observations with the U.S. Fish and Wildlife Service

Implementation of the proposed project would result in the loss of 0.894 acres of habitat for special-status vernal pool invertebrates, including the vernal pool fairy shrimp and vernal pool tadpole shrimp. There is also the potential for indirect loss of 0.260 acre of habitat. The direct and potential indirect impacts to 1.154 acres of habitat and potential mortality of these vernal pool invertebrates are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.2: Invertebrates Mitigation Measure

Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol “Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods” (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall:

A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento County Environmental Coordinator,

U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation.

C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction.

E. Prior to issuance of the Work Authorization Permit, the Applicant shall demonstrate to the Environmental Coordinator that all areas which are required to be preserved in perpetuity as part of the Section 404 permit are protected by, and placed within a permanent conservation easement approved by the USACE.

Level of Significance After Mitigation: Less than Significant

LOSS OF HABITAT FOR AND DISTURBANCES TO WESTERN SPADEFOOT TOAD

The western spadefoot toad has an irregular and localized distribution in Sacramento County. The western spadefoot toad is known from similar habitats less than four miles away at the Mather Field Vernal Pool Complex. Vernal pools, seasonal wetlands, and ponds are potentially suitable as breeding sites for the western spadefoot toad. There are a total of 19.936 acres of these breeding sites at the project site. The project would result in the permanent loss of 3.034 acres of these sites. Thus, the project would reduce the reproductive potential and recruitment from these sites for the western spadefoot toad if utilized by the species.

The project site also supports 308.5 acres of annual grassland that could be occupied by western spadefoot toad during the non-breeding season; irrigated pasture or hay is not considered to be suitable terrestrial habitat. The project would result in the temporary loss of 96.2 acres of annual grassland habitat. The loss may be considered temporary because after the mining operation has ceased the project site will be reclaimed back to open space grass land. Additionally, the project will create more acres of annual grassland through the conversion of irrigated to non-irrigated grasslands.

Mining of the project site could disturb, kill, or injure an unknown number of western spadefoot toads. The loss of individuals would also reduce the reproductive potential and recruitment of the species in the project vicinity. The loss of suitable western spadefoot toad habitat and individuals is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.3: Western Spadefoot Toad Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat.

C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Level of Significance After Mitigation: Less than Significant

LOSS OF HABITAT FOR AND DISTURBANCE TO WESTERN POND TURTLE

The western pond turtle is a reptile that typically occurs in natural or semi-natural still or slow-moving aquatic sites. The western pond turtle sometimes appears in ponds, marshes, and slow-moving perennial drainages where there is water, basking sites, and food. The project would result in the permanent loss of 0.676 acres of pond, marsh, and perennial drainage. This impact is considered to be less than significant given that reclamation of the project site will create up to 14.2 acres of stormwater retention pond that could be occupied by the species and the entire reach of Elder Creek within the project site will be within the proposed preservation area for the project.

Western pond turtle nesting sites are usually within 650 feet to 1,310 feet of their aquatic habitat. Most of the annual grasslands within the project area are suitable nesting habitat. The excavating equipment and activities within the project site could result in the destruction of eggs or neonate turtles. Neonate western pond turtles may overwinter in the nest. The turtles are believed to exit the nest during the following spring. Therefore, a limited operating period when the eggs or neonates could not be affected by ground disturbance is not yet available for the western pond turtle. The loss of eggs, neonates, or adults is considered potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR1.4: Western Pond Turtle Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.

C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING WHITE-TAILED KITE OR SWAINSON'S HAWK

White-tailed kites and Swainson's hawks are both known to nest in the vicinity of the project area. Though there is no evidence to suggest that either of these species have nested within the project site, it is possible that nests could be sited in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the project, occur during the nesting season of these species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.5 miles of the project site could be adversely affected during mining-related vegetation removal or earthmoving associated with the project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

DISTURBANCE TO NESTING NORTHERN HARRIER

The Northern harrier is a bird that is known to nest in grasslands, weedy fields, and emergent marshes. It is strongly suspected to nest in Sacramento County given the prevalence of sightings each year during the peak nesting season, and has recently been observed nesting in a nearby grain field northwest of the project site. The

northern harrier may nest in suitable habitat on the project site (e.g. taller, denser grasses). Should mining related vegetation removal or excavation associated with the project take place during the nesting season of the northern harrier (mid-March to late August), there is potential for the loss of eggs or juveniles.

Moreover, nearby mining related vegetation removal or earthmoving could result in noise and visual change that distract individuals from being properly attentive to eggs and juveniles. There is potential for nesting pairs to be sufficiently disturbed that eggs and juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

DISTURBANCE TO OTHER NESTING RAPTORS

Common raptors (i.e., species not designated as special-status species) that are known to nest near the project site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the project area, but some individuals especially red-tailed hawk and great-horned owl may occasionally nest in “stand alone” trees. Consequently, should tree removal, as proposed, occur during the nesting season of these species (i.e., early February to late August) there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.5: Nesting White-Tailed Kite, Swainson’s Hawk, Northern Harrier and Other Raptors Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction.

B. The survey shall include a focused survey for Swainson’s hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.

C. If no active nests are found in the survey area, no further mitigation is necessary.

D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of construction activity.

E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING OR ROOSTING BURROWING OWL

The burrowing owl has not been documented within the project site. Nonetheless, potentially suitable nesting and roosting habitat for burrowing owl is provided by California ground squirrel burrows that are located throughout the project site and the species is known from other locations to be in the project vicinity. As such, the species could occur on the project site.

If burrowing owl occurs on the project site, individuals could be subject to entombment and mortality during mining-related vegetation removal or earthmoving. Adults may be able to escape such impacts, but eggs and juveniles could still be lost since they are unable to leave the nest burrow. Even if adults are not lost directly due to ground-disturbing activities, individuals could abandon eggs or juveniles in the nest burrow due to adjacent disturbances. This impact is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR1.6: Nesting or Roosting Burrowing Owl Mitigation Measure

A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14.

The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING BIRDS PROTECTED UNDER THE MIGRATORY BIRD TREATY ACT

Other nesting birds have not been documented within the project site, but are expected at the site. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Wildlife Code (particularly while nesting). Some of these species would nest in the on-site woody vegetation such as trees and shrubs, but other species would nest on or near the ground on mostly the non-irrigated, annual grassland. Therefore, should tree or other vegetation removal occur during the nesting season of these species which is through mid-February to late August, there is the potential for the loss of eggs or juveniles during these activities.

In addition, mining-related vegetation removal or earthmoving could result in noise and visual changes that distract adjacent nesting individuals from being properly attentive to eggs or juveniles. Consequently, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.

B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.

Level of Significance After Mitigation: Less than Significant

LOSS OF FORAGING HABITAT FOR WHITE-TAILED KITE AND SWAINSON'S HAWK

White-tailed kites and Swainson's hawks are both known to nest in the vicinity of the project site. Foraging habitat associated with nearby nest territories for these species may include the project site. Swainson's hawk utilizes both annual grasslands and irrigated pasture/hay as suitable foraging habitat. Approximately 331.1 acres of the project site was dedicated to irrigated pasture/hay in 2015, while 308.5 acres of the project site supported non-irrigated annual grassland. Another 14.265 acres of seasonal wetlands such as vernal pools, seasonal wetlands, and seasonal swales occur on the project site and are suitable for Swainson's hawk/white-tailed kite foraging habitat later in the breeding season (i.e., after dry-down). According to the Biological Resources Assessment (Appendix BR-1) provided by the applicant, the project would impact a total of 371.2 acres of potential Swainson's hawk/white-tailed kite foraging habitat, including 95.8 acres of annual grassland, 273.0 acres of irrigated pasture, and 2.4 acres of seasonal wetlands/vernal pools. The impacted total includes the land for the conveyor system, land used for stockpiling and land used for the berms around the mine in addition to the actual mining pits.

White-tailed kite is a rodent specialist with 95 percent of the diet consisting of small rodents especially the California vole (*Microtus californicus*). This prey species is abundant in both non-irrigated annual grassland and irrigated pasture/hay. As such, there is near 100 percent overlap in the suitable foraging habitats for Swainson's hawks and white-tailed kites on the project site. Impacts associated with the loss of suitable foraging habitat for Swainson's hawks are therefore similar for white-tailed kites. These impacts are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.8: Loss of Foraging Habitat for White-Tailed Kite and Swainson's Hawk Mitigation Measure

Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat must occur.

A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).

B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of white-tailed kite and Swainson's hawk foraging habitat.

C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.

Level of Significance After Mitigation: Less than Significant

LOSS OF WINTER FORAGING HABITAT FOR MERLIN AND FERRUGINOUS HAWK

Merlins and ferruginous hawks are known to winter throughout the Central Valley in small numbers including in the vicinity of the project area. The loss of irrigated pasture/hay and non-irrigated annual grassland associated with the project site would result in a net decrease in the local foraging habitat for these species. However, merlins are a wide-ranging species and feeds primarily on various small avian species that tend to move over large areas (e.g., horned lark). Therefore, there is a substantial amount of suitable foraging habitat for the species within the project vicinity and elsewhere each winter. Ferruginous hawks are also a wide-ranging species, and feeds mostly on small to medium-sized mammals (up to the size of black-tailed jackrabbit). There is also a substantial amount of suitable foraging habitat for this species within the project vicinity and elsewhere each winter. Therefore, this impact is considered to be less than significant.

Level of Significance: Less than Significant – No Mitigation Required

DISTURBANCE TO NESTING LOGGERHEAD SHRIKE

The Loggerhead shrike has not been documented nesting within the project site but it has been documented at nearby locations in Sacramento County during the nesting season. In addition, potentially suitable nesting and adjacent foraging habitat occurs on and immediately adjacent to the project site. Dense, woody vegetation such as shrubs and trees on the site could be used for nesting by the species, while the adjacent irrigated pasture/hay and non-irrigated annual grassland provides suitable foraging habitat. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances associated with mining-related vegetation removal and earthmoving. This impact is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure

To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING OR ROOSTING YELLOW-BILLED MAGPIE

Yellow-billed magpies have not been documented nesting or communally roosting within the project site. However, it has been documented at many locations throughout Sacramento County (as close as one mile from the project site). Furthermore, large trees along either Elder Creek or at nearby residences provide potential nest sites for the species. Therefore, the species could occur on the project site as a nesting species.

Yellow-billed magpies prefer groves of trees often near water for communal roost sites that are typically in riparian woodland or forest. Given the lack of such habitat on or adjacent to the project site, the species is considered to have no potential to be impacted by the project while communally roosting. However, during the nesting season the eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances for the project. The impact to nesting eggs or juveniles is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure

To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or

earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING TRICOLORED BLACKBIRD

The tricolored blackbird nests as a colonial species at scattered locations throughout Sacramento County where there is suitable nesting habitat such as stands of cattail, tule, willow, California blackberry, Himalayan blackberry, wild rose, grain fields, milk thistle, stinging nettle, etc. The habitat provides protection from nest predators adjacent to large open expanses of non-irrigated, annual grassland; irrigated pasture/hay; or alfalfa that support large numbers of prey species such as grasshoppers, butterfly larvae, and the like. The species is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the project site. It also has been documented nesting approximately 900 feet east of the eastern boundary of Aspen VIII and several other locations within four miles or less of the project site. Because tricolored blackbirds vacate nest sites at the end of the breeding season, adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to disturbances associated with mining-related vegetation removal and earthmoving. These impacts are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.11: Disturbance to Nesting Tricolored Blackbird Mitigation Measure

To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the

second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation BR-2: Does the project have a substantial adverse effect on any riparian habitat or other sensitive natural community?

The project site does not contain sensitive natural communities that may be impacted by the project being implemented. The site does contain numerous special status species and habitats that are potentially affected by the project implementation. The impacts to special status species and habitats are evaluated above and with the exception of a small amount of mixed riparian forest that is evaluated in the tree section below, the project site does not have a well-developed riparian habitat. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified mostly likely due to agricultural activities and now lacks substantial amounts of trees and shrubs that make a vibrant habitat. Therefore, given the lack of sensitive natural communities and lack of riparian habitat on or adjacent to the project site, the adverse impacts to sensitive natural communities and riparian habitat are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation BR-3: Does the project have a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act?

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site (Table BR 4). The proposed project will result in the loss of 5.373 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale,

freshwater march, perennial stream, ephemeral stream, pond and ditch wetland habitats (Plate BR-2).

Table BR 4: Wetland Impacts Summary

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	0.597
Seasonal Wetland	5.741	1.500
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	----
Pond	0.920	0.185
Ditch	2.444	2.178
Totals	**27.795**	**5.373**

The proposed project will result in substantial adverse impacts on federally jurisdictional Water of the U.S., including wetlands, defined by Section 404 of the Clean Water Act. The impacts will also constitute an adverse effect on waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Furthermore, these areas may be regulated by the California Department of Fish and Wildlife and are protected under the General Plan. Therefore, impacts to wetlands and other Waters are significant.

Level of Significance Before Mitigation: Significant

BR-3: Wetlands and Water of the U.S. Mitigation Measure

To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods, subject to the approval of the Environmental Coordinator. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required.

B. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation BR-4: Does the project adversely affect or result in the removal of native or landmark trees?

The project site contains a total of 102 trees representing 17 species that could be affected by the proposed mining operation. There are three valley oak and nine California black walnut trees. These trees will be removed as part of the project. The total diameter at breast height (dbh) for the oak trees is 23 inches and 157 inches for the California black walnut trees.

In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species was mapped within the survey study area. Most of the tree canopy is non-native, ornamental landscape trees such as Modesto ash, mulberry and red gum. There is also a small portion (0.469 acre) of native mixed riparian forest. There are 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with valley oak or Northern California black walnut. Some riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore, excluded from canopy totals. Impacts to native trees (valley oaks at 23 inches and California black walnuts at 157inches) and tree canopy for 1.574 acres are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-4: Native Tree and Tree Canopy Protection Mitigation Measure

The removal of 23 inches dbh of valley oak trees shall be compensated for by planting native oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or

oracle oak (*Quercus morehus*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*, which is also a List 1B plant), Oregon ash (*Fraxinus latifolia*), western redbud (Cercis occidentalis), gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*).

Replacement tree planting shall be completed prior to approval of Work Authorization Permit. A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved

2. Method of irrigation

3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage

4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period.

6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento Tree Foundation).

Level of Significance After Mitigation: Less than Significant

<u>Impact Evaluation BR-5: Does the project conflict with any local policies or ordinances protecting biological resources?</u>

The proposed project does conflict with some local policies and ordinances that protect biological resources. The project when implemented, will remove native trees from the project site and the removal of the native trees conflicts with the Sacramento County Tree Preservation and Protection Ordinance. Mitigation measures will ensure that the impacts are less than significant.

The proposed project also conflicts with several General Plan Policies that protect biological resources. The proposed project has potential impacts associated with special status species and wetlands. Once again mitigation measures have been added to lessen the impacts to special status species and wetlands to less than significant. The project has the potential to conflict with local polices and ordinances therefore, the projects impacts are potentially significant. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local polices and ordinances to less than significant.

Level of Significance Before Mitigation: Potentially Significant

BR-5: Local Policies Protecting Biological Resources Mitigation Measure

Comply with mitigation measures BR-1.1 through BR 1.11, BR-3 and BR-4

Level of Significance After Mitigation: Less than Significant

15 CULTURAL RESOURCES

REGULATORY CONTEXT

FEDERAL REGULATIONS

Cultural resources are considered during federal undertakings chiefly under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the National Historic Preservation Act. Other federal laws pertinent to cultural resources include the Archaeological Data Preservation Resources Protection Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1989, among others.

The Section 106 review process is implemented using a five step procedure: 1) identification and evaluation of historic properties; 2) assessment of the effects of the undertaking on properties that are eligible for the National Resister; 3) consultation with the State Historic Preservation Office and other agencies for the development of a memorandum of agreement that addresses the treatment of historic properties; 4) receipt of Advisory Council on Historic Preservation comments on the memorandum of agreement or results of consultation; and 5) the project implementation according to the conditions of the memorandum of agreement.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) requires federal agencies to assess whether federal action would result in significant effect on the human environment. The Council on Environmental Quality's National Environmental Policy Act regulations further stipulate that identification of significant effects should incorporate, "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources" (40 CFR 1508.27[b][8]).

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (16 USC 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Perseveration a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affect cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed, or are eligible for listing, on the National Register of Historic Places per the criteria listed at 36 CFR 60.4 (Advisory Council on Historic Preservation 2000) below.

The quality of significance in American history, architecture, archaeology, engineering and culture are present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a) Are associated with events that have made a significant contribution to the broad patter of our history; or

b) Are associated with the lives of persons significant in our past; or

c) Embody the distinctive characteristic of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) Have yielded, or may be likely to yield, information important in prehistory or history.

State of California Regulations

California Environmental Quality Act

The California Environmental Quality Act (CEAQ) requires a lead agency to determine whether a project may have a significant effect on historical resources. If it can be demonstrated that a project will cause damage to a unique archaeological resources, the lead agency may require reasonable efforts to be made to permit any of all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). Section 21083.2(g) describes a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A historical resource is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (Section 21084.1); a resource included in a local resister of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5(a)(3)). Sacramento County does not have a local register.

Public Resources Code Section 5024.1, Section 15064.5 of the Guidelines, and Sections 21083.2 and 21084.1 of the Statutes of California Environmental Quality Act were used as the basic guidelines for the cultural resources study. Public Resources Code Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the California Resister of Historical Resources. The purpose of the resister is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the California Resister were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places.

Native American Burials and Accidental Discoveries

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.9).

When human remains are discovered, the protocol to be followed is specific in California Health and Safety Code, which states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commending with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative,*

in the manner provided in Section 5097.98 of the Public Resources Code.

California Environmental Quality Act Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native American, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and dispositions of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the California Environmental Quality Act Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources. Pursuant to Section 15064.5, subdivision (f), these provisions should include “an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place”.

Local Regulations

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to cultural resources that apply to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-150:

Utilize local, state and national resources, such as the North Central Information Center, to assist in determining the need for a cultural resources survey during project review.

CO-157:

Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

CO-158:

As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

CO-161:

As a condition of approval for discretionary projects, require appropriate mitigation to reduce potential impacts where development could adversely affect paleontological resources.

CO-163:

Require that a certified geologist or paleoresources consultant determine appropriate protection measures when resources are discovered during the course of development and land altering activities.

CULTURAL HISTORY

The following cultural history was prepared by Peak & Associates for the Aspen VIII and IX project. The academic references cited below are from the original work. The original work is in Appendix CR-1.

ARCHEOLOGICAL BACKGROUND

The Sacramento Delta was one the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, avocational archeologist J. A. Barr excavated many prehistoric mounds in the Stockton area. He collected nearly 2,000 artifacts during the course of his investigations. H. C. Meredith was another avocational archaeologist of the period who pursued collecting in the same Stockton locality. Meredith (1899, 1900) did publish a compilation of his own and Barr's findings, and these appear to constitute the earliest accounts of delta archeology. Holmes (1902), from the Smithsonian Institution, further elaborated on the delta or "Stockton District" archeology, presenting illustrations of artifacts collected by Meredith and Barr.

It was Elmer J. Dawson who first recognized culture changes through time in delta archeology. Though he was an amateur archeologist, Dawson understood the necessity of keeping accurate notes on grave associations and proveniences of artifacts. He collaborated with W. E. Schenck to produce an overview of northern San Joaquin Valley archeology (Schenck and Dawson 1929). The overview contained information on more than 90 prehistoric sites as well as data on previous collections.

By 1931, the focus of archeological work was directed toward the Consumes River locality, where survey and exploration were conducted by Sacramento Junior College (Lillard and Purves 1936). Excavations, especially at the stratified Windmiller mound (CA-SAC-107), suggested three temporally distinct cultural traditions: Early, Transitional, and Late. Information grew as a result of excavation at other mounds in the delta and lower Sacramento Valley by Sacramento Junior College and the University of California, Berkeley.

Previous investigations in the project region have focused upon very detailed archival research of Spanish sources (Bennyhoff 1977), reexamination of earlier work (Ragir 1972; Schulz 1981; Doran 1980) and archeological investigations at a number of small sites (Schulz et al. 1979; Schulz and Simons 1973; Soule 1976). Several of the previous investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practiced are varied, but detailed studies on the faunal collection suggest seasonality of occupation and a focus on fish species other than the main channel varieties.

Writing the definitive summary of California archeology, Moratto (1984: 529-547) devoted an entire chapter to linguistic prehistory. For the Central Valley region, Moratto

points out that some Early Horizon and Middle Horizon central California archeological sites appear at least in part, contemporaneous, based on existing radiocarbon dates. Cultural materials recovered from CA-SJO-68, an Early Horizon Site, are thought to date from 2350 B.C. or 4350 ±250 B.P. On the other hand, a Middle Horizon component at CA-CCO-308 dates to 2450 B.C. or 4450 ± 400 B.P. The antiquity of other Early and Middle Horizon sites demonstrate an overlap of the two horizons by a millennium or more.

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay area. The Early Horizon may represent older Yokuts settlements or perhaps the speaker of an Utian language who were somehow replaced by a shift of population(s) from the bay area.

Ethnological Background

The Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family (Levy 1978: 398). The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Consumes and Sacramento Rivers including the area of central Sacramento County surrounding the project area. Linguistic studies and the application of a lexicostatistic model for language divergence suggest that Plains Miwok was a distinct linguistic entity for the last 2000 years (Levy 1970). This result led researchers such as Richard Levy (1978: 398) to conclude that the Plains Miwok inhabited the Sacramento Delta for a considerable period of time.

The political organization of the Plains Miwok centered on the tribelet. Tribelets were comprised of 300 to 500 individuals (Levy 1978:410). Each tribelet was thought to control a specific area of resources and usually consisted of several villages or hamlets. Each tribelet also was divided along lineages. These lineages were apparently localized to a specific geographic setting and most likely represented a village site and their associated satellite sites where the seasonal collection of resources occurred (Levy 1978:398-399). Each settlement apparently contained roughly 21 individuals according to data collected by Gifford (Cook 1955: 35).

The diet of the Plains Miwok emphasized the collection of floral resources such as acorns, buckeye, digger pine[1] nuts, seeds from the native grasses, and various fresh greens. Faunal resources such as tule elk, pronghorn antelope, deer, jackrabbits, cottontails, beaver, gray squirrels, woodrats, quail and waterfowl were hunted. Fishing, particularly salmon and sturgeon, contributed significantly to the Plains Miwok diet (Levy 1978: 402-403). The primary method of collecting fish was by nets, but the use of bone

[1] Digger pine is referenced from the original author's work. The preparer of this EIR acknowledges that the preferred reference is Gray pine.

hooks, harpoons and obsidian-tipped spears is also known ethnographically (Levy 1978: 404).

Both twined and coiled basketry were manufactured by the Eastern Miwok. The uses of baskets included the collection and storage of seeds, basketry cradles and gaming (Levy 1978: 406). Tule mats were also known to have been used by the Plains Miwok primarily as a floor covering. Other uses of tule include the manufacture of the tule balsa, a water craft in which native people navigated and exploited adjacent delta and major river systems.

Four main types of structures were known among the Eastern Miwok, depending on the environmental setting. In the mountains, the primary structure was a conical structure of bark slabs. At lower elevations the structures consisted of thatched structures, semi-subterranean earth-covered dwellings and two types of assembly houses used for ceremonial purposes (Levy 1978: 408-409).

Bennyhoff (1977: 11) characterized the Plain Miwok as intensive hunter-gatherers, with an emphasis upon gathering. The seasonal availability of floral resources defined the limits of the group's economic pursuits. Hunting and fishing subsistence pursuits apparently accommodate the given distribution of resources. The Plains Miwok territory covered six seasonally productive biotic communities and as such native people could apparently afford to pick and choose the resources they ranked highest from each of these zones. The subsequent storage of floral resources (such as acorns in granaries) allowed for a more stable use of the resources base (Bennyhoff 1977: 10). The acorn was apparently the subsistence base needed to provide an unusually productive environment as earlier non-acorn using peoples who resided in the same geographic setting apparently suffered some seasonal deprivation (Schulz 1981). Such an emphasis upon the gathering of acorns is consistent with the population increase evident during the Upper Emergent Period in California (Doran 1980).

The study of piscine (fish) remains from both CA-SAC-65 (Schulz *et al*. 1979) and CA-SAC-145 (Schulz and Simons 1973) indicates that small villages away from the major rivers appear to concentrate on the collection of piscine species (particularly the Sacramento perch) that inhabited slow-moving waters.

Historical Context

The project area lies in part on lands of the Rancho Rio de los Americanos, a grant of over 35,500 acres on the south side of the American River, made to William Leidesdorff by the Mexican governor. Leidesdorff died in San Francisco in 1848 and Joseph L. Folsom, who had come to California as assistant quartermaster of Stevenson's New York Volunteers, purchased the estate from the heirs at a low price, becoming one of the wealthiest men in California. The town of Folsom was laid out on the ranch in 1855 as the terminus of the Sacramento Valley Railroad, and named in his honor (Hoover, Rensch and Rensch 1970: 300).

There is no indication that any important events or activities occurred in the early history of the region. Bradshaw Road follows roughly the route of an early roadway that led from the Cosumnes River to the American River (General Land Office plat of T8NR6E 1866).

It was not long after the initial gold rush of the late 1840s-early 1850s however, when the agricultural potential of the excellent farmlands of the Sacramento Valley was recognized. The first lands taken up were the rich bottomlands along the major watercourses. By the mid-1860s, the prime farmland had been claimed and the later settlers began to discover the potential of lands such as the project area with poorer soils and less available water. In the 1860s and 1870s, virtually all land in the region was taken up by the later settlers for agricultural purposes. The project area lies within the boundaries of the Brighton Township (Thompson & West 1880).

Examination of the General Land Office Plat of 1866 indicated that within the Aspen VIII project area, there were two early houses present: Joseph Downing's and Daniel Webber's were both located on the north side of the section line which is now marked by Elder Creek Road. Joseph Downing's house was located along the line of the Rio de los Americanos grant, and Daniel Webber's house was located in the southwest quarter of the southwest quarter of section 27. The 1911 United States Geological Survey (USGS) map show houses at both locations, but Webber's house is gone by the 1954 USGS map. Downing's house, in the area of the Quiet Haven Cemetery, was destroyed with development of the cemetery.

Within the Aspen IX project area, there are two other residences: W.H. Ellis' house and John S. Downing's house. The Ellis house is located just south of the section 28/33 line, in the northeast quarter of the northeast quarter of section 33. This area continues to be occupied, but there is no building on the property that dates to 1866 or anything near it. Downing's house was located in the northeast quarter of the southeast quarter of section 33 (General Land Office Plat of T8NR6E, 1866). This corresponds to the ruins recorded as 5070 Knox Road.

Belleview Cemetery started in the early 1860's for the local population of farmers who settled the region in this time period. Arlington Cemetery developed first as the Garden of Good Shepard #1, but a later business venture named it "Arlington Memorial Cemetery" (Bayless and Mellow 1982). The Arlington Cemetery is now known as the Quiet Haven Cemetery.

METHODOLOGY

Archival research, Native American consultation, and fieldwork were conducted to establish what cultural resources may be present within the project area and the impact of the project on the cultural resources.

INFORMATION CENTER RECORD SEARCH

A record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System on August 8, 2006 (NCIC File No.: SAC-06-138). A follow-up record search was conducted on March 19, 2014 (NCIC File No.: SAC-14-35). The Information Center Indicated no additional work in the area since the original survey. The three sites were recorded at that time remain the only recorded resources within the Area of Potential Effect (APE), though they have now been assigned permanent numbers.

A portion of the northeast corner of the Aspen IX project area was the subject of surveys in 2006 and 2008 by Jones and Stokes. That study area extended much farther than the current Area of Potential Effect. The results of a 1974 survey by Johnson were summarized in the Morrison Creek Mining Reach Downstream (south) of Jackson Highway EIR/EIS prepared by the County of Sacramento, Department of Environmental Review and Assessment in conjunction with the Corps of Engineers for a Section 404 Permit Application (1997).

NATIVE AMERICAN CONSULTATION

In the course of the 2006-2007 project, a letter was sent to the Native American Heritage Commission requesting a check of the Sacred Lands files. The Native American Commission did provide a list of individual and groups to contact regarding the property. Letters were sent to Billie Blue Elliston, Leland Daniels, Matthew Franklin, Glen Villa Jr., Frank Navarette of the Ione Band of Miwok Indians, Mary Daniels-Tarango of the Miwok Indian Community of the Wilton Rancheria, and Dwight Dutschke, Sierra Native American Council. No responses were received.

In March of 2014 a new request was submitted to the Native American Heritage Commission, with similar results as far as the Sacred Land file. A new list of contacts was provided and letters were sent but to date no responses have been received. Below is the new list of contacts that were provided letters:

Organization	Individual
Buena Vista Rancheria	Rhonda Morningstar Pope
Shingle Springs Band of Miwok Indians	Hermo Olanio, Vice-Chairperson
Shingle Springs Band of Miwok Indians	Daniel Fonseca, Cultural Resource Director
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson
United Auburn Indian Community of the Auburn Rancheria	Marcos Guerrero, Tribal Preservation Committee
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse, Chairperson
United Auburn Indian Community of the Auburn Rancheria	Jason Camp, THPO
Ione Band of Miwok Indians	Yvonne Miller, Chairperson
Ione Band of Miwok Indians	Anthony Burrus, Cultural Committee
Wilton Rancheria	Raymond Hitchcock, Chairperson
Wilton Rancheria	Steven Hutchason

FIELD ASSESSMENT

Peak and Associates undertook the re-survey of the entire property in August 2006. The survey coverage was complete with transects of no more than 15 meters in width where necessary, small holes and scrapes were made to examine the sediments. Three new historic period sites were recorded during the survey (P-34-1865, P-34-1866, and P-34-1867).

A follow-up survey was conducted on April 4, 2014 to examine the current conditions of recorded resources and to do spot checks to ensure the accuracy of the original survey. The investigator examined the recorded building complexes, finding minimal change since they were recorded from the 2006 survey. An additional complex, 9990 Elder Creek Road, was identified and recorded and is discussed below. Furthermore, the cemetery to the west of the project site was re-examined and there was still no

indication of any features within the area of potential effect. The remainder of the area was spot checked in areas where mining is proposed. Therefore, there are four new historic period sites located within the project area.

Testing and Evaluations Results

Cultural Resources

Peak and Associates provided testing and evaluations of the four sites. These resources are discussed below utilizing the established trinomial identifier (i.e. CA-SAC-XXX) or by the temporary number given to the resources at North Central Information Center of the California Historical Resources Information System (i.e. P-34-XXXX)

10000 Elder Creek Road (P-34-1865)

The residential complex is located in the Aspen IX project area about halfway between Bradshaw Road and Excelsior Road on the south side of Elder Creek Road, east of the buildings is a private drive leading south to Elder Creek Road. The complex is located on APN: 066-0020-006 and will be removed as part of the project.

The complex consists of a group of three buildings, two of them modern. The larger residence dates to about 1970 and there is a garage/shed constructed of cinder blocks. The smaller residence is the only building on the site that may have historical importance, and it does not appear to be significant. It is a circa 1940's Minimal Traditional one-story frame residence. It has stucco siding and a composite roof. The best clues to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west side that is clearly later than the majority of the house.

10151 Elder Creek Road (P-34-1866)

The site is located on the north side of the Elder Creek Road in the Aspen VIII project area. The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branch Elder Creek and Elder Creek Road. The complex is located on APN: 063-0160-001 and the two homes will remain.

The only building that is 50 years old is the Quonset hut being used as a residence at the farm headquarters. There are many other buildings in the area and all are modern. The Quonset hut is oriented with the long axis east-west parallel to Elder Creek Road. The entrance is located on the east side via a modern aluminum door under an added porch roof. There is an addition on the west side that is clearly later than the bulk of the structure. This has lapped siding and includes another entrance from the north. The additions, entrances and a couple of aluminum framed slider windows that have been added detract for the original appearance of the structure. The Quonset hut was built during World War II and was possibly moved from Mather Field. It was common for these mass produced, prefabricated Quonset huts to be sold by the government after the war and they have been used and continue to be used throughout the country.

7050 Knox Road (P-34-1867)

Knox Road is a small access road just east of the Sacramento County Water Agency Facility that runs north from Florin Road approximately halfway between Bradshaw Road and Excelsior Road. The site is approximately 900 feet north of Florin Road in the Aspen IX project area and is located on APN: 066-0050-012. The features will be removed as part of the project.

The site is the location of a former farm headquarters. It is now only foundation pads and some minor structural features. According to Peak and Associates it is not clear when the structures were built, but there are only modern artifacts in the area now.

Features now present in the area are:

1. Wood fence
2. Brick Pile (Stoop?)
3. Concrete slab #1
4. Raised area indicating building location
5. Stock tank
6. Water tank
7. Pump house foundation/concrete slab
8. Concrete slab #2
9. Building site; flattened area and concrete walk

9999 Elder Creek Road

This property was not recorded as a resource during the first survey in August 2006. It was recorded when the follow-up survey was completed on April 4, 2014. It was not recorded because the field team felt the age of the residence at this farm/ranch headquarters made the complex too young for consideration as a resource. The residence dates from 1972 according to County Assessor's records but the barn and other out buildings are older. The complex is located on the Aspen VIII project area on APN: 066-0020-006, the same site where P-34-1865 is located. The complex will be removed as part of the project.

The four buildings other than the residence include a chicken coop, two equipment sheds and a large barn. All of the buildings are plain, utilitarian structures with no architectural features of note and there are no unusual structural techniques or materials in evidence.

The garage/equipment shed is located on the south side of the complex. It has a 1940's – 50's style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950's electrical fixtures. The structure is in fair condition. Furthermore, there is a modern roll up door on the west half. The one-over-one sash widows could be original. The west half of the structure is an equipment shed that appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor, a large industrial scale bolted to the floor, and features the same construction style and general appearance as the garage.

The chicken coop is similar in construction style and materials as the other equipment shed discussed above, but the chicken coop has plexiglass replacement windows. Overall the chicken coop is in fair condition.

The barn is the most imposing structure of the complex. It is 40 feet wide and 80 feet long with a height of 22 feet. The barn has sliding doors on the north end; the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand and feed out of the weather. The roofing is rusted corrugated steel and the fencing for a corral and pen extends behind and west of the barn. The overall condition of the barn is good.

Ground Penetrating Radar Survey

Peak and Associates recommended that a ground penetrating radar study be undertaken to determine if there were graves within the project area near both the Arlington and Belleview Cemeteries. This is due to the proximity of the two cemeteries to the area of potential effect (APE). The zone selected for the ground penetrating radar study was determined using historic aerial photographs, maps and older editions of the United States Geological Survey (USGS) topographic quadrangles.

NORCAL Geophysical Consultants, Inc, conducted the ground penetrating study within the project area of Aspen VIII that is adjacent to the cemeteries in 2006. The survey team checked an area about 300 feet by 400 feet on the east side of Quiet Haven Cemetery. A second area to the north was also tested.

NORCAL crew identified 11 subsurface anomalies (irregularities or deviations in readings) in the test area near Quiet Haven Cemetery. There were also 16 anomalies identified in the test area to the north near Belleview Cemetery.

Field Trenching

Peak and Associates returned to the project area to excavate each of the identified anomalies in May 2007. Each of the anomalies was excavated with a backhoe. The excavated materials were observed, and samples screened from the trenches; side walls of the trenches were carefully checked from evidence of disturbance. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no

evidence of disturbance or buried material. According to Peak and Associates, there was no evidence of graves in the study area.

CONCLUSIONS

Peak and Associates concluded that the trenching of the anomalies revealed that there are no graves or buried features of concern in the tested portions of the project area adjacent to the know cemeteries. There are no known or expected human remains present within the project area.

9990 Elder Creek Road (P-34-1865?)

The Information Center record search indicated that this complex is part of P-34-1865 (10000 Elder Creek Road), even though Peak and Associates did not record it previously. Until this is determined, Peak and Associates is applying the tentative designation, but describing the resources separately.

The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of United States Geological Survey (USGS) map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

10000 Elder Creek Road (P-34-1865)

The older building in the complex is not associated with any know person or event of historic significance. The architectural style is very plain and there has been a major addition.

There is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Resister or the California Resister.

10151 Elder Creek Road (P-34-1866)

The Quonset hut is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in large quantities for World War II military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavation would return any information of significance, as there is no indication of subsurface deposits at the site. The site is not eligible for the National Register or for the California Register.

7050 Knox Road (P-34-1867, CA-SAC-1027-H)

This site is not associated with any know person or event of historic significance. There are no surviving buildings and there is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or for the California Register.

According to Peak and Associates there are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

SIGNIFICANCE CRITERIA

In order for a cultural resource to be considered a "historic property" by becoming eligible under the National Register of Historic Places (NRHP) criteria, it must be demonstrated that the resource possesses integrity of location, design, setting, materials, workmanship, feeling and association, and must meet as least one of the following four criteria delineated by Section 106 (Advisory Council on Historic Preservation 2000), as listed in 36 CFR 60.4:

a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

c) That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

The criteria for listing resources on the California Resister of Historical Resources (CRHR) were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places (NRHP), enumerated above, and require similar protection to what National Historic Preservation Act (NHPA) Section 106 mandates for historic properties. According to Public Resources Code (PRC) Section 5024.1(c)(1-4), a resource is considered historically significant if it meets as least one of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important in prehistory or history.

Under California Environmental Quality Act (CEQA), if an archeological site is not a significant "historical resource" but meets the definition of a "unique archeological resource: as defined in the Public Resources Code Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that meets any of the following criteria:
>
> 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> 2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> 3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) nor qualify as a "unique archaeological resource" under the California Environmental Quality Act (CEQA) Public Resources Code (PRC) Section 21083.2 are viewed as not significant. Under the California Environmental Quality Act (CEQA), "A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC Section 21083.2(h)).

Impacts to significant cultural resources (historic properties under National Historic Preservation Act (NHPA) and historical resources under the California Environmental Quality Act (CEQA)) that affect the characteristics of any resource that qualify it for the National Resister of Historic Places (NRHP) or adversely alter the significance of a resource listed on or eligible for listing on the California Resister of Historical Resources (CRHR) are considered a significant effect on the environment (CEQA guidelines 15065(a)(1)). Impacts to significant cultural resources from the proposed project are thus considered significant if the project physically destroys or damages all or part of a resource, changes the character of the use of the resource or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Impacts And Analysis

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Cultural Resources the proposed project would have a significant impact if it:

CR-1: Causes a substantial adverse change in the significance of a historical resource; or

CR-2: Has a substantial adverse effect on an archaeological resource; or

CR-3: Disturbs any human remains, including those interred outside of formal cemeteries; or

Impact Evaluation CR-1: Does the project cause a substantial adverse change in the significance of a historical resource?

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation CR-2: Does the project have a substantial adverse effect on an archaeological resource?

Field surveys were conducted on the site in 2006 and again in 2014. The survey coverage was complete in nature with transects of no more than 15 meters wide. Additionally, a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project in 2007. The sites recorded at the time remain the only recorded resources within the area of potential effect. The sites are not eligible for the National Register of Historic Places or for the California Register. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Level of Significance Before Mitigation: Potentially Significant

CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure

If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is

determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation CR-3: Does the project disturb any human remains, including those interred outside of formal cemeteries?

The site was surveyed for subsurface anomalies near the Quiet Haven Cemetery and Belleview Cemetery. The trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the project area. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Level of Significance Before Mitigation: Potentially Significant

CR-3: Unintended Discovery Mitigation Measure

Comply with Mitigation Measure CR-2.

Level of Significance After Mitigation: Less than Significant

16 HAZARDOUS MATERIALS

REGULATORY CONTEXT

DEFINITIONS

The term “hazardous substances” refers to both hazardous materials and hazardous wastes. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a Federal, state or local regulatory agency, or if it has characteristics defined as hazardous by such an agency. A “hazardous material” is defined in the Code of Federal Regulations (CFR) as “a substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> “Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

The definition of a hazardous waste, as regulated by the California Environmental Protection Agency, Department of Toxic Substances Control (Cal EPA, DTSC), is found in the California Health and Safety Code Section 25141 (b), as follows:

> “…as hazardous waste because of its quantity, concentration, or physical, chemical, or infectious characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.”

A hazardous waste is a “solid waste” that exhibits hazardous characteristics. The U. S. Environmental Protection Agency (EPA) has defined the term “solid waste” to include the following: any gaseous, liquid, semi-liquid, or solid material that is discarded or has served its intended purpose, unless the material is excluded from regulation. Such materials are considered wastes whether they are

discarded, reused, recycled, or reclaimed. The EPA classifies a waste as hazardous if it (1) is listed on the EPA's list of hazardous waste and/or (2) exhibits one or more of the following properties: ignitability (including oxidizers, compressed gases, and extremely flammable liquids and solids), corrosively (including strong acids and bases), reactivity (including materials that are explosive or generate toxic fumes when exposed to air or water), or toxicity (including materials listed by the EPA as capable of inducing systemic damage in humans or animals).

Federal Regulations

The federal government adopted laws, generally known as the Resource Conservation and Recovery Act (RCRA), to provide for the regulation of hazardous wastes and substances. The Resource Conservation and Recovery Act requires any business, institution, or other entity generating hazardous waste to identify and track such waste from its generation until it is recycled, reused, or disposed. The Resource Conservation and Recovery Act, subsequently amended in 1984 by the Hazardous and Solid Waste Act, extended the "cradle-to-grave" tracking system to hazardous substances, specifically prohibiting certain techniques of disposing specified hazardous substances.

The U.S. Environmental Protection Agency (EPA) was given primary responsibility for implementation of the Resource Conservation and Recovery Act. Individual states may implement their own hazardous substance management programs, if approved by the U.S. Environmental Protection Agency, with regulations at least as strict as the Resource Conservation and Recovery Act. In August 1992, the California Environmental Protection Agency (Cal EPA) received authorization to implement California's Resource Conservation and Recovery Act program, called the Hazardous Waste Control Act (HWCA). The Hazardous Waste Control Act and associated regulations are similar to Resource Conservation and Recovery Act but have a broader definition of "hazardous material" and, as a consequence, regulate more chemicals. Cal EPA's Department of Toxic Substances Control (DTSC) is the responsible agency for the implementation of the Hazardous Waste Control Act. The Department of Toxic Substances Control has the authority to delegate enforcement responsibility to local jurisdictions that enter into an agreement with the State agency for the generation, transport and disposal of hazardous substances under Hazardous Waste Control Act.

Hazardous Materials Transportation

The U.S. Department of Transportation developed regulations for the intrastate movement of hazardous materials that have been adopted by the State of California. California has also adopted provisions that regulate the transportation of hazardous material passing through and/or originating in the State. The regulations require hazardous waste be transported by a California registered hazardous waste transporter that meets specific requirements, including

possession of a valid Hazardous Waste Transporter Registration, liability insurance for environmental restoration, and compliance with Vehicle Code registration regulations. The California Highway Patrol (CHP) and Caltrans are primarily responsible for the enforcement of these regulations. Caltrans is primarily responsible for response to chemical spills and chemical identification, while the CHP enforces hazardous material and waste labeling and packaging regulations

State of California Regulations

California regulations governing hazardous materials are as stringent as (and in some cases, more stringent than) federal regulations. The state has been granted primacy (primary responsibility for oversight) by the EPA to administer and enforce hazardous waste management programs. State regulations also have detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce human health risks. California regulations pertaining to hazardous waste management are published in the California Code of Regulations (CCR). The California Code of Regulations is updated yearly and incorporates all legislation and final regulations enacted during the year, as well as specifying the agencies responsible for enforcing the various regulations.

- Department of Toxic Substances Control. 22 CCR gives the California Department of Toxic Substances Control (DTSC) responsibility for regulating hazardous waste management at the state level. The Department of Toxic Substances Control regulates the treatment, storage, and disposal of hazardous waste in accordance with 22 CCR and the Resource Conservation and Recovery Act. The Department of Toxic Substances Control administers the state and federal Superfunds for cleanup of major hazardous waste contamination sites.

- Regional Water Quality Control Board. 23 CCR charges the nine Regional Water Quality Control Boards (RWQCBs) with responsibility for overseeing water quality control. The Water Quality Control Boards are responsible for protecting actual or potential beneficial uses of water, including municipal, industrial, and agricultural water supplies and recreation. Each Water Quality Control Board has authority to supervise hazardous waste cleanup at sites referred by local agencies and in cases where water quality is affected or threatened. Either the Department of Toxic Substances Control or the Water Quality Control Board may be responsible for cleanup of sites of significant contamination by hazardous wastes. The two agencies often work together to ensure that their requirements are consistent and are implemented as intended.

- California Occupational Safety and Health Administration. Health and safety regulations applying to the investigation and cleanup of sites

contaminated with hazardous waste are enforced by Cal-OSHA under 8 CCR and the adopted federal regulations (29CFR 1910).

LOCAL REGULATIONS

ENVIRONMENTAL MANAGEMENT DEPARTMENT

Sacramento County is responsible for enforcing the State regulations, both in the incorporated cities and unincorporated areas of the County, governing hazardous waste generators, hazardous waste storage, and underground storage tanks (including inspections, enforcement and removals). The Sacramento County Environmental Management Department (EMD) regulates the use, storage and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities. The Environmental Management Department also oversees remediation of certain contaminated sites resulting from leaking underground storage tanks.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to hazardous materials that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

HM-4:

> The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.

HM-7:

> Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercial facilities are protected from accidents and the mishandling of hazardous material.

HM-10:

Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

HM-11:

Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

SACRAMENTO COUNTY ZONING CODE

Section 4.8 of the Sacramento County Zoning Code contains rules and regulations pertaining to the Surface Mining (SM) Combining Land Use Zone. The Surface Mining Combining Zone is required in order to have mining be a permitted use. Several sections of the Surface Mining regulations address public safety and hazards. They are codified in the Zoning Code as follows:

Zoning Code Section 4.8; Purpose

The (SM) Surface Mining Combining Zone is designed to protect the mineral resources of Sacramento County from incompatible land use; to manage the mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use. The goals to be pursued by establishment of this zone include:

(a) That mineral resource areas be protected from preclusive and incompatible land uses.

(b) That surface mining be controlled to provide for protection of the environment.

(c) That surface mining be controlled to protect the public health, safety, welfare, and property values of residents living near surface mining operations.

(d) That provisions be made for the reclamation of mined lands.

Zoning Code Section 4.8.12.B; Fences

Unless otherwise provided by condition of the use permit, the following fence requirements shall apply:

1) Fences erected for safety purposes shall be chain-link. Fences erected for other purposes may be of other types, as designated in the use permit.

2) Fences shall be not less than 6 feet in height above the grade of the property outside the fence area.

3) Gates shall be installed to fence height at all entrances.

4) Fences shall be kept in good repair.

5) Fences shall conform to the ground to preclude opening of more than 4 inches between the ground and the fence.

6) Fences shall be placed around mining site and processing site boundaries as necessary to ensure public safety and security.

Zoning Code Section 4.8.12.C; Warning and Complaint Information Signs

1) The operator shall provide warning and trespass signs advising of the aggregate mining operation on the fences at interval of not more than 500 feet. Signs shall be kept legible and in good repair.

2) The operator shall provide signs containing information necessary for reporting complaint to the mine operator, and also for reporting fugitive dust to the Sacramento Metropolitan Air Quality Management District. Signs shall be placed to be easily visible by the public.

Zoning Code Section 4.8.12.F; Mining Setbacks

<u>Mining Setbacks</u> Setback area consisting of mined land shall be reclaimed to original grade within 1 year of the competition of mining activities. Unless otherwise provided as a condition of the use permit, mining areas shall be set back from the property lines, public streets and sewage disposal system as follows:

1) Periphery of Mining Sites Abutting Public Streets. There shall be a 25-foot minimum setback from all public streets consisting entirely of unmined land.

   <u>For Rights-of-Way with PUPFs</u>: (1) Periphery of Mining Site Abutting Public Streets. There shall be a 31-foot minimum setback from all public streets consisting entirely of unmined land.

2) Periphery of Mining Sites Adjacent to Habitable Structures and/or Potentially Incompatible Uses. The operator shall-maintain a 25-foot minimum setback for property lines that are adjacent to habitable structures and/or potentially incompatible uses, the first 10 feet of which shall consist entirely of undisturbed land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining phase.

3) Periphery of Mining Sites Adjacent to Habitable Structures. For habitable structures existing at the time of mining use permit issuance (including habitable structures primarily used as a residence on a non-residentially zoned property) maintain a minimum of 50 feet of unmined land between the structure and mining activity. The distance from habitable structures is to be measured from the edge of a primary residence or residential accessory dwelling, whichever is closer to the property line. The distance is not to be measured from ancillary structures such as pools, decks, and patios.

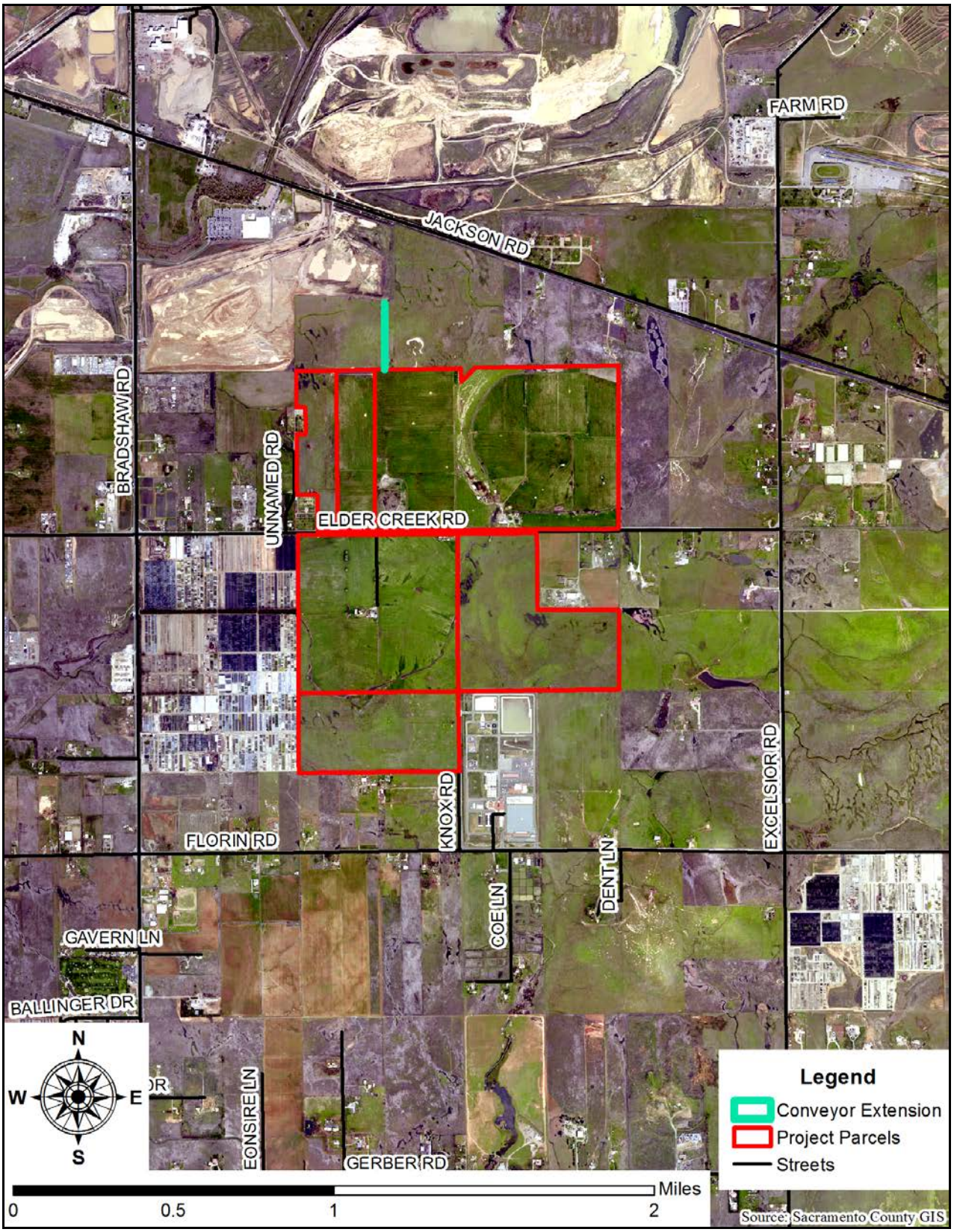
ENVIRONMENTAL SETTING

The project site (Plate HM-1) is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The project site is currently used as irrigated pasture and rangeland for livestock and rural residences. The surrounding area is much the same with large parcels that are used for agricultural pursuits and rural residences. There is also a County water treatment facility located south of the project site, a plant nursery located south-west of the site and other surface mines are located to the north and west of the project area.

The applicant is proposing no new permanent buildings or structures. There will be temporary trailers used for security and employee accommodations, an electric conveyor for moving the aggregate and heavy equipment that will excavate the site. The applicant will not construct any type of storage area where any hazardous material will be stored on the site.

Plate HM-1: Project Location



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Hazards and Hazardous Materials the proposed project would have a significant impact if it:

HM-1: Creates a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or

HM-2: Exposes the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials; or

HM-3: Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school; or

HM-4: Is located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 resulting in a substantial hazard to the public or the environment; or

HM-5 Impairs the implementation of or physically interferes with an adopted emergency response or emergency evacuation plan.

The project site is not located within ¼ mile of an existing or proposed school. Furthermore, the project is not located on a known hazardous materials site. Lastly, there are no known adopted emergency response or emergency evacuation plans near the project site. Therefore, the project would not interfere with any known emergency response or excavation plan. Therefore, HM-3, HM-4, and HM-5 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation HM-1: Does the project create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The project is a surface mine that will excavate aggregate materials from the site using heavy equipment such as scrapers and loaders. The heavy equipment will be serviced by mobile maintenance trucks and fuel trucks as needed. The needed materials for equipment maintenance will be stored in the mobile maintenance trucks whether hazardous or not. The mobile maintenance trucks are stored off-site at Teichert's

equipment yard. The project applicant states that there will be no hazardous material stored at the site.

The Sacramento County Environmental Management Department reviewed the project application and materials. Environmental Management Department has requested conditions of approval for the use permit. These conditions include limits to the amount of hazardous materials that can be stored at the project site and compliance with the Hazardous Waste Control Act.

The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has indicted no storage or disposal of hazardous materials will occur at the project site, mitigation measure are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all applicable standards. The use of hazardous materials is limited to the minor maintenance conducted at the site. However, even with limited exposure to hazardous material, there is still the potential for accidents such as fuel spills that may occur during maintenance activities. Therefore, the impacts are potentially significant but with mitigation the impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure

A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities.

B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff.

C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation HM-2: Does the project expose the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials?

The project is subject to Sacramento County Environmental Management Department (EMD) regulations which will protect the public and environment in regards to hazardous waste. EMD has provided comments and recommended conditions of approval for the project. EMD has requested that as part of ongoing operations, if the project site has storage of hazardous materials in excess of standards, the applicant must obtain a permit and submit a Hazardous Materials Business Plan to EMD. Furthermore, EMD requested any facility that generates hazardous waste must obtain a permit from EMD. The purpose of this is to ensure compliance with the Hazardous Waste Control Act.

The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Compliance with EMD regulations will ensure the impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

17 GREENHOUSE GAS EMISSIONS

REGULATORY CONTEXT

FEDERAL

SUPREME COURT RULING

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the Clean Air Act. The Supreme Court of the United States ruled on April 2, 2007 (*Massachusetts, et al., Petitioners v. Environmental Protection Agency, et al.)*, that carbon dioxide (CO_2) is an air pollutant as defined under the Clean Air Act, and that the EPA has authority to regulate emissions of Greenhouse Gases (GHGs). The ruling resulted in the EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

GREENHOUSE GAS PERMITTING REQUIREMENTS

In response to the issue of climate change, the EPA has taken actions to regulate, monitor, and potentially reduce Greenhouse Gas emissions

The Clean Air Act requires new major stationary emissions sources and major modifications at existing stationary sources to obtain an air pollution permit before starting construction. On May 13, 2010, the EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. This rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

Prevention of Significant Deterioration permitting requirements now cover new construction projects that emit Greenhouse Gas emissions of at least 100,000 tons of carbon dioxide equivalent (CO_2e) (90,718 metric tons [MT]) per year even if they do not exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that would increase GHG emissions by at least 75,000 tons (68,039 metric tons) per year will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant. Title V Operating Permit requirements apply to sources based on their GHG emissions even if they would not apply based on emissions of any other pollutant. Facilities that emit at least 100,000 tons (90,718 metric tons) per year of CO_2e will be subject to Title V permitting requirements.

The EPA issued a final rule on June 29, 2012 that continues to focus permitting on the largest emitters. The EPA did not revise the Greenhouse Gas permitting thresholds that were established by the GHG Tailoring Rule. Therefore, at this time, Prevention of

Significant Deterioration and Title V permitting requirements are not applicable to additional, smaller sources of GHG emissions.

MANDATORY GREENHOUSE GAS REPORTING RULE

On September 22, 2009, the EPA issued a final rule for mandatory reporting of Greenhouse Gases from large GHG emissions sources in the United States. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

STATE

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total Greenhouse Gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in Greenhouse Gas emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that is being phased in and started in 2012. To effectively implement the cap, AB 32 directs the California Air Resources Board to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN

In December 2008, the California Air Resources Board adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the State's projected 2020 emission level of 545 million metric tons of

CO_2e under a business-as-usual scenario. This is a reduction of 47 million metric tons CO_2e, or almost 10 percent, from 2008 emissions. The California Air Resource Board's original 2020 projection was 596 million metric tons CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008. The Scoping Plan, reapproved by the California Air Resource Board in August 2011, includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The first update to the Scoping Plan was approved by the California Air Resources Board in May 2014. The updated Scoping Plan revised the 2020 projection to 509 million metric tons CO_2e and the 2020 emission limit to 431 million metric tons CO_2e. The Scoping Plan also includes the California Air Recourses Board-recommended GHG reductions for each emissions sector of the State's GHG inventory. The California Air Resource Board estimates the following reductions in GHG emissions from sector-based measures:

- Energy (25 million metric tons CO_2e),
- Transportation (23 million metric tons CO_2e),
- High global warming potential (5 million metric tons CO_2e),
- Waste (2 million metric tons CO_2e), and
- Cap-and-Trade Regulations (23 million metric tons CO_2e).

SENATE BILL X7-7

Global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. These conditions can have major implications on the agriculture industry in California. Senate Bill X7-7 was enacted in November 2009 and requires all water suppliers in California to increase water use efficiency. Specifically, the legislation sets an overall goal for the State of California to reduce per capita urban water use by 20 percent by December 31, 2020. An interim goal of a 10 percent per capita reduction was set for December 31, 2015.

LOCAL

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento Metropolitan Air Quality Management District (SMAQMD) has adopted Greenhouse Gas thresholds, to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and Assemble Bill (AB) 32 in 2013. SMAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with AB 32.

SMAQMD utilized guidance from the California Air Pollution Control Officers Association to develop threshold concepts. The goal was to develop a threshold screening level that would capture 90 percent of emissions for new stationary sources and land development projects.

Sacramento Metropolitan Air Quality Management District (SMAQMD) Greenhouse Gas thresholds of significance are separated into two project types (Table GG 1). The first is the Land Development and Construction project type and the second project type is Stationary Source Only. Both of these project types are further subdivided into the construction phase and the operational phase. The adopted threshold for stationary sources projects in the operational phase is 10,000 metric tons of CO_2e per year while the construction phase threshold is 1,100 MT of CO_2e per year. Furthermore, the land development thresholds for both the construction and operational phase are 1,100 MT CO_2e per year.

Table GG 1: Sacramento Metropolitan Air Quality Management District Threshold of Significance for Greenhouse Gases

Land Development and Construction Projects		
	Construction Phase	Operational Phase
Greenhouse Gas as CO_2e	1,100 metric tons per year	1,100 metric tons per year
Stationary Source Only		
	Construction Phase	Operational Phase
Greenhouse Gas as CO_2e	1,100 metric tons per year	10,000 metric tons per year

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following is the most pertinent General Plan policy related to Greenhouse Gas Emissions that pertain to the project. Any potential environmental impact related to this policy will be discussed in the Impact and Analysis section below.

LU-115:

> It is the goal of the County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of state and local action.

SACRAMENTO COUNTY CLIMATE ACTION PLAN

In 2009 a Greenhouse Gas Emissions inventory for Sacramento County was prepared. The inventory included the following cites; Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento. Sacramento County than began preparing a multi-phase Climate Action Plan to meet the State's targets for Greenhouse Gas reductions. The Board of Supervisors adopted the Climate Action Plan – Strategy and Framework Document on November 9, 2011, which provided direction for the first and second phases of the Climate Action Plan.

The Board of Supervisors adopted the Climate Action Plan for Phase 1, Government Operations on September 11, 2012. The Phase 1 Climate Action Plan identified ways County-owned facilities, vehicles, and equipment could reduce Greenhouse Gas emissions. Additionally, The Sacramento County Department of Community Development is currently working on the second phase of the Climate Action Plan. Phase 2 will look at the emissions for the entire unincorporated County and not just County-owned facilities like Phase 1.

SACRAMENTO COUNTY GREENHOUSE GAS THRESHOLDS

Sacramento County published Greenhouse Gas thresholds of significance as part of the General Plan Environmental Impact Report (EIR), in May of 2009. In April 2011 the thresholds were updated via a memorandum to the Environmental Coordinator, and attached to this memorandum was a document titled "Sacramento County Greenhouse Gas Thresholds: Guidance on Application." The guidance document was subsequently updated in July 2012, to reflect new analysis information such as the availability of the California Emissions Estimator Model (CalEEMod). The thresholds were further revised in April 2014 to reflect minor changes to the Countywide GHG inventory. The thresholds are based on per capita metrics for residential projects and per 1,000 square feet for commercial/industrial projects. The significance thresholds used within Sacramento County are contained within below in Table GG 2.

Table GG 2: Sacramento County Thresholds of Significance for Greenhouse Gas Emissions

Sector	2005 Baseline	2020 Target	Thresholds
Residential Energy	1,033,142	878,275	1.33 per capita
Commercial & Industrial Energy	772,129	656,914	7.87 per 1,000 square feet
Transportation	2,066,970	1,757,236	2.67 per capita
Trucks	488,806	414,470	0.10 per Vehicle Mile Traveled (VMT)

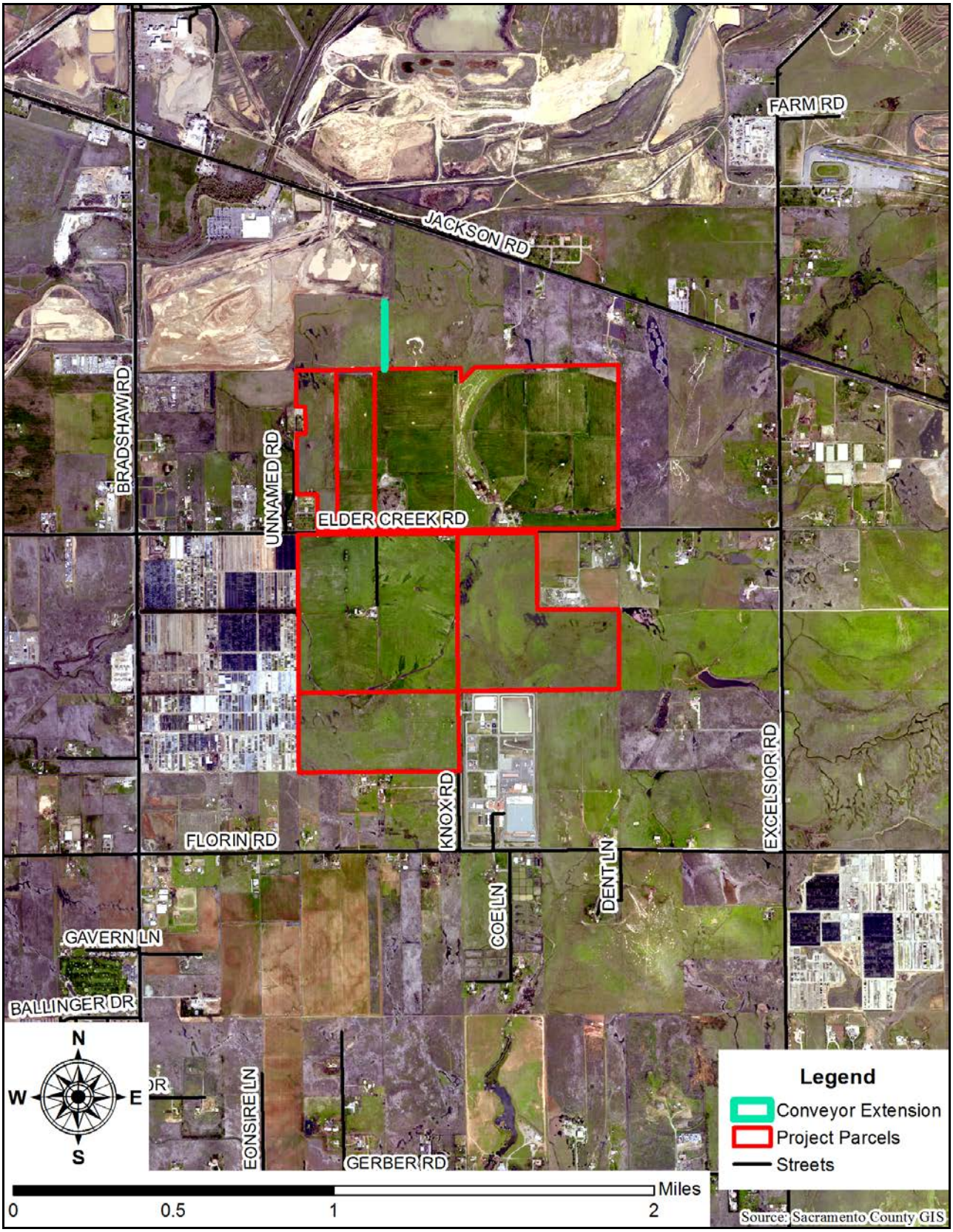
The County has acknowledged the established thresholds do not apply well to mining operations because expressing the threshold as a function of building square footage is not proportionate to mining's Greenhouse Gas impacts which are a function of haul truck traffic, off-road heavy equipment, worker commutes, on-site processing and energy usage.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate GG-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The project site is also located within the Sacramento Valley Air Basin (SVAB). The Sacramento Valley Air Basin also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties also the western portion of Placer County and finally the eastern portion of Solano County. The ambient concentrations of air pollutant emission are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Plate GG-1: Location Map



GREENHOUSE GAS BACKGROUND

Certain gases in earth's atmosphere, classified as Greenhouse Gases, play a critical role in determining Earth's surface temperature. Solar radiation enters Earth's atmosphere from space. A portion of the radiation is absorbed by Earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from Earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Earth has a much lower temperature than the sun; therefore, Earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect and is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent Greenhouse Gases contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of Earth's climate which is known as global climate change or global warming.

Climate change is a global problem. Greenhouse Gases are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes about one day, GHGs have long atmospheric lifetimes; one year to several thousand years. GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere.

Similarly, impacts of Greenhouse Gases are realized globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates.

Attributing Climate Change – Greenhouse Gas Emission Sources

Emissions of Greenhouse Gases contributing to global climate change are attributable in large part to activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural emissions sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Emissions of CO_2 are byproducts of fossil fuel combustion. Methane (CH_4), a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and wastewater treatment plants. Nitrous oxide (N_2O) an even more potent GHG, is also largely attributable to agricultural practices and soil management. Carbon sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

Adaptation to Climate Change

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Program, global average temperature is expected to increase by three to seven degrees Fahrenheit by the end of the century, depending on future Greenhouse Gas emission scenarios. According to the California Natural Resources Agency, temperatures in California are projected to increase two to five degrees Fahrenheit by 2050 and by four to nine degrees Fahrenheit by 2100.

Other environmental resources could be indirectly affected by the accumulation of Greenhouse Gas emissions and resulting rise in global average temperature. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada's. According to the California Energy Commission, the snowpack portion of the state's water supply could potentially decline 30 to 90 percent by the end of the 21st century. An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the snowpack of the Sierra Nevada's until spring would flow into the Central Valley with winter storm events. This scenario would place more pressure on California's levee and flood control systems.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the State if suitable conditions are no longer available.

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also

expected. These changes are expected to lead to increased frequency and intensity of wildfires.

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and it is predicted to rise an additional seven to 22 inches by 2100, depending on the future levels of Greenhouse Gas emissions. California Natural Resources Agency projects that sea levels along California will rise five to 24 inches by 2050 and 17 to 66 inches by 2100.

METHODOLOGY

California Code of Regulations (CCR) Section 15064.4 and other guidance by the Governor's Office of Planning and Research recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of Greenhouse Gas emissions that would be generated by a project, including the emissions associated with construction activities, stationary sources, vehicular traffic, and energy consumption, and to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impact where feasible mitigation is available.

Greenhouse Gas emission levels associated with the project would be generated by off-road equipment use associated with mining, vehicle trips associated with workers and overburden export, and indirect emissions from electricity and water consumption. The project does not propose any new stationary sources on-site. In addition, no processing of materials would occur on-site. Mined materials would be transported to an off-site processing plant, Perkins Plant via electric conveyor for processing. Operations of the off-site Perkins Plant and associated truck trips are considered baseline by the County and Sacramento Metropolitan Air Quality Management District (SMAQMD).

Ascent Environmental consulting prepared a study titled, "Aspen VIII and Aspen IX Mining Project, Air Quality and Greenhouse Gas Study". This study analyzed the greenhouse gas impacts associated with the proposed mining project. Project specific data, including detailed mining information (equipment use, employee trips, etc.), was used in the analysis. Quantification of the GHG emissions were based on a combination of methods, including the use of emissions factors from EPA-published AP-42 emission factors, and emissions rates for OFFROAD 2011 and EMFAC 2011 as contained in California Emissions Estimator Model (CalEEMod) Version 2013.2.2. Reasonable worst-case project-generated emissions were estimated based on information provided in the project description.

Indirect emissions from electricity consumption were calculated based on utility emissions factors for the Sacramento Municipal Utility District (SMUD) for CO_2, N_2O, and CH_4 as provided by SMUD, and estimates of project-specific electricity consumption. Water and dust control would be provided by a groundwater well located on-site. Emissions associated with pumping the groundwater were estimated using SMUD emission factors. See Appendix AQ-1 for detailed calculations.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Greenhouse Gas Emissions the proposed project would have a significant impact if it:

GG-1: Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

IMPACTS AND ANALYSIS

Impact Evaluation GG-1: Does the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Mining projects in Sacramento County do not fit neatly into any type of Greenhouse Gas screening or modeling.

For mining projects in the past, the threshold of significance for the commercial and industrial sector was determined using the Sacramento Area Council of Governments 2020 projection of building square footage for this sector. However, a significance threshold which utilizes building square footage is inappropriate given that mining operations are primarily exterior and can occur over large swaths of land. A mine is not similar to a land development or a construction project. A mine is not developing the land for future uses or constructing any structures; it merely extracts aggregate materials. Furthermore, most mine operations are not simultaneously excavating the entire site; instead the site is mined in smaller phases. The operator may work one phase of a mining project for over a year. Therefore, instead of using the County's industrial and commercial threshold, or SMAQMD's threshold of 1,100 metric tons per year for a typical land development such as a residential development, this analysis utilizes SMAQMD's stationary sources operational phase threshold of 10,000 metric tons per year.

The first step in the current Greenhouse Gas methodology of Sacramento County is to determine if a project screens out. This is accomplished by comparing the project with the Sacramento Metropolitan Air Quality Management District (SMAQMD) Greenhouse Gas Operations Screen Levels table. For example, if the project is a single family residential project with fewer than 57 dwelling units it will screen out and no additional analysis is required. For mining projects there is no Land Use Category that equates.

If the project does not initially screen out, then the planner will run the project information through the California Emissions Estimator Model (CalEEMod). The threshold for most projects is 1,100 metric tons of CO_2e per year. If the CalEEMod run for a land development project shows less than 1,100 metric tons per year, the project will again screen out and no additional analysis is required. If the project has not screened out using either of the above two methods then the project will be analyzed further. The complete CalEEMod results are than analyzed to discover what activities associated with project implementation cause the GHG impacts so mitigation measures can be crafted that lessen the impacts associated with GHG emissions.

For this mining project the appropriate screening threshold was determined to be 10,000 metric tons of CO_2e per year, consistent with SMAQMD's stationary sources operational phase threshold. The 10,000 metric ton threshold was discussed with staff at the Sacramento Metropolitan Air Quality Management District (SMAQMD) for use with this mining project. SMAQMD staff reviewed the project description and the air quality study and agreed that using the SMAQMD screening threshold of 10,000 metric tons of CO_2e per year is appropriate for this mining project.

The Greenhouse Gas emissions associated with the project, both direct and indirect, were evaluated by Ascent Environmental Consulting. The project-specific data, including detailed mining information was used in analysis. Quantification of GHG emissions were based on a combination of methods, including the use of emission factors from EPA-published AP-42 emission factors, and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in CalEEMod Version 2013.2.2.

The analysis concluded the project would result in 6,321 metric tons of CO_2e per year which is under the threshold of 10,000 metric tons of CO_2e per year. The project related operational emissions are shown in Table GG-3 (see appendix AQ-1 for all inputs and calculations).

Table GG-3: Summary of Greenhouse Gas Emissions Associated with the Project[1]

Source	CO_2e (Metric Ton /year)
On-site Equipment Use	1,467
Off-road Trucks (Overburden Haul to Aspen V South)	3,989
Mobile Sources (Worker commute, fuel truck)	73
Electricity Consumption	750
Water Consumption	42
Operational Total	**6,321**

Notes: CO_2e = Carbon dioxide equivalent, GHG = greenhouse gas; MT = metric tons
1 Detailed assumptions and modelling output files are included in Appendix AQ-1
Source: Modeled by Ascent Environmental

As shown in Table GG-3 operation of the project would result in the emission of approximately 6,321 metric tons of CO_2e per year. This level of emissions would occur when mining and overburden hauling are occurring simultaneously. Overburden hauling would cease after five years; therefore, annual Greenhouse Gas emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an increase in annual emissions estimated above. The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. Therefore, the project's Greenhouse Gas impacts are less than significant.

It is also useful to provide additional context for emissions from an aggregate mining operation. Aggregate demand arises from the need for construction materials for the new construction or maintenance of buildings, roads and structures. Such demand is typically driven by population growth. Therefore, an increasing demand for aggregate is the underlying trigger to any Greenhouse Gas emissions associated with a proposed aggregate mining facility. In most cases, aggregate has inelastic demand; that is, an increase or decrease in the price of aggregate has little or no effect on the quantity of aggregate demanded by consumers. As local sources of aggregate are depleted and aggregate is hauled longer distances to the consumer, prices will increase and so will the GHG emissions associated with the longer haul routes. The proposed project would meet the local need for aggregate driven by growth in the region and could potentially reduce the need to import aggregate from outside the Sacramento area.

Level of Significance: Less than Significant – No Mitigation Required

18 SUMMARY OF IMPACTS AND THEIR DISPOSITION

SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

AESTHETICS

VISUAL CHARACTER

The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. Despite the application of feasible mitigation measures that screen the proposed project site, the project will result in a ***significant and unavoidable*** impact related to aesthetics due to the irreversible change in the land form.

AIR QUALITY

NO_x EMISSIONS

The proposed project's maximum daily emissions for NO_x are 861.3 pounds per day which is substantially above the 65 pound per day threshold established by the Sacramento Metropolitan Air Quality Management District. Similarly, the average daily emissions for NO_X are 317.1 pounds per day and is substantially above the 65 pound per day threshold. Despite the application of exhaust control as mitigation measures, the project will result in a ***significant and unavoidable*** impact related to air quality.

SIGNIFICANT EFFECTS WHICH COULD BE AVOIDED WITH IMPLEMENTATION OF MITIGATION MEASURES

AGRICULTURAL RESOURCES

FARMLAND CONVERSION

The proposed project will convert a total of 357 acres of important farmland (consisting of 39 acres of prime farmland, 225 acres of farmland of statewide importance, 91 acres of farmland of local importance, and two acres of grazing land), which exceeds the significance threshold of 50 acres established by General Plan Policy AG-5. With in-kind preservation of farmland as mitigation, impacts associated with conversion of farmland will be ***less than significant.***

AESTHETICS

LIGHTING

The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. There is the potential for the project's lighting to impact negatively the adjacent homes and roadways. Therefore, the project may create a new source of light that would adversely affect day or nighttime views in the area and these impacts are potentially significant. With mitigation that shields the light source and directs the light away from the public right-of-way or adjacent properties, the impacts associated with lighting will be ***less than significant.***

AIR QUALITY

ROG

The maximum daily emissions for ROG are 72.3 pounds per day which is over the Sacramento Metropolitan Air Quality Management District threshold of 65 pounds per day. The average daily emissions for ROG are 27.2 pounds per day which is under the threshold of 65 pounds per day. Therefore, ROG maximum daily emission impacts are significant; however, with mitigation measures that implement exhaust controls, the impacts are reduced to less than significant.

PM EMISSIONS

The proposed project's maximum daily emissions for PM_{10} are 76 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 29.0 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and the $PM_{2.5}$ average daily emissions are 14.7 pounds per day. If the applicant implements Best Available Control Technology (BACT) the threshold for PM_{10} becomes 80 pounds per day and for $PM_{2.5}$ the threshold becomes 82 pounds per day. The project's fugitive dust emissions are both below the BACT modified thresholds. With the implementation of Best Available Control Technology, the project's PM emissions will be less than significant; therefore with the Best Available Control Technology as mitigation the impacts are ***less than significant***.

PUBLIC SERVICES

PARK AND RECREATION

The proposed project site is in the Southgate Recreation and Park District (Southgate). The Southgate master trails plan includes a multi-use trail located on the project parcels along Elder Creek. The mining pit will limit the opportunities for placement of a trail at-grade. Therefore a mitigation measure has been added requiring a 20-foot wide easement for the multi-use trail along Elder Creek to mitigate for the impact of the mining pits limiting the placement of the multi-use trail at grade. The impacts to implementation and placement of the multi-use trail are considered to be potentially

significant but with the above mitigation the impacts are reduced to ***less than significant.***

TRANSPORTATION/TRAFFIC

ACCESS/CIRCULATION

The excavation of the mining pits at the project site could preclude Sacramento County Department of Transportation's (SacDOT) ability to provide a planned roadway extension (Knox/Vineyard Road). This impact is considered ***potentially significant***. Although a roadway easement is currently shown on the site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation and that SacDOT has the flexibility to modify the future roadway as needed to achieve their transportation goals. With mitigation the impacts are ***less than significant***.

NOISE

EXPOSES PERSONS TO NOISE LEVELS IN EXCESS OF STANDARDS

PROJECT NOISE LEVELS AT NEAREST RESIDENCES

The nearest six residences to the project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site's property lines vary. The closest residence to the proposed excavation is residence 3 (9895 Elder Creek Road: APN 063-0180-022) which is 250 feet from the mining pit. Noise modeling indicates that only residence 3 may expect mining noise above county standards. This noise can be mitigated with an earthen berm, landscaping and by limiting the amount of heavy equipment used near the residence. With the above noise mitigation measures, the project's impacts are ***less than significant***.

AMBIENT NOISE LEVELS IN PROJECT VICINITY

Median ambient noise levels at the project will be variable as the location of heavy earthmoving equipment operations are constantly changing. Nonetheless, the analysis concluded that the project could result in short-term substantial (in excess of 5 dB) increase in median noise levels at receptors 3 (9895 Elder Creek Road: APN 063-0180-022) and 4 (9881 Elder Creek Road: APN 063-0180-009). A similar finding occurs at receptor 5 but this residence will be removed as part of this project and as a result it is not considered a sensitive receptor for the purposes of this evaluation. Therefore, the impacts associated with median ambient noise levels are significant but with mitigation measures that limit the amount of heavy equipment used near the sensitive receptors and the use of earthen berms, the impacts are reduced to ***less than significant***.

GEOLOGY

UNSTABLE SOIL

The results of geotechnical analyses indicate that the proposed reclamation slopes will be appropriate for the proposed end use of the site from a static and seismic standpoint provided the consultant's recommendations are incorporated into the design and construction of the project. The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are ***potentially significant*** but with mitigation the impacts are ***less than significant***.

SOIL EROSION

The potential for the stockpiled topsoil to get mixed with overburden or otherwise eroded is a significant issue because the topsoil is the growth media of the soil. In other words, the topsoil contains organic materials that assist in plant growth and overburden does not contain the same organic materials. The topsoil is used to reclaim the site back to open space grassland. If the topsoil is gone, then overburden will have to be heavily fertilized to obtain the same results as topsoil. Furthermore, if the topsoil stockpile is not properly maintained the topsoil has the potential to be blown away with the wind or to run-off in a rain event. The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling. Compliance with the topsoil handling measures contained in the reclamation plan is therefore recommended to mitigate this ***potential significant*** impact. With mitigation the project's impacts to substantial soil erosion or loss of topsoil are ***less than significant***.

PALEONTOLOGICAL RESOURCES

The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. This impact is ***potentially significant***. Compliance with mitigation that requires all work to halt and the use of a qualified archeologist if a subsurface paleontological resource is discovered will assure that impacts are ***less than significant***.

BIOLOGICAL RESOURCES

SPECIAL STATUS SPECIES

The implementation of proposed project would result in temporary, direct, and/or indirect impacts on a number of special-status plant and animal species. The affected species are as follows:

Species	Impact Before Mitigation	Impact After Mitigation
Sanford's Arrowhead (plant)	Significant	Less than Significant

Vernal Pool Invertebrates	Significant	Less than Significant
Spadefoot Toad	Potentially Significant	Less than Significant
Western Pond Turtle	Potentially Significant	Less than Significant
Nesting White tail kite/Swainson Hawk	Potentially Significant	Less than Significant
Nesting Northern Harrier	Potentially Significant	Less than Significant
Other Nesting Raptors	Potentially Significant	Less than Significant
Roosting Burrowing Owl	Potentially Significant	Less than Significant
Nesting Birds Protected Under the Migratory Bird Treaty Act	Potentially Significant	Less than Significant
Loss of Foraging Habitat for White tail Kite and Swainson Hawk	Significant	Less than Significant
Loss of Winter Foraging Habitat for Merlin and Ferruginous Hawk	Less than Significant	Less than Significant
Nesting Loggerhead Shrike	Potentially Significant	Less than Significant
Roosting Yellow-Billed Magpie	Potentially Significant	Less than Significant
Nesting Tricolored Blackbird	Significant	Less than Significant

The project's impacts to biological resources are either ***significant or potentially significant***. The impacts are mitigated through transplanting, pre-construction surveys, avoidance, or compensatory mitigation to reduce the biological resources impacts to ***less than significant***.

Wetland Impacts

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site. The proposed project will result in the loss of 5.373 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater march, perennial stream, ephemeral stream, pond and ditch wetland habitats.

The proposed project will result in substantial adverse impacts on federally jurisdictional Water of the U.S., including wetlands, defined by Section 404 of the Clean Water Act. The impacts will also constitute an adverse effect on Waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Furthermore, these areas may be regulated by the California Department of Fish and Wildlife and are protected under the General Plan. Therefore, impacts to wetlands and other Waters are ***significant*** but with mitigation that includes placing a permanent easement or purchasing credits from a mitigation bank, the impacts are reduced to ***less than significant***.

Native or Landmark Trees

The project site contains a total of 102 trees representing 17 species that could be affected by the proposed mining operation. There are three valley oak and nine California black walnut trees that are of sufficient size to be protected by the Sacramento County Tree Ordinance. These trees will be removed as part of the project. The total diameter at breast height (dbh) for the oak trees is 23 inches and 157 inches for the California black walnut trees.

In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species was mapped within the survey study area. Most of the tree canopy is non-native, ornamental landscape trees such as Modesto ash, mulberry and red gum. There is also a small portion (0.469 acre) of native mixed riparian forest. Approximately 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with Valley oak or Northern California black walnut. Some riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore, excluded form canopy totals. Impacts to native trees (Valley oak and California black walnut) and tree canopy are considered to be ***significant***. Mitigation requiring the planting of native trees to compensate for the amount lost due to the proposed project will lessen the impacts to ***less than significant***.

Polices Protecting Biological Resources

The proposed project also conflicts with several General Plan Policies that protect biological resources. The proposed project has potential impacts associated with special status species and wetlands. Once again mitigation measures have been added to lessen the impacts to special status species and wetlands to less than significant. The project has the potential to conflict with local polices and ordinances therefore, the projects impacts are potentially significant. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local policies and ordinances to less than significant.

Cultural Resources

Archaeological Resources

Field surveys were conducted on the site in 2006 and again in 2014. The survey coverage was complete in nature with transects of no more than 15 meters wide. Additionally, a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project in 2007. The sites recorded at the time remain the only recorded resources within the area of potential effect. The sites are not eligible for the National Register of Historic Places or for the California Register. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Human Remains

The site was surveyed for subsurface anomalies near the Quiet Haven Cemetery and Belleview Cemetery. The trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the project area. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Hazardous Materials

Transport, Use, or Disposal of Hazardous Materials

The project is a surface mine that will excavate aggregate materials from the site using heavy equipment such as scrappers and loaders. The heavy equipment will be serviced by mobile maintenance trucks and fuel trucks as needed. The needed materials for equipment maintenance will be stored in the mobile maintenance trucks whether hazardous or not. The mobile maintenance trucks are stored off-site at Teichert's equipment yard. The project applicant states that there will be no hazardous material stored at the site and that use of hazardous materials is limited to the minor maintenance conducted at the site. However, even with limited exposure to hazardous material, there is still the potential for accidents. Therefore, the impacts are ***potentially***

significant . With mitigation that will ensure no storage occurs at the site and if storage does occur it meets all applicable standards, the impacts are ***less than significant***.

EFFECTS FOUND NOT TO BE SIGNIFICANT

LAND USE

LAND USE PLAN

The applicant requests a rezone to add the Surface Mining combining zone to the project area. The Surface Mining combining zone would allow mining with approval of the requested conditional use permit. The project application conforms to Zoning Code section 4.8.11 which specifies the required data to be included in the project application. Furthermore, the proposed project conforms to the operating standards of Zoning Code section 4.8.12. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways. Upon approval of the requested community plan amendment, rezone, use permits, and reclamation plan, the project will be consistent with the Zoning Code. The project has no known conflicts with the Sacramento County General Plan or the Vineyard Community Plan. Therefore, the project's impacts are ***less than significant.***

LOSS OF HOUSING

There are three single-family residences located on the project site. Implementation of the proposed project would remove two of the three residences. The home at 10151 Elder Creek Road will remain. The project site is 683 acres in size and the loss of two homes is not substantial. Furthermore, the project site is closely located to the developing communities of North Vineyard Station, Florin-Vineyard Gap and Vineyard Springs which provide a source of readily available housing stock to meet the demand associated with the loss of two residences. Therefore, the project's impacts are ***less than significant.***

PHYSICALLY DIVIDES A COMMUNITY

There are no established communities near the project site. The nearest established residential neighborhood is located over two miles away to the northwest. Therefore the project's impacts are ***less than significant.***

INDUCES UNPLANNED POPULATION GROWTH

The project does not propose any new housing nor will it remove any barrier to growth. Therefore, the projects impacts are ***less than significant.***

Agricultural Resources

Williamson Act Contract

The project site was previously under two Williamson Act contracts both located on the proposed Aspen VIII project site. Williamson Act contract 70-AP-041 was for parcel 063-0160-001 and Williamson Act contract 76-AP-006 was for parcels 063-0180-005 and 006. Both of the Williamson Act contracts were noticed for non-renewal on September 11, 1989. The notice of non-renewal was filed with the Board of Supervisors and the contract expired automatically on February 28, 1999. There are no active Williamson Act contacts covering the project parcels for which the project could conflict. Therefore, the project's impacts are ***less than significant.***

Uses near Agricultural Uses

The applicant is requesting a use permit and rezone to mine the project site. The use is permitted on agricultural land with an approved use permit from the Board of Supervisors. The proposed mining operation will not be an incompatible use near agricultural uses. Currently there are numerous mines located near agricultural uses in the vicinity of the proposed project. The uses work well together because the mine operations normally don't interfere with the surrounding farm operations. Furthermore, the mines have to be reclaimed in accordance with their approved reclamation plans which usually specify agricultural uses or conservation areas as the end result of reclamation. The mining operation will allow for the extraction of important mineral resources and after the mining is complete the project site will be reclaimed to open space grassland uses. Open space grassland uses fit well with the surrounding agricultural uses; the proposed project will not introduce incompatible uses in the vicinity of existing agricultural use. Therefore, the project's impacts are ***less than significant.***

Aesthetics

The project site does not occur in the vicinity of any scenic highway, corridors, or vistas. Therefore, the project's impacts to altering the view sheds of scenic highways, corridors or vistas are ***less than significant***.

Airport Compatibility

Aircraft Noise

The project area is located to the south of the Mather Airport runway and is located in both the 50-55 Community Noise Equivalent Level (CNEL) and the 55-60 CNEL noise contours emanating from Mather Airport. Aspen VIII is located closer to Mather Airport and is in the 55-60 CNEL noise contour while Aspen IX is in the 50-55 CNEL noise contour. General Plan policy NO-2 permits mining and quarrying in the 60-65 (and quitter) CNEL. By virtue of the project's location, the surface mining use is compatible

with the airport noise standards of the General Plan. Therefore, the project's impacts that would expose people residing or working in the project area to aircraft noise levels in excess of applicable standards are ***less than significant***.

NAVIGABLE AIRSPACE

GROUND FOG

The site contains a total of 27.796 acres of wetlands and water of the U.S; this includes vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, perennial streams, ephemeral streams, ponds and ditch wetland habits. The project will eliminate 5.373 acres of these wetlands; the project will also create drainage basins to control flooding. The drainage basins will be located at the low point of the each mining pit and will be approximately 8,700 feet or 1.75 miles south of the runway. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. Therefore, by virtue of lower elevation, the distance from the runway, and the prevailing winds, the project will not cause any additional adverse ground fog hazards for aircraft.

STRUCTURES

The project is a surface mining operation that does not propose to construct any permanent structures much less any structure over 200 feet in height. The project will use construction type trailers as the temporary office and security office at the site. The project will also include the use of electric conveyors to move the aggregate off the site. The electric conveyors are usually no more than five feet off the ground but in some cases the conveyors are raised up to make a pile of aggregate material. When raised the conveyers will not be over 50 feet in height; moreover they will be in the mining pit below grade. The project will not result in structures that are unsafe for aircraft. The impacts to the safe use of navigable airspace are ***less than significant***.

BIRD STRIKES

Due to the low number of aircraft that depart and arrive at Mather Airport and that nearly all flights cross the project site at about 1,000 feet of altitude. The existing bird aircraft collision hazard level is low because most bird flights occur below 1,000 feet of altitude. The proposed surface mine will reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher altitudes would decline in abundance. The net effect of the proposed project is to

reduce the potential for bird aircraft collisions. Therefore, the project's impacts to bird strikes are ***less than significant***.

Safety

The project site is located at the very edge of the Overflight Zone with most of the project area completely out of the Overflight Zone; mining is a permitted use within the Overflight Zone. Moreover, the Overflight Zone only extends approximately 300 feet into the extreme north-east portion of Aspen VIII while all of Aspen IX is completely out of the Overflight Zone. The mining operations will be located at the extreme edge of the overflight zone when they commence and will soon be completely out of the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport. These impacts are ***less than significant***.

Air Traffic Patterns

There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks, the project is a surface mine that will extract aggregate material from the site. Therefore, the project's impacts are ***less than significant.***

Public Services

Water Supply

The project will not result in an increased demand for water supply at build out because the end use of the mine is open space grassland. The temporary use of water for dust suppression will be insignificant and is countered by the temporary stop in irrigated agriculture on the project site. The proposed project will utilize water from the on-site wells for the water needs. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Therefore, the proposed project will not adversely impact water supply.

Wastewater Treatment

The proposed project is a surface mining facility. The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities that are commonly referred to as port-o-potties. Furthermore, the current project site utilizes septic tanks and not the County sewer system. Therefore, the project will not require additional wastewater services and will have adequate facilities.

Landfill

The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030. Furthermore, the proposed project will remove two dwellings from the site. The solid waste generated by the project will be

substantially less than that generated by occupancy of the two removed homes. Therefore, the project will not significantly affect capacity of the Kiefer Landfill.

Water Supply or Wastewater

The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities.

Stormwater Facilities

Project construction would not require the addition of new stormwater drainage facilities. The applicant is proposing to construct stormwater detention ponds to serve as on-site stormwater detention basins for the mining pits. The stormwater detention basins will be approximately 14.2 acres in size and at least one stormwater detention basin will be at each of the proposed mine pits. They will be designed to provide minimum surface area and have steep-sides that will discourage wildlife use and shoreline vegetation growth (see the Airport Compatibility chapter for additional details). Therefore, there are no substantial adverse physical impacts associated with the provision of stormwater drainage facilities.

Electric or Gas Service

Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project two of the homes will be removed. The applicant is proposing to use temporary structures for an office/employee trailer, security trailer, and an electric conveyor system. The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system. These impacts will not result in an adverse physical impact because the project will not require the addition of substantial electrical power infrastructure at the site. In other words, the project does not require any new construction to the electrical or natural gas infrastructure but instead may construct a minor extension to serve the mines electrical needs. Therefore, there are no substantial adverse physical impacts associated with the electric or natural gas service.

Provisions of Emergency Services

The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.

Public School Services

The project will not require the use of public school services.

TRAFFIC

PARKING CAPACITY

The project is a surface mining operation and no new parking is required. There will be a limited number of mine employees and parking for their personal owned vehicle will be near the temporary employee and security trailers.

TRANSPORTATION POLICIES

No conflicts with adopted policies, plans, or programs supporting alternative transportation have been identified.

ROADWAY PUBIC SAFETY

The project will not substantially impact public safety on the roadway in that the overburden haul trucks will not operate upon the County roadway system. Furthermore, aggregate material will be removed from the project site via electric conveyor and not the public roadway.

PEAK HOUR VEHICLE TRIPS

The Sacramento County Traffic Impact Analysis Guidelines recommends conducting a traffic study when a project generates more than 100 new peak hour trips or more than 1,000 new daily trips. The applicant anticipates seven employees will report to the project site for work. The new peak hour trips generated from seven employees will not necessitate a traffic study. Furthermore, the amount of traffic generated by the seven employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips. Therefore, the project's impacts to peak hour trip ends are ***less than significant***.

AIR QUALITY

CARBON MONOXIDE (CO) CONCENTRATIONS

The project does not propose any overburden hauling on the County roadways. The project will also have limited amount of employees reporting to the site. Therefore, concentrations of CO from project traffic would not exceed the ambient standards. As a result, the impact of project CO would be ***less than significant***.

TOXIC AIR CONTAMINANTS (DIESEL PM)

Considering the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, it is not anticipated that mining related toxic air contaminant emissions would expose any sensitive receptors to an incremental increase in cancer risk that exceeds ten in one million or a hazard index greater than one. Project related activities would not expose nearby, off-site sensitive receptors to incremental increase in cancer, chronic, and acute risk that exceed applicable thresholds. Furthermore, mitigation measure NO-1.0 from the Noise Chapter limits the amount of heavy equipment within 600 of the residence to one

piece of heavy-equipment. This mitigation measure will help lessen the amount of diesel PM generated within 600 feet of the closest sensitive receptor. Therefore, the project's impacts to sensitive receptors would be ***less than significant***.

Odor

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and would not be generated at only one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. These activities will not result in the frequent exposure of objectionable odorous emissions. Therefore, the impacts are ***less than significant***.

Noise

Noise Levels in Excess of Standards

Project Noise Levels At Mine Boundaries

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the project site would be approximately 50 feet. At this distance estimated excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. The noise levels for the project site would satisfy the Zoning Code requirements of less than 90 dB L_{max} and 70 dB L_{50} at the project site boundaries.

Hydrology

Existing Drainage

The project as proposed will not generate any additional runoff because no new structures or impervious surfaces are proposed. Furthermore, the new culvert that is part of the project description will help prevent flooding impacts. Therefore, with the construction of the concrete box culvert which is part of the project design, the proposed project will not substantially alter the existing drainage patterns of the project area and/or increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site. Thus, the drainage and flooding impacts are ***less than significant***.

Floodplain

The northwest corner of Aspen IX is FEMA Zone AO and the southwest corner of Aspen VIII is FEMA Zone X (shaded). These areas will be mined but the culvert improvements on Elder Creek Road are expected to remove them from the floodplain. FEMA Zone AE occurs along Elder Creek and will not be mined. The remainder of the site is in FEMA Zone X outside of the 200-year floodplain and is the main area to be mined.

After implementation of the culvert improvements, the entire area proposed for mining will be outside of Elder Creek's 200-year flood limits, therefore the project's impacts are ***less than significant***.

Ground or Surface Water Quality

Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, silt fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.

During the mining phase, the stockpiles for topsoil and overburden will be vegetated with native grasses to guard against erosion. The vegetation of the stockpiles is required by the approved reclamation plan and will be inspected at least once per year to insure compliance. Upon completion of mining activities, the site will be reclaimed to open space grassland and upon signoff of the approved reclamation plan, the site will be fully revegetated with an approved seed mix. Sacramento County will inspect to ensure compliance with the above standards. Furthermore, the Central Valley Regional Water Quality Control Board's requirements will also be implemented to ensure that project-related erosion and pollution impacts are ***less than significant.***

Flood Risk

The project is not proposing any type of structures that impede or redirect flood flows within the floodplain. Additionally, the project will not expose people or structures to a substantial risk of loss due to flooding. The mining operations will have only limited structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather. In other words, if there is a chance for the mine pit to flood the employees will have ample time remove the equipment and themselves from danger.

Runoff

The project would not contribute runoff to the stormwater system. The proposed mining facility will create two large excavations at the project site. These excavations will have the ability to collect water and will not add additional capacity to the existing stormwater system.

Geology

Earthquake Fault

There are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to known earthquake faults and seismic hazards are minimal. Therefore, the impacts associated with known earthquake faults are ***less than significant***.

Loss of Mineral Resources

The proposed project is a surface mine that will extract mineral resources from the site. Therefore, the impacts to mineral resource not being utilized are ***less than significant***.

Septic Tanks

The proposed project will not construct any septic tanks or wastewater disposal systems. Therefore the impacts are ***less than significant***.

Biological Resources

Riparian Habitat

The project site does not have a well-developed riparian habitat. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified, mostly likely due to agricultural activities, and now lacks substantial amounts of trees and shrubs that make a vibrant habitat. Therefore, given the lack of such habitat on or adjacent to the project site, the impacts to riparian habitat are ***less than significant***.

Movement of Migratory Fish or Wildlife

The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife or migratory fish. Moreover, the excavation of the aggregate materials will most likely not effect wildlife movement because the vastness of the site. In other words, there should be ample room for the wildlife to maneuver around and through the project site. The final mining pit side slopes are at a 2:1 ratio which means for every two units of horizontal there is one unit of vertical; these slopes should not prevent wildlife from accessing the pit floor. Additionally, the project will be excavated in phases so that the entire site will not be in active excavation at one time. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish. Therefore, the impacts are less than significant.

Adopted Habitat Plan

The project site is not located in any adopted habitat conservation plan. Therefore, the impacts are ***less than significant***.

Cultural Resources

Historical Resources

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area. Therefore, these impacts are ***less than significant.***

Hazardous Materials

Hazardous Materials

The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Therefore, the projects impacts are ***less than significant.***

Hazardous Emissions Near School

The project site is not located within ¼ mile of an existing or proposed school.

Hazardous Materials Site

The project is not located on a known hazardous materials site.

Emergency Response Plans

The project would not interfere with any known emergency response or excavation plan.

Greenhouse Gas

Generation of Greenhouse Gas Emissions

The project would result in the emission of approximately 6,321 metric tons of CO_2e per year. This level of emissions would occur when mining and overburden hauling are occurring simultaneously. Overburden hauling would cease after five years, therefore, annual Greenhouse Gas (GHG) emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an incremental increase in annual emissions estimated above. The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. Therefore, the project's Greenhouse Gas impacts are ***less than significant***.

Cumulative Impacts

An EIR must discuss the "cumulative impacts" of a project when its incremental effect will be cumulatively considerable. This means that the incremental effects of the individual project would be considerable when viewed in connection with the effects of other current projects, and the effects of probable future projects (CEQA Guidelines Section 15065(c)).

CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." This Section further states that "Individual effects may be changes resulting from a single project or a number of separate

projects." Additionally, "The cumulative impact from several projects is [defined as] the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Section 15130(a)(3) states also that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Finally, Section 15130(b) indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, that it should reflect the severity of the impacts and their likelihood of occurrence, and that it should be focused, practical, and reasonable.

To be adequate, a discussion of cumulative effects must include the following elements:

> Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are referenced and made available for public inspection at a specified location;

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130(c)).

As used above, the phrase "past, present and probable future projects" includes existing approved, planned, or budgeted projects; projects which are currently under construction; and projects requiring an agency approval for an application which has been received at the time of Notice of Preparation (NOP) release. (Section 15130(b)(1)(B)(2)).

FORESEEABLE PROJECTS IN THE VICINITY OF THE PROJECT AREA

The West Jackson Highway Master Plan (PLNP2008-00240) is a masterplan for the area around and including the Aspen VIII and IX project site. The plan has residential, commercial and open space uses projected for the area. The West Jackson Highway Master Plan includes approximately 5,913 acres and will have a variety of urban land uses in an area that was used by Teichert Aggregates and Granite Construction for aggregate mining. The proposed Master Plan creates two Distinct Plan areas. The District Plans establish specific land uses, policies and development standards for the properties within the District Areas. Overall, the project includes a mixture of residential, recreational, and employment nodes.

The Jackson Township Specific Plan (PLNP2011-00095) is a specific plan that will add residential and commercial uses in the vicinity. The Jackson Township Specific Plan encompasses approximately 1,391 acres and will provide a wide variety of housing, commercial, employment, open space, and recreational uses. The proposal includes three elementary schools, a middle school/high school, a public-quasi public site for a fire station, and several parks. In addition, large portions of the project area along the northern and eastern perimeter are planned to be wetland preserves.

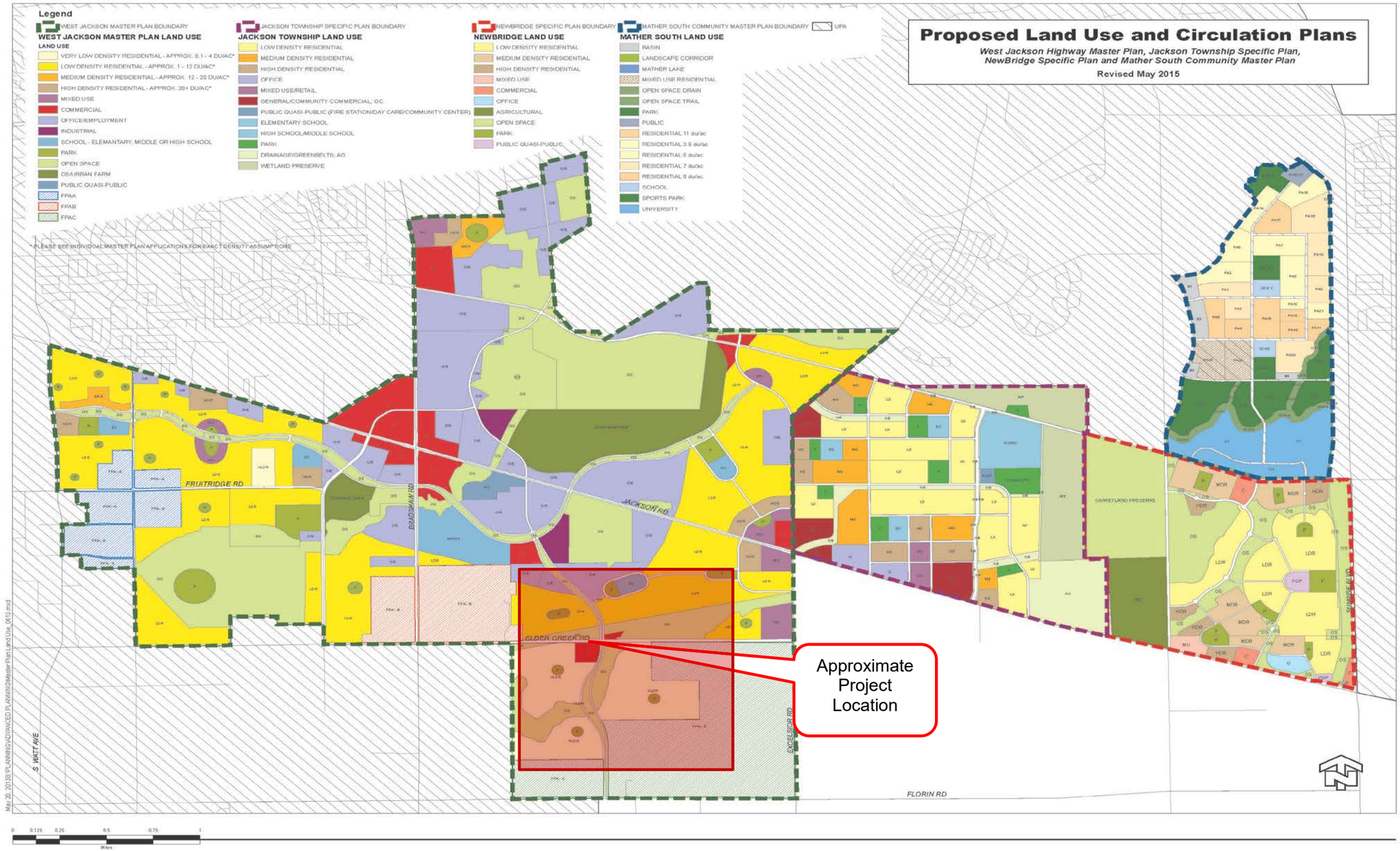
The Newbridge Specific Plan (PLNP2010-00081) is a specific plan that adds residential and commercial uses. The Newbridge Specific Plan encompasses 1,095 acres and includes three Planning Areas referred to as North, South, and West. Only those properties within the North and South Planning Areas encompassing 790 acres are proposed for development. The West Planning Area is within the project area but is not proposed for development as part of the project. Rather, a large, single parcel in the southwest corner of Kiefer Boulevard and Eagles Nest Road will serve as a habitat mitigation area in support of the proposed South Sacramento Habitat Conservation Plan (SSHCP).

Plate SM-1 shows the three plans discussed above in proximity to the project site area.

The Florin Vineyard Community Plan also known as the Florin-Vineyard Gap Plan (2004-0096) is a community plan that adds residential and commercial uses. The plan was approved by the County of Sacramento Board of Supervisors on December 15, 2010. The Florin-Vineyard Gap encompasses approximately 3,872 acres. The plan established a center that combines commercial, residential, civic and cultural uses. The plan also allows the continued agricultural residential land uses that help preserve existing rural communities.

Northeast Bradshaw Florin rezone (PLNP2013-00213) is a rezone from commercial and office to low density residential that is located to the south west of the project site. The project area is approximately 47.7 acres and is proposed to be rezoned from Shopping Center (SC) to RD-5 residential zoned property.

P□□□ SM□□O□□r Pr□□□□□ □□ □□V□□□□


Legend
WEST JACKSON MASTER PLAN BOUNDARY
WEST JACKSON MASTER PLAN LAND USE
LAND USE
VERY LOW DENSITY RESIDENTIAL - APPROX. 0.1 - 4 DU/AC*
LOW DENSITY RESIDENTIAL - APPROX. 1 - 12 DU/AC*
MEDIUM DENSITY RESIDENTIAL - APPROX. 12 - 20 DU/AC*
HIGH DENSITY RESIDENTIAL - APPROX. 20+ DU/AC*
MIXED USE
COMMERCIAL
OFFICE/EMPLOYMENT
INDUSTRIAL
SCHOOL - ELEMANTARY, MIDDLE OR HIGH SCHOOL
PARK
OPEN SPACE
OS/URRAN FARM
PUBLIC QUASI-PUBLIC
FPAA
FPAB
FPAC
JACKSON TOWNSHIP SPECIFIC PLAN BOUNDARY
JACKSON TOWNSHIP LAND USE
LOW DENSITY RESIDENTIAL
MEDIUM DENSITY RESIDENTIAL
HIGH DENSITY RESIDENTIAL
OFFICE
MIXED USE/RETAIL
GENERAL/COMMUNITY COMMERCIAL; GC
PUBLIC QUASI-PUBLIC (FIRE STATION/DAY CARE/COMMUNITY CENTER)
ELEMENTARY SCHOOL
HIGH SCHOOL/MIDDLE SCHOOL
PARK
DRAINAGE/GREENBELTS; AG
WETLAND PRESERVE
NEWBRIDGE SPECIFIC PLAN BOUNDARY
NEWBRIDGE LAND USE
LOW DENSITY RESIDENTIAL
MEDIUM DENSITY RESIDENTIAL
HIGH DENSITY RESIDENTIAL
MIXED USE
COMMERCIAL
OFFICE
AGRICULTURAL
OPEN SPACE
PARK
PUBLIC QUASI-PUBLIC
MATHER SOUTH COMMUNITY MASTER PLAN BOUNDARY
UPA
MATHER SOUTH LAND USE
BASIN
LANDSCAPE CORRIDOR
MATHER LAKE
MIXED USE RESIDENTIAL
OPEN SPACE DRAIN
OPEN SPACE TRAIL
PARK
PUBLIC
RESIDENTIAL 11 du/ac
RESIDENTIAL 3.5 du/ac
RESIDENTIAL 5 du/ac
RESIDENTIAL 7 du/ac
RESIDENTIAL 8 du/ac
SCHOOL
SPORTS PARK
UNIVERSITY
* PLEASE SEE INDIVIDUAL MASTER PLAN APPLICATIONS FOR EXACT DENSITY ASSUMPTIONS
Proposed Land Use and Circulation Plans
West Jackson Highway Master Plan, Jackson Township Specific Plan, NewBridge Specific Plan and Mather South Community Master Plan
Revised May 2015
FRUITRIDGE RD
BRADSHAW RD
JACKSON RD
ELDER CREEK RD
EXCELSIOR RD
FLORIN RD
S WATT AVE
Approximate Project Location
May 20, 2013 S:\PLANNING\ADVANCED PLANNING\Master Plan Land Use_0613.mxd

IMPACTS

The discussion of cumulative impacts reflects the likelihood of impacts occurring and the severity of the impact when the project's impacts are combined with other projects in the vicinity. The major impacts associated with the proposed project are aesthetics and air quality; these project impacts are considered significant and unavoidable even after mitigation measures are applied. The project also has impacts associated with agricultural resources, noise, and biological resources. These project impacts have been mitigated to less than significant on an individual basis.

The project vicinity has many active and reclaimed surface mining facilities resulting in numerous mining pits in the area. The determination of the significance of aesthetic impacts of those pits has varied over time. However, current significance determinations in Sacramento County consider any large, open mining pit to be a significant impact due to the irreversible change to the landform. The proposed project's already significant impact to aesthetics will exacerbate the aesthetics impacts existing from the other mining pits. Therefore, this project's contributions to cumulative aesthetic impacts are considered significant and unavoidable.

CEQA requires an air quality analysis for all projects to determine if there is an impact. Air quality is analyzed for the project area and not just the project site. This is because air quality impacts are considered cumulative. The proposed project is in the vicinity of many surface mines that operate heavy-equipment at the mine sites. The proposed project will also excavate the site using heavy-equipment and this will add to the cumulative air quality impacts of the projects in the vicinity. However, mitigation measures have been included in an attempt to lessen the impacts. The applicant of the project will utilize cleaner emission heavy-equipment at the project site to help reduce the project impacts. Furthermore, mitigation has been added to limit the amount heavy-equipment used near sensitive receptors. This should reduce some of the impacts but will not eliminate the air quality impacts associated with the project or in the cumulative. Therefore, the cumulative impacts associated with air quality are considered significant and unavoidable.

The proposed project will convert farmland to mining uses and the converted farmland will be mitigated for on a 1:1 basis as part of mitigation. This mitigation will retain farmland of equal value and size in another part of Sacramento County. However with 1:1 mitigation there is still an overall loss of the original farmland as the mitigation only preserves existing farmland and does not create any new farmland. With 1:1 mitigation, eventually a 50% reduction of the resource will occur.

The other mining projects in the area also converted agricultural land to mining uses. Some of these mines have reclamation plans to return to farmland after mining but they are now located within master plan areas that ultimately seek to urbanize the land. The other mining facilities and the foreseeable projects in the vicinity, in combination with the proposed project, will have impacts to farmland that are cumulatively considerable because together, the projects result in a shift from an agricultural community to an urban community. The foreseeable projects could remove many thousands of acres of farmland and add potentially thousands of residential units and corresponding

commercial uses to the vicinity of the proposed project. Therefore, the project's cumulative contribution to agricultural resources impacts is considered significant and unavoidable.

Noise generated from the project site has the potential to be a significant impact. The project's generated noise exceeds the County's threshold and increases the ambient noise level in the project vicinity. The noise evaluation for CEQA uses the project area and not just the project site; in other words, the noise evaluation for CEQA basically is the cumulative noise impacts in the vicinity of the project area. As stated above the project will exceed the ambient noise levels and will generate noise in excess of the noise standards. Mitigation measures have been included to lessen the noise impacts for the proposed project to less than significant. The other mining operations in the vicinity also generate noise mainly from the heavy-equipment used at the sites. The noise impacts for the other mines also have mitigation to lessen the noise impacts. Cumulative impacts related to noise are considered less than significant.

The proposed project will have a significant effect on special status species, wetlands and trees. Mitigation measures have been added to reduce the proposed project's impacts to less than significant. The other mining facilities and projects in the vicinity have a similar effect on biological resources. Singularly, all of the projects are required to mitigate their biological impacts and generally it is determined that such mitigation reduces individual impacts to less than significant. With the individual mitigation and compliance with any required State or federal endangered species permitting the cumulative impacts are less than significant. However as growth continues, the available lands for mitigating biological impacts are diminishing and mitigation is occurring across the landscape without any particular strategy or application of a comprehensive plan that would assure biological and functional success. To address this, the South Sacramento Habitat Conservation Plan (SSHCP) is currently in preparation and undergoing environmental review.

The working draft of the SSHCP was released in 2010. The SSHCP is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region. The SSHCP will consolidate and enhance wetlands, primarily vernal pools and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory hurdles and facilitate the permitting process for development projects. The SSHCP will cover 28 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP.

It would be ideal if all future biological mitigation were accomplished in a comprehensive manner. If the SSHCP was already approved, this cumulative impact analysis would evaluate whether or not the Aspen VIII and IX project, when combined with other pending and foreseeable projects could jeopardize the SSHCP by mitigating outside of

the comprehensive SSHCP framework. However, without an adopted plan, the analysis would be speculative. None the less, it is noted that every effort should be made to direct mitigation in a manner complimentary to the comprehensive preservation strategies contained in the working draft of the SSHCP.

GROWTH INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the vicinity of the project, and how that growth will, in turn, affect the surrounding environment (see CEQA Guidelines Section 15126.2(d)).

The proposed project is a sand and gravel mining facility that produces aggregate materials for the local Sacramento construction market. Aggregate materials are an inflexible commodity; in other words, there is no substitute to aggregate materials and if a construction project requires aggregate materials the project managers will have to obtain the aggregate materials, even if it means shipping it in at higher cost and environmental impact, in order to complete the construction.

The project as proposed does not have growth inducing impacts beyond the fact that the material mined at the site will be used in some way on most local construction projects. The project does not propose to expand water or waste water services or remove any barrier to growth. Furthermore, the project does not create a demand for additional housing or public services. The proposed project is also not changing any policies related to development in the County. Therefore, the proposed project will not result in growth inducing impacts.

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20 GLOSSARY OF ACRONYMS / ABBREVIATIONS

AB	Assembly Bill
ADT	average daily trips
ALUP	Airport Land Use Compatibility Plan
amsl	At mean sea level
Army Corps	U.S. Army Corps of Engineers
AOA	Airport Operations Area
APE	Area of Potential Effect
AQMP	Air Quality Mitigation Plan
ARB	California Air Resources Board
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
Bgs	Below Ground Surface
BMP	Best Management Practices
CAA	Clean Air Act (Federal)
CAAQS	California Ambient Air Quality Standards
Cal EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	Concrete Box Culvert
CCAA	California Clean Air Act
CCR	California Code and Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act

CEC	California Energy Commission
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CLUP	Comprehensive Land Use Plan
CMP	Corrugated Metal Pipe
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plane Society
Coast Guard	U.S. Coast Guard
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County DWR	Sacramento County Department of Water Resources
CRHP	California Register of Historic Places
CRPR	California Rare Plan Ranks
CPUC	California Public Utilities Commission
CSMP	Corridor System Management Plan
CVFED	Central Valley Floodplain Evaluation and Delineation
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted sound levels

dbh	diameter at breast height
DHS	California Department of Health Services
DNL	Day-Night Average Sound Level
DTSC	California Department of Toxic Substances Control
DWMR	Sacramento County Department of Waste Management and Recycling
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMD	Sacramento County Environmental Management Department
EPA	U.S. Environmental Protection Agency
(F)	Floodzone
FAA	Federal Aviation Administration
FACE	Financial Assurance Cost Estimate
FAR	Federal Aviation Regulation
FAM	Financial Assurance Mechanism
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FIRM	Federal Insurance Rate Maps
FOS	Factor of Safety
FSZ	Farmland Security Zone
GIS	Geographic Information Systems
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
HAP	hazardous air pollutants
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HOV	High Occupancy Vehicle

HUD	U.S. Department of Housing and Urban Development
HWCA	Hazardous Waste Control Act
HSC	health and safety code
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent transportation system
JPA	Joint Powers Authority
L_{dn}	day-night noise level
L_{eq}	equivalent sound level
L_{max}	A-weighted maximum sound level
L_{50}	sound level exceeded 50% of the time, the Median sound level
lb/day	pounds per day
LID	Low Impact Design
LNG	Liquefied Natural Gas
LOMAR	Letter of Map Revision
LOS	level of service
MBTA	Migratory Bird Treaty Act
Methane	CH_4
MRZ	Mineral Resource Zones
MSL	Mean Sea Level
MT	Metric Tons
MTP	Metropolitan Transportation Plan
MMT	Million metric tons
MPH	miles per hour
N_2O	nitrous oxide
NA	not applicable

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	Notice of Availability
NOAA Fisheries	National Oceanic and Atmospheric Administration (Fisheries)
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OES	Office of Emergency Services
pcplpm	passenger cars per lane per mile
PCE	passenger car equivalent
PGA	Peak Ground Acceleration
PG&E	Pacific Gas & Electric Company
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
PSD	Prevention of Significant Deterioration

ROG	reactive organic gases
Pb	lead
Porter-Cologne	Porter Cologne Water Quality Act
RCRA	Resource Conservation and Recover Act
Regional Water Board	Regional Water Quality Control Board
RS	River Station
RT	Regional Transit
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SacDOT	Sacramento County Department of Transportation
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCC	Sacramento County Code
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
(SM)	Surfacing Mining Combing Zone
SMARA	Surface Mining and Reclamation Act of 1975
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utilities District
SO_2	sulfur dioxide
Southgate	Southgate Recreation and Park District
SSC	Species of Special Concern
SSHCP	South Sacramento County Habitat Conservation Plan
SSQP	Sacramento Stormwater Quality Partnership

State Water Board	State Water Resources Control Board
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminants
TOD	Transit Oriented Development
TOG	total organic gases
TMDL	Total Maximum Daily Load
TCR	Transportation Concept Report
UBC	Uniform Building Code
UDA	Urban Development Area
UPA	Urban Policy Area
USB	Urban Service Boundary
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VELB	Valley Elderberry Longhorn Beetle
v/c ratio	volume to capacity ratio
WAP	Work Authorization Permit
Water Board	State of California Water Resources Control Board
Waters of the U.S.	Waters of the United States
WSE	Water Surface Elevation
Zoning Code	Sacramento County Zoning Code
°C	Celsius
°F	Fahrenheit
µg/m3	micrograms per cubic meter

21 ACKNOWLEDGEMENTS

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DRAFT ENVIRONMENTAL IMPACT REPORT
VOLUME 2 OF 2

ASPEN VIII AND IX MINING USE PERMIT

Control Number: PLNP2014-00201
State Clearinghouse Number: 2015022062
Date: May 27, 2016

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
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EVALUATION OF BIRD-AIRCRAFT COLLISION HAZARDS FOR THE ASPEN VIII/IX PROJECT SACRAMENTO COUNTY, CALIFORNIA

December 5, 2014
(Minor corrections July 9 and Sept 22, 2015)

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EVALUATION OF BIRD-AIRCRAFT COLLISION HAZARDS FOR THE ASPEN VIII/IX PROJECT, SACRAMENTO COUNTY, CALIFORNIA

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EXECUTIVE SUMMARY

This report has been prepared to assess the potential bird-aircraft collision hazards associated with Teichert Aggregates (Teichert) proposal to conduct aggregate removal within the 682-acre Aspen VIII/IX project site along Elder Creek Road in rural Sacramento County. Teichert proposes to remove and store overburden, conduct aggregate mining, and perform site reclamation, including the construction of stormwater retention facilities. The project also will preserve and restore vegetation in the current reconfigured channel of Elder Creek and retain a substantial area of grassland habitat supporting vernal pools and other seasonal wetlands. The main purpose of this report is to assess whether the proposed project would increase the risk of bird collision hazards for aircraft using Mather Airport, compared to existing conditions.

This analysis responds to the Federal Aviation Administration's (FAA's) 2007 guidance regarding land uses that have the potential to attract hazardous wildlife near airports. FAA requires airports that receive Federal grant-in-aid assistance, such as Mather Airport, to utilize these guidelines for projects within their boundaries. It also recommends that land-use planners and project developers use the guidance for privately owned or initiated projects on or near airports.

FAA guidance specifies that in considering proposed land uses "*airport operators, local planners and development must take into account whether the proposed land uses… will increase wildlife hazards*". This evaluation determined whether the net bird-aircraft collision hazard would increase as a result of project actions based on the following factors:

- changes in habitat conditions
- changes in onsite bird populations
- existing and potential offsite habitats and resulting potential for attracting birds to the project sites from offsite lands ("synergistic effects"),
- flight heights of birds species,
- aircraft flight paths in relation to the project site,
- aircraft flight heights above the project site, and
- known information on heights of past bird-aircraft collisions.

Most of the project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains a nearly 2-mile partially channelized segment of Elder Creek, which is now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. Approximately 21 acres of wetlands have been identified onsite, many of which are associated with irrigation,

although most of these areas will be avoided. Tree cover on the Project site is sparse due to historical land clearing.

Under existing conditions, the project site is used by number of species recognized as hazardous by the FAA. Six hazardous species and species groups are expected to occur at greater abundance onsite than on surrounding lands, including the Ring-necked Pheasant, gulls, American Crow, Mourning Dove, Western Meadowlark, and swallows. Ten other hazardous species occur at abundances typical of abundances on surrounding lands). Many of these species are attracted to the irrigated agricultural lands onsite, which presumably support higher populations of invertebrates and small mammal prey than non-irrigated lands.

The proposed mining would significantly modify the current site and its associated habitat conditions. Mining and subsequent site reclamation under the Project would eliminate irrigated agriculture, thereby increasing wetlands from 27.7 acres to 36.6 acres. In addition, the current farmstead buildings and trees would be removed. Existing onsite water impoundments would be eliminated, but several deep and narrow stormwater retention ponds would be constructed to handle all post-project onsite water drainage.

Teichert's proposed mining would reduce the attractiveness of the site to many species of hazardous birds. Under post-project conditions, 84% of the 26 hazard bird species and species groups analyzed are predicted to occur at a moderate or low population level relative to surrounding lands. Occurrence of these species onsite, therefore, would have little or no potential to pose hazards to aircraft. Four species or groups would occur at abundances greater than moderate, relative to surrounding population levels, thereby warranting more site-specific analysis of hazard risk. Only four species are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and nighthawks while seven would remain unchanged and 12 would decline.

The aircraft flight analysis shows that, although a moderate number of the aircraft that depart from Mather airport and a small proportion of arriving aircraft cross the Aspen VIII/IX project site, nearly all flights cross at substantial heights (>1000 feet). Also, four-fifths of previously collisions reported of Mather aircraft have occurred below 200 ft, and only one collision (2% of those for which height was reported) occurred within the typical 1,000-2,500 ft altitudes at which aircraft cross the Aspen VIII/IX site.

The risk of bird-aircraft collisions at the project site under current conditions is low, mainly because aircraft fly almost entirely at higher altitudes (>1000 ft) above the project site than those at which at which most bird species regularly fly. Most of the few bird species that would increase under conditions created by the proposed mining and reclamation typically do not fly at high elevations. In contrast, most of those species that have the greatest potential to fly at higher elevations would decline in abundance

or remain at pre-project abundance. Therefore, the net effect of the proposed Aspen VIII/IX project is to substantially reduce the already-low existing potential for bird-aircraft collisions.

1. INTRODUCTION

Teichert Aggregates (Teichert) has submitted an application to Sacramento County and to the United States Army Corps of Engineers (ACOE) to conduct aggregate mining within the Aspen VIII and Aspen IX (Aspen VIII/IX) project areas (project site) (Cunningham Engineering 2014). Prior to submission of its applications, Teichert was informed by Sacramento County's Department of Environmental Review and Assessment (DERA) that the Sacramento County Airport System raised issues regarding potential for the projects to increase wildlife hazards to aircraft. Teichert contracted with Northwest Hydraulic Consultants (NHC) to provide a summary of project-related issues and analysis of potential effects.

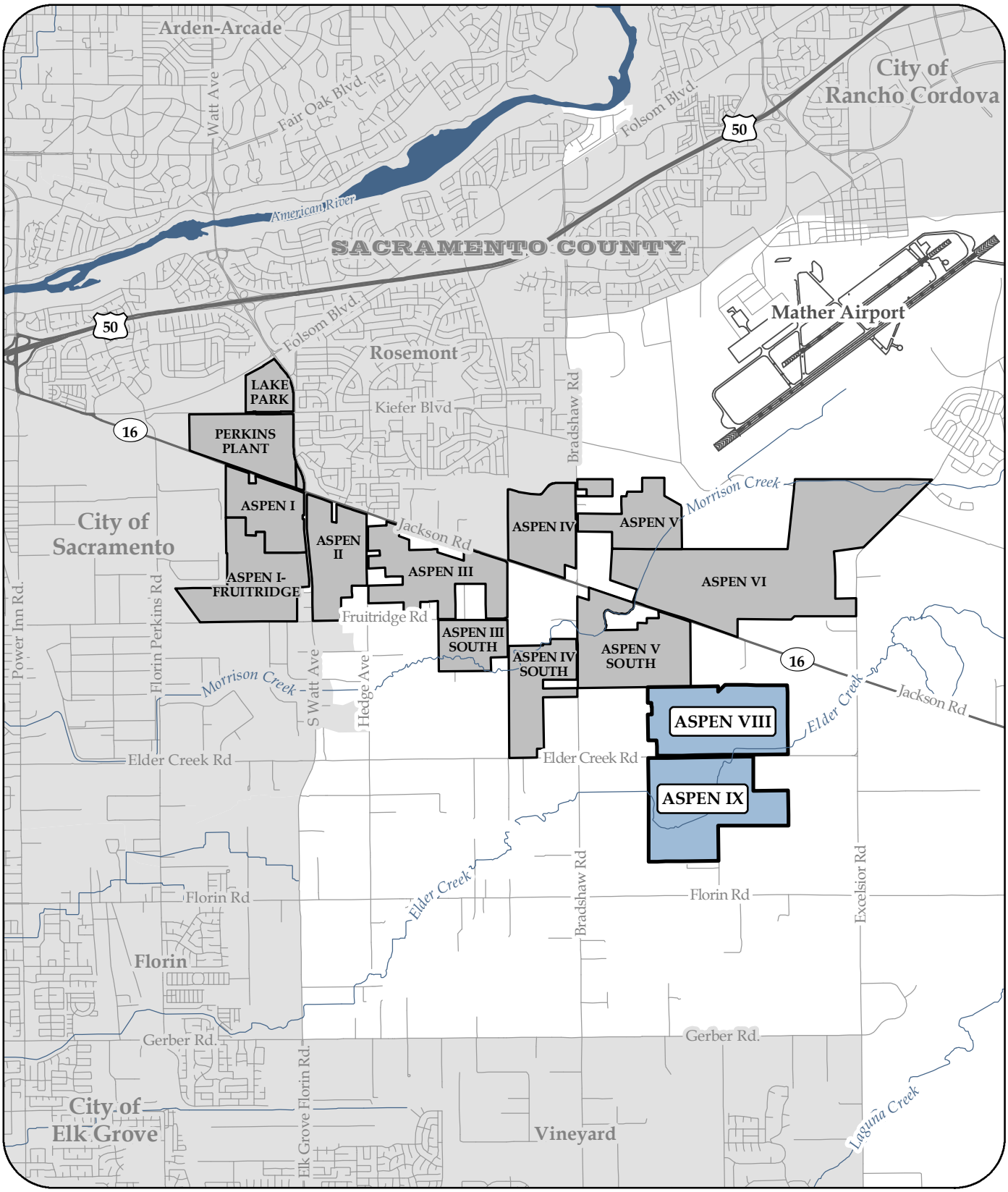
A wildlife hazard analysis was originally conducted by Daniel Airola of Airola Environmental Consulting in 2008, when Teichert contemplated submission of a mining application. The subsequent economic downturn altered Teichert's forecast of demand for materials, and the application was not pursued. As a result, the 2008 hazard analysis therefore was never submitted as a part of any review process. Teichert now wants to proceed with the application, and so contracted with Northwest Hydraulic Consultants, Mr. Airola's current employer, and LSA Associates to update the previous hazard analysis to incorporate recent relevant information on changes to the proposed project and updated biological information.

This report summarizes applicable regulatory guidance, and evaluates existing and post-project habitat conditions and potential for wildlife hazards to aircraft as a result of the Aspen VIII/IX project.

2. PROJECT DESCRIPTION

Teichert proposes to mine Aspen VIII/IX to remove aggregate from two properties located in rural Sacramento County (Figure 1). Aspen VIII is a 319-acre site located north of Elder Creek Road. Aspen IX is a 363-acre site located immediately south of Elder Creek Road and abutted to the Aspen VIII property. A total of approximately 15 million tons (10 million cubic yards) of material would be removed from the two sites at a rate of about 2-3 million tons per year, depending on market conditions.

The project site is located at a distance of 1.8 to 3.1 miles from the Mather Airport Area of Operations (AOA). Only 27 acres (3.7% of the total project area) is within the FAA's (2007) designated 10,000-ft separation area for wildlife hazards (See **FAA's Regulatory Guidance** below), and all remaining lands are within 5 miles of the AOA.



TEICHERT MATERIALS

Legend:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

Disclaimer:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Figure 1.

Site Vicinity Map for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

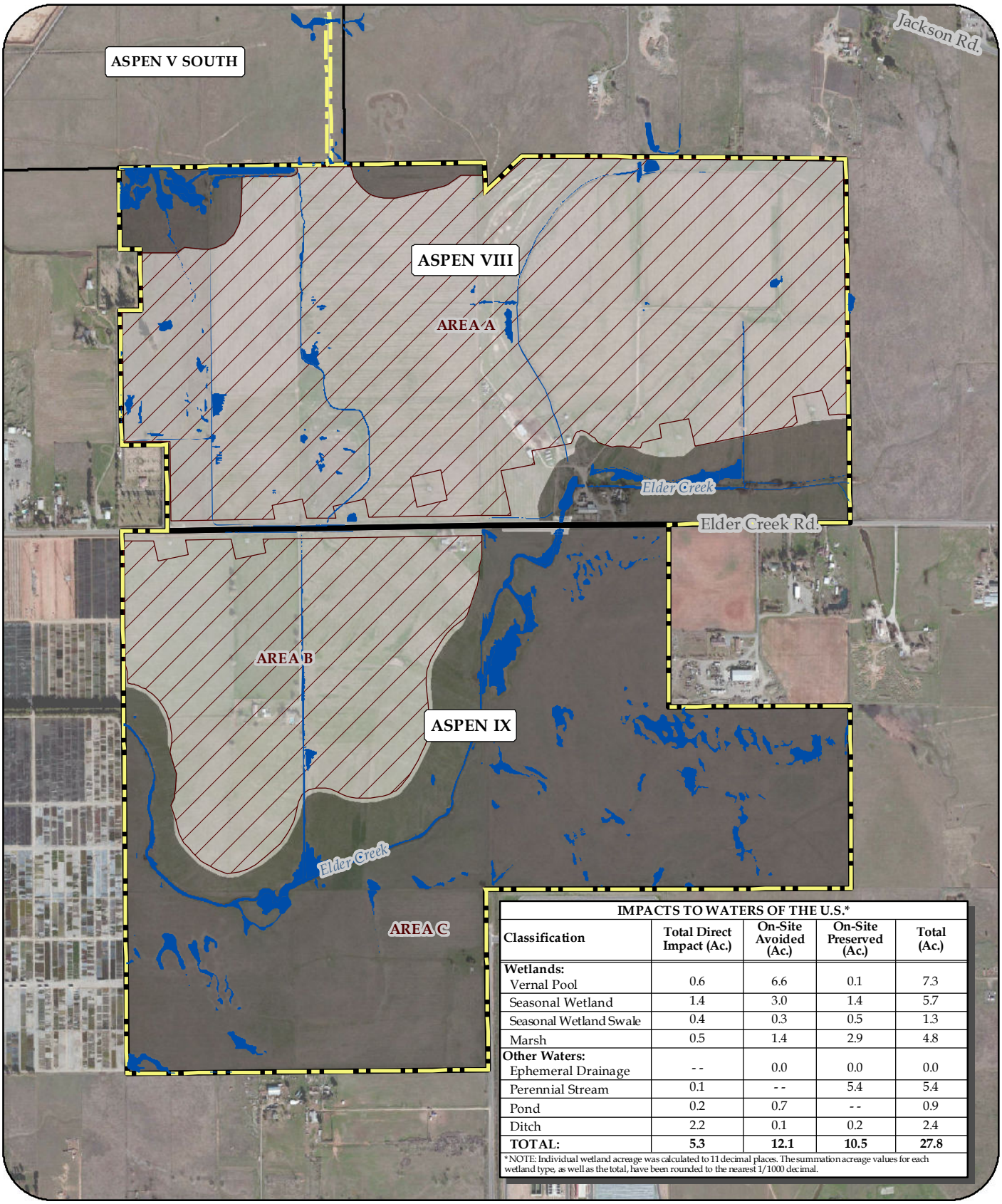
C. Cornejo 10/15/2014 AS8_AS9_BASH_Fig1_201410.mxd

Most of the Project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains nearly 2-mile, partially channelized segment of Elder Creek, which is now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. A total of 20.9 acres of wetlands have been identified onsite, many of which were created for or by onsite irrigation. Tree cover on the project site is sparse due to historical land clearing.

Teichert proposes to mine 357 acres of the 683-acre project site, while maintaining 166 acres of grassland-vernal wetland habitat (including a 93-acre preserve area) and the Elder Creek floodway (Figure 2). Mining on the remainder of the property will decrease the final site elevation by approximately 30-50 feet from its current state. Mining would occur in phases to allow for concurrent mining and site reclamation. At completion of mining for a given area, reclamation would start with the creation of gradual side slopes and contouring of the pit bottom using overburden. Stored topsoil would be re-deposited on reclaimed lands, and the site would be graded and tilled for efficient natural drainage. At the completion of mining and reclamation, the site is would be returned to non-irrigated annual grassland for livestock grazing use.

The preservation component of project mitigation for loss of existing jurisdictional wetlands and other habitats would occur within the onsite preserve areas along Elder Creek and possibly in other unmined lands onsite, while other mitigation to achieve the creation requirement for lost wetland acreage would occur offsite at approved mitigation banks.

Following mining, the project site would be depressed below grade as a result of excavation. Therefore, stormwater from precipitation falling within mined areas of the site would no longer flow offsite. As such, three permanent stormwater retention ponds are a required design element of the proposed project (Figure 3). The site would be graded to direct all surface water flows into the retention ponds. These ponds would be constructed as deep, linear ponds with relatively small surface areas, steep banks, and therefore high storage per acre of pond to discourage birds use.



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	On-Site Avoided (Ac.)	On-Site Preserved (Ac.)	Total (Ac.)
Wetlands:				
Vernal Pool	0.6	6.6	0.1	7.3
Seasonal Wetland	1.4	3.0	1.4	5.7
Seasonal Wetland Swale	0.4	0.3	0.5	1.3
Marsh	0.5	1.4	2.9	4.8
Other Waters:				
Ephemeral Drainage	- -	0.0	0.0	0.0
Perennial Stream	0.1	- -	5.4	5.4
Pond	0.2	0.7	- -	0.9
Ditch	2.2	0.1	0.2	2.4
TOTAL:	**5.3**	**12.1**	**10.5**	**27.8**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

TEICHERT MATERIALS

LEGEND:
- Limits of Disturbance
- Avoided Lands
- Wetlands
- Proposed Mining Boundary
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:
- Aspen VIII & IX Wetland Delineation (ECORP, April 2014)
- Aspen V South Verified Wetland Delineation (May 2007)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

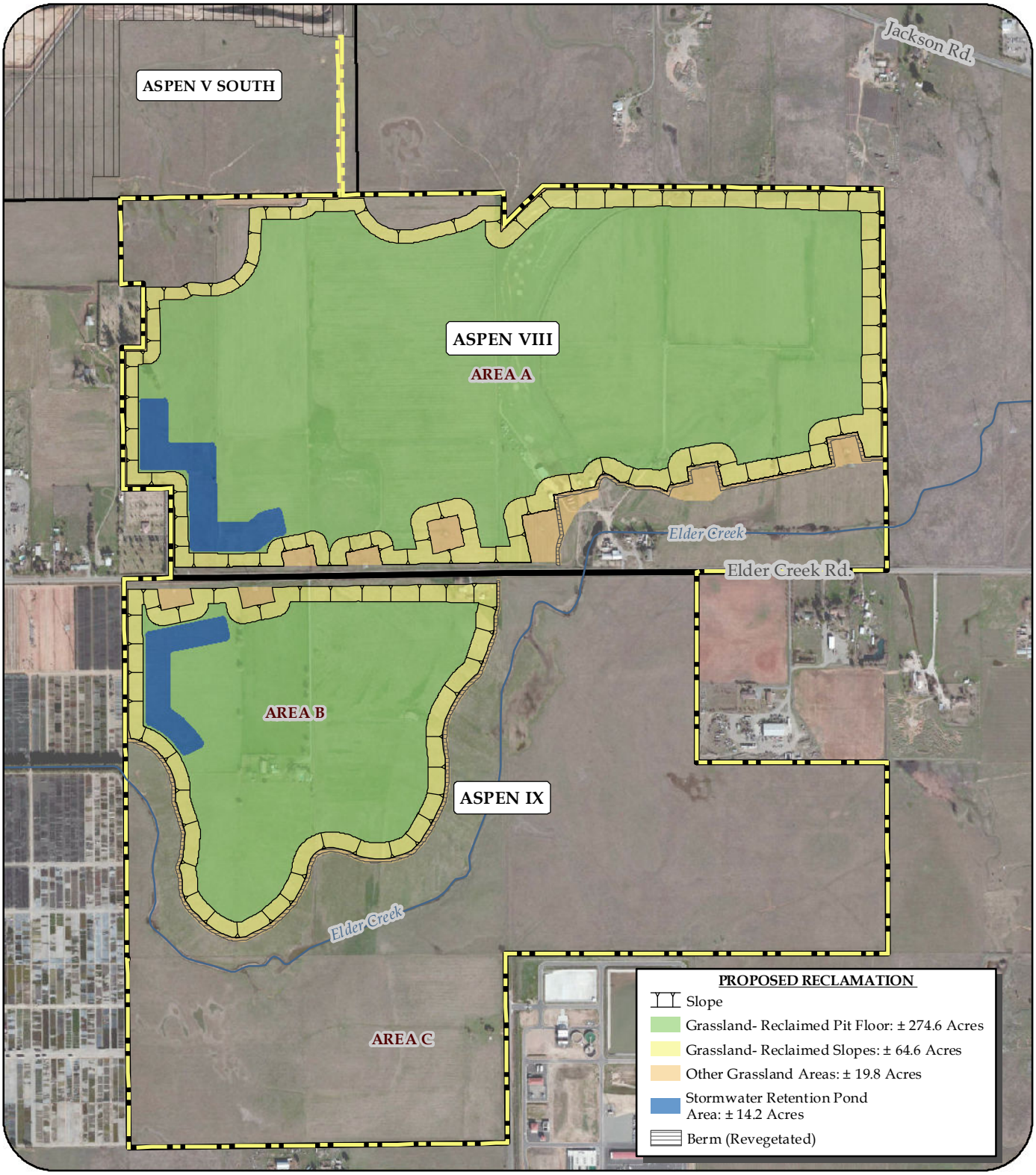
Figure 2.

Mining Areas and Wetland Impacts for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig2_201412.mxd



TEICHERT MATERIALS

LEGEND:

- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Figure 3.

Proposed Reclamation Plan for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig3_201412.mxd

3. FAA REGULATORY GUIDANCE

This analysis evaluates bird collision hazards with aircraft from Mather Airport consistent with guidance in FAA's (2007) most recent Advisory Circular 150/5200-33B. The FAA prepared the AC to "*provide guidance on certain land uses that have potential to attract hazardous wildlife on or near airports*". The circular was issued soon after Teichert submitted its application to the County in August 2007. This section briefly summarizes several key elements of the guidance that apply to the evaluation of project hazards for Teichert's Aspen VIII/IX project. A more detailed summary of the relevant guidance is provided in Appendix A.

The AC provides guidance for on-airport and adjacent land uses that have potential to attract hazardous wildlife. FAA requires that airports that have received Federal grant-in-aid assistance must use these guidelines for properties under their jurisdiction. It also recommends that land-use planners and project developers use the guidance for projects on or near airports.

A key element of the guidance is, "*When considering proposed land uses airport operators, local planners and development must take into account whether the proposed land uses, including new development projects, will* ***increase*** *wildlife hazards* (emphasis added).

The latest AC reaffirms previous AC guidance that airport operations areas (AOAs) and land use practices that attract hazardous wildlife should be separated by 10,000 ft. The 2007 guidance, however, also added a new recommendation of a 5-mile separation between the AOA and hazardous wildlife attractants, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

The AC recommends that off-airport storm water management systems within the 10,000-ft or 5-mile approach and departure separation areas be designed and operated so as to be capable of being drained within 48-hours after the "design storm", which is undefined. It recommends use of steep-sided riprap lined, narrow ponds, and elimination of vegetation that provides food or cover for hazardous wildlife. It does not specifically recommend use of physical barriers for offsite ponds.

Finally, the AC identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

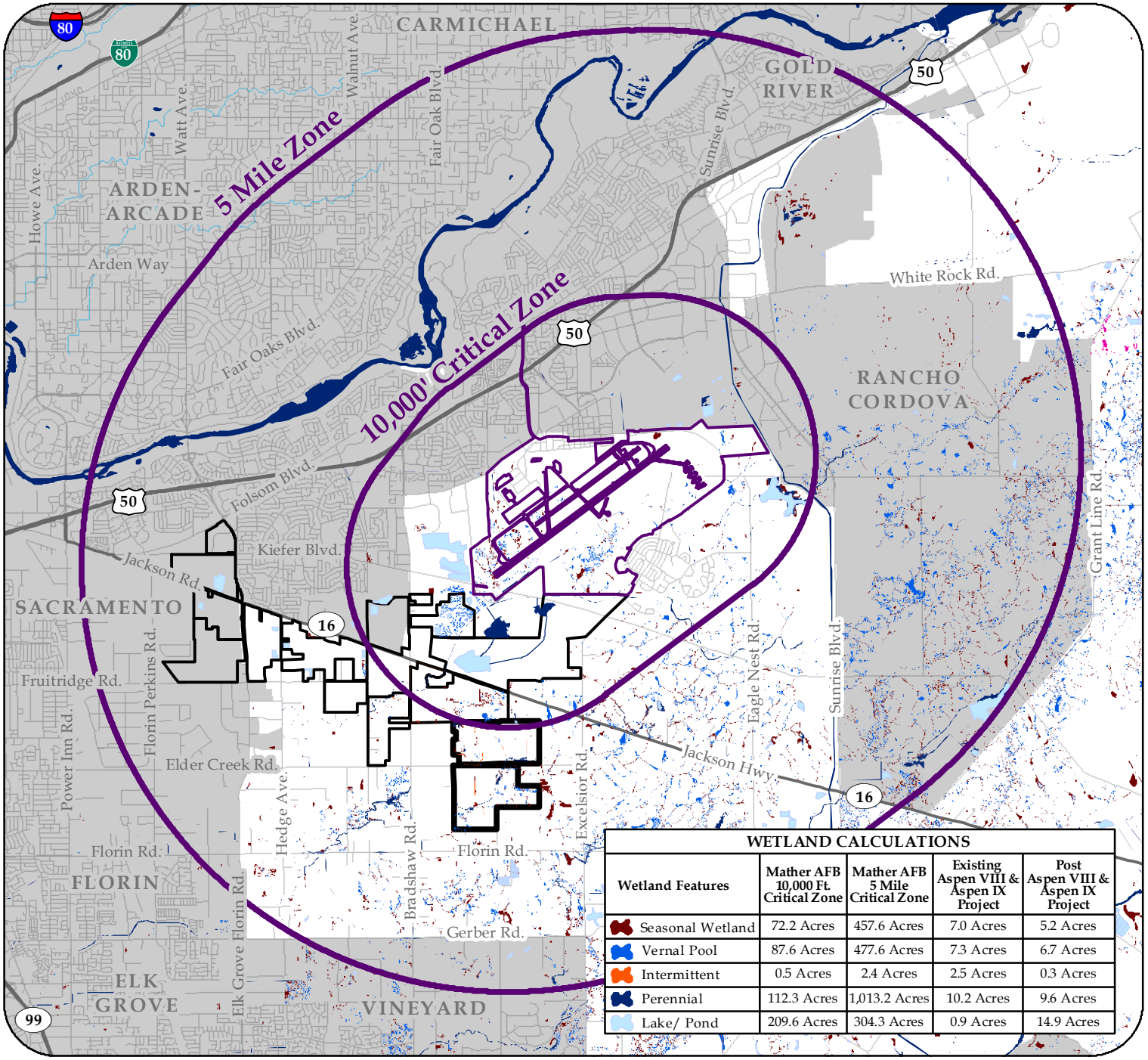
4. EVALUATION METHODS

The purpose of this study is to assess whether the proposed project would significantly increase the potential for bird collisions with aircraft using Mather Airport compared to that which occurs under existing conditions of the project site. In evaluating current and future collision risks, this report evaluates regional habitat conditions, existing and post-project land use conditions, and uses of these habitats by potentially hazardous bird species. It then evaluates the frequency of aircraft flights over the project site, heights of previous bird-aircraft collisions associated with Mather Airport, and typical flight heights of hazardous species. This information is then combined to determine the overall bird-aircraft collision hazard that currently occurs at the project site and that would occur under the proposed project. These pre- and post-project evaluations are then compared to determine if the project would result in a net change in bird aircraft collision hazard.

4.1 EXISTING CONDITIONS

4.1.1 Regional Habitat Conditions

Regional habitat conditions were evaluated qualitatively using aerial images in Google Earth (www.earth.google.com). Teichert's GIS staff also quantified regional abundance of various wetland habitats within the 10,000 ft and 5-mile separation zones around Mather Airport using data from the South Sacramento County HCP (Sacramento County 2007; see Figure 4). This information provided a regional context for comparison with Aspen VIII/IX conditions and for evaluation of potential synergistic effects.



WETLAND CALCULATIONS

Wetland Features	Mather AFB 10,000 Ft. Critical Zone	Mather AFB 5 Mile Critical Zone	Existing Aspen VIII & Aspen IX Project	Post Aspen VIII & Aspen IX Project
Seasonal Wetland	72.2 Acres	457.6 Acres	7.0 Acres	5.2 Acres
Vernal Pool	87.6 Acres	477.6 Acres	7.3 Acres	6.7 Acres
Intermittent	0.5 Acres	2.4 Acres	2.5 Acres	0.3 Acres
Perennial	112.3 Acres	1,013.2 Acres	10.2 Acres	9.6 Acres
Lake/ Pond	209.6 Acres	304.3 Acres	0.9 Acres	14.9 Acres

Figure 4.

Wetland Habitats within Mather Airport Flight Separation Zones and the Aspen VIII/IX Project Area

Teichert Materials

Sacramento County, California

Legend:

- Mather Air Force Base
- 10,000 ft. & 5 mile Critical Zone
- Teichert Aggregates Aspen VIII/ IX Project Boundaries
- Teichert Aggregates Other Aspen Property Boundaries
- City/ Community Boundaries

WETLAND FEATURES

- Seasonal Wetland
- Vernal Pool
- Intermittent
- Perennial
- Lake/ Pond

NOTE:

Wetland data compiled from a combination of the SSHCP, National Wetland Inventory, GDT and Wetland Surveys & Delineations.

0 0.85 1.7 Miles

DISCLAIMER:

The wetland calculations were derived for planning purposes only. No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig4_201412.mxd

4.1.2 Existing Onsite Habitat Conditions and Potential Bird Use

Onsite habitat conditions and bird use were evaluated at a general level based on several sources. Wetland habitat acres were a focus of the assessment because of their potential to attract water birds that are considered hazardous to aircraft. Wetlands were characterized from the assembled regional wetland database, to ensure consistency for comparison with regional characteristics. Results from regional mapping were cross-checked with a project-specific wetland delineation (ECORP Consulting 2014).

Bird use of existing project lands was characterized at a general level for species and species groups identified as hazardous by FAA (2003). Relative levels of bird population sizes and use (i.e., high, high-moderate, moderate, moderate-low, low-none, none, relative to other regional habitats) were determined based on:

- habitat conditions observed onsite;
- biological surveys of the project site (Burleson 2014) and reconnaissance surveys conducted by Daniel Airola
- other related studies of bird use and bird-aircraft collision risk conducted in the area of Mather Airport (Airola 2007a,b; Airola and Gibson & Skordal 2009, LSA Associates 2008)
- review of the California Natural Diversity Database and California Wildlife Habitat Relationships System (California Department of Fish and Game 2007), and
- Daniel Airola's personal knowledge of local bird species distribution, abundance, habitat relationships and behaviors, based on 30 years conducting biological work and birding in the Sacramento Region, and information from other references (Beedy and Pandolfino 2013 and ebird.org). See Mr. Airola's relevant qualifications in Section 8.
- Eric Lichtwardt's personal knowledge from conducting wildlife hazard assessments at many California airports. See Mr. Lichtwardt's relevant qualifications in Section 8.

4.1.3 Synergistic Effects from Adjacent Lands

Synergistic effects are defined as those created as a result of project conditions, in combination with other offsite conditions (FAA 2007). Effects of existing onsite conditions were evaluated to determine if they could encourage bird flights to and from the site and therefore result in enhanced bird hazards to aircraft. Potential synergistic effects include the presence of nesting or roosting habitat that would attract birds that forage on offsite lands or the presence of foraging habitat onsite that would attract birds that roost or nest offsite.

4.2 POST-PROJECT HABITAT CONDITIONS AND BIRD USE

4.2.1 Onsite Habitats and Bird Use

Existing project lands uses and habitat conditions were evaluated during onsite surveys conducted by the senior author during 2007 and 2014 and from biological and wetlands survey documents prepared for the project Burleson 2014. Post-project habitat conditions were assessed based on information in the mining and reclamation plans and revegetation plan included the project applications (Burleson Consultants 2014, Cunningham Engineering 2014) and information provided by Teichert (J. Lane, pers. comm.). Relative population levels of bird species and species groups identified as most hazardous to aircraft were evaluated based on surveys of other mining sites with habitats similar to those at the proposed project (Airola 2006a,b), extensive field experience in the project region of the senior author, and general references on avian distribution and habitat relationships in the region (Beedy and Pandolfino 2013, ebird.org)

4.2.2 Synergistic Effects from Adjacent Lands

To assess potential post-project synergistic effects, foraging or roosting conditions onsite were evaluated to determine if they would be expected to increase the number of bird flights to and from the site that may cross the flight path closer to the runway, which could result in enhanced bird hazards to aircraft.

4.3 AIRCRAFT FLIGHT CHARACTERISTICS OVER THE PROJECT SITE

Sacramento County Department of Airports (SCDA) keeps extensive records of aircraft flight paths and elevations because of high public concern about aircraft noise and public safety. SCAS originally provided a record of aircraft departure and arrival frequencies, locations, and heights over the project site and other areas during August 2007 (Appendix B), as a representative sample of the pattern of flights using Mather Airport. NHC contacted SCDA to determine whether there was a need to update information on flight paths. SCDA's Noise and Sustainability Programs Coordinator stated, “since the recession the numbers are down but the location of arriving and departing flight tracks are essentially the same. Using 2007 numbers would be appropriate for planning purposes as, at some point, we assume operations will return to pre-recession levels" (B. Taylor, pers. comm.)

4.4 BIRD-AIRCRAFT COLLISION RECORDS

Bird airstrikes are an ongoing phenomenon at Mather AFB. As a result, the County has reported systematic information on individual bird airstrikes at Mather for many years to the FFA's bird airstrike database (http://wildlife.faa.gov/database.aspx). We used data on bird-aircraft collisions collected at Mather Airport during July 2004 to

June 2014 to characterize bird-aircraft collisions. These data were used to identify species and groups that had previously posed hazards to local aircraft and the heights at which incidents occurred. The data were evaluated to determine the frequencies of recorded strikes by various species groups and the proportion of strikes that occurred at various heights. The limited nature of this data (number of records, incompleteness of information on species identities, heights, etc.) precluded quantitative use, but they nonetheless provided information useful in subjectively evaluating hazards.

4.5 ANALYSIS OF BIRD-AIRCRAFT COLLISION HAZARDS

Evaluations of changes in potential risks of bird-aircraft collisions were conducted for hazardous species based on existing and post project habitat conditions and resulting bird populations, in combination with information on aircraft flight heights and past information on bird-aircraft collisions in the area. The evaluations included assessment of the potential for collisions by birds with aircraft above the project site and elsewhere as a result of synergistic effects.

4.5.1 Existing Conditions and Post-project Hazard Evaluation

Existing bird hazard conditions were characterized based on the relative abundance of species at the project site. Relative abundance was scaled (from high to low) relative to the highest abundance of each species' in local habitats and geographic areas. Species relative abundances then became the basis for identifying changes in abundances of hazardous bird species under the proposed project.

For the post-project evaluation, collision potential was examined for species whose relative abundance of post-project populations either increased or occurred at relative abundance levels of moderate and above. These species were examined in greater detail based on general knowledge of the species' flight heights, to determine which may pose collision potential at the altitudes at which aircraft cross the project site.

4.5.2 Net Project Effects

To assess the net effects of the project, relative abundances of potential hazardous bird species were compared under the pre- and post-project conditions and identified those for which population levels were likely to increase. These species were then evaluated for their potential to pose a collision hazard to aircraft flying at known heights above the project site, to determine if the project would pose any net increase in aircraft collision hazard.

5. RESULTS OF BIRD-AIRCRAFT COLLISION HAZARD EVALUATION

Evaluation of wildlife hazards of off-airport projects to aircraft are affected by site habitat conditions, bird populations, and bird and aircraft flight characteristics above the site. This section presents in initial evaluation of the bird airstrike potential hazard posed by the Aspen VIII/IX project. Consistent with FAA guidance, the analysis assesses "*whether the proposed land uses …will increase wildlife hazards*" and whether they will "*attract or sustain hazardous wildlife populations… near airports"* (FAA 2008, Section 1, as summarized above).

The Aspen VIII/IX project is located 1.8-3.1 miles from Mather Airport. Therefore, birds are the only onsite wildlife species that have potential to pose hazards to aircraft.

5.1 EXISTING HABITAT CONDITIONS AND BIRD POPULATIONS

Existing regional and onsite habitat conditions and bird use are relevant to the hazard evaluation and are discussed below.

5.1.1 Existing Regional Habitat Conditions

Regional conditions and history provide a context for assessing the specific hazards that may be posed for an individual project, such as Aspen VIII/IX. Dominant uses of lands surrounding Mather Airport are residential and commercial development, industrial and aviation development, mining, and agriculture (including livestock grazing), and preserved open space. Lands surrounding the Aspen VIII/IX property are used for commercial nursery operations, agriculture, aggregate mining, and rural residential use, and the County's water treatment facility. Wetlands are a relatively common feature within the separation areas, with over 480 wetland acres present within 10,000 ft and 2,253 acres within 5 miles of the airport (Figure 4).

5.1.2 Existing Onsite Habitat Conditions

Under existing conditions, the Aspen VIII/IX project area supports 27.7 acres of wetlands and waters of the U.S. (as defined under the federal Clean Water Act). The wetlands and other waters include (in decreasing order of abundance) vernal pools, seasonal wetlands, perennial stream, marsh, ditches, seasonal wetland swale, ponds, and ephemeral ditches (Figure 2) All of these areas are capable of supporting open water during wet periods. Many of these wetland features have been created or supported by irrigation uses of the sites (i.e., creek impoundments, tailwater ponds, irrigated low spots). Most other land consists of irrigated pasture used for hay production and livestock grazing and grazed annual grassland. Irrigated areas are

managed intensively through periodic cultivation, irrigation, hay harvest, and livestock use. Smaller areas are occupied by several ranch residences, and other active and abandoned farmsteads.

A total of 163 trees are present in the project area (Foothill Associates 2007b), representing a low overall density of 1 tree per 4 acres. Trees are concentrated within a few areas, including current and former farmsteads and to a lesser extents at ponds and along ditches. Most trees (61%) are non-native exotics. Seventy-three trees are larger than 20 inches in diameter at breast height (dbh) and 14 of these are larger than 40 inches dbh.

Existing Bird Use. Estimated levels of use of the existing project site by potentially hazardous bird species is presented in Table 1, along with the rationale for these determinations. A number of hazardous species and species groups are expected to occur at greater than moderate abundance at the project site, relative to their abundance on regional lands, including gulls, American Crow, Mourning Dove, Western Meadowlark (in winter), and swallows. Many of the species onsite are more abundant than on surrounding lands due to their preference for irrigated pasture (e.g, Zeiner 1988, Swolgaard et al. 2008, Beedy and Pandolfino 2013, Airola, personal knowledge), which presumably has higher productivity for insect and small mammal prey than non-irrigated lands. An additional eight species were rated as occurring at moderate abundance (i.e., typical of abundances on surrounding lands). Ten potentially hazardous either are unlikely to occur at all or would occur at low or low-moderate abundance (Table 1)

Synergistic Effects. The only current project feature that may be contributing to synergistic uses of the site (i.e., bird attraction from elsewhere) is irrigation and management of pasture lands. Current irrigation increases production and duration of availability of low green vegetation that likely attracts use by Canada geese. Irrigation and growth of hay also increases production of earthworms, insects, and other invertebrates which may attract crows, blackbirds, starlings, and other species, and seeds that are attractive to blackbirds. Irrigation also enhances productivity of the site for rodents (gophers, ground squirrels, voles), and hay cutting makes these species prey more available and thereby attract raptors (Estep 1989, 2009; Swolgaard et al. 2008).

In contrast, current onsite wetlands are likely too small and scattered to serve as major roosting areas for waterfowl because better sites are available nearby. Similarly, the number of trees is relatively low onsite and their densities and sizes are similar to those on surrounding lands, so that no substantial attraction of tree nesting species would occur.

Table 1. Predicted Relative Use Levels by Hazardous Bird Species of the Aspen VIII/IX Project Area under Existing and Post-Project Conditions

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Turkey Vulture	Moderate	Moderate	No Change	Tree removal may decrease abundance initially by removing roosting habitat (trees), but riparian restoration would at least partly offset this effect over the long-term (>50 years) based on tree age used for roosting (Airola 2011). Foraging habitat likely to remain unchanged due to continued livestock use, although changes in surrounding land uses may reduce populations
Canada Goose	Moderate	Low	Decrease	Irrigated lands are greatly preferred for foraging. Post-project water bodies likely too small for roosting use and too steep-sided and predator prone for nesting use
White Pelican	None	None	N/A	Wetlands under current and post-project conditions are too small for use
Double-crested Cormorant	None-Low	None-Low	No Change	Wetlands under current and post-project conditions are too small for use. Stormwater retention basins would be too small and narrow to support regular use by cormorants.
Sandhill Crane	None	None	N/A	The project site is far from traditional wintering areas where species uses waste grain; habitat not highly suitable for either foraging or roosting
Bald and Golden Eagles	None	None	N/A	Wetlands are too small for Bald Eagle foraging. Too much of surrounding area is converted to development and unsuitable agriculture for Golden Eagle.
Ducks	Moderate	Low-Moderate	Decrease	Irrigated habitat may attract limited numbers of foraging and nesting ducks in wet areas. Seasonal wetlands in annual grasslands likely supports few nesting Mallards. Limited amount of open water in small, linear ponds under post-project condition would maintain use a low levels.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Osprey	None-Low	None-Low	No Change	Water bodies too small to attract nesting or dispersing individuals.
Wild Turkey	Low	Low	No Change	Woodlands are limited under existing and post-project conditions, but irregular use could occur under both.
Ring-necked Pheasant	Low -Moderate	Low	Decrease	Irrigated pasture is not a preferred foraging crop, but hay production likely supports a small population that would nest in weedy areas and annual grassland. Areas of pure annual grassland support few pheasants, due to poor foraging conditions. Increase in post-project annual grassland acreage could slightly reduce populations.
Great Blue Heron and Great Egret	Moderate	Low-Moderate	Decrease	Reduced irrigated pasture would reduce foraging habitat on gophers exposed during irrigation. Wetland acreage decrease also would reduce foraging habitat. Tree removal would reduce potential for nesting, but lack of foraging nearby high quality foraging habitat make nesting use unlikely onsite.
Swainson's Hawk	Moderate-High	Moderate	Decrease	Foraging habitat quality would likely decrease for Swainson's Hawk due to loss of irrigated pasture and hayfields. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area. Long-term population declines are also possible due to land use changes in surrounding lands
Red-tailed Hawk	Moderate-High	Moderate-High	No Change	Foraging habitat quality would likely would increase slightly for Red-tailed Hawk over the long term by reclamation of pasture and hayfields to annual grassland. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area to support nesting

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Gulls	Moderate-High	Low	Decrease	Foraging habitat quality would decrease substantially with elimination of irrigated agriculture. Roosting habitat is limited or absent on all lands due to low amounts of open water, except after flood events.
Rock Pigeon	Moderate	Low	Decrease	Elimination of some barns and other buildings likely would reduce nesting populations of the Rock Pigeon. Foraging habitat conditions would be reduced through elimination of food sources in hayfields.
Great-horned Owl and Barn Owl	Moderate	Low-Moderate	Decrease	Elimination of irrigated agriculture likely would reduce prey, especially gopher populations, for both species. Loss of buildings would reduce Barn Owl nesting. Tree removal could decrease nesting and roosting use by both species.
Horned Lark	Low-Moderate	Moderate-High	Increase	The species favors short, dry grasslands and disturbed lands. Suitable habitat would increase during mining and subsequent reclamation to grazed annual grassland, but only if grazing occurs at high intensities.
American Crow	Moderate-High	Low-Moderate	Decrease	Forages on earthworms and insects in irrigated agriculture, so use would decrease following elimination of irrigated use.
Common Raven	Low	Low	No Change	Localized and uncommon at low elevations in Sacramento County. Abundance may increase as part of an ongoing population trend, but is unlikely to be affected by changes to the project area.
Mourning Dove	Moderate-High	High	Increase	Hay fields, grazed annual grasslands, and disturbed mining areas all produce seeds and open foraging conditions favored by doves. Tree removal would reduce nesting habitat, but as restored trees mature, nesting habitat would partly recover.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Blackbirds/ European Starling	High	Moderate	Decrease	Elimination of irrigated pasture would likely reduce foraging habitat for Brewer's and Red-winged Blackbirds and European Starlings, and potential nesting habitat for Tricolored Blackbird. Foraging areas in annual grassland for the Tricolored Blackbird would remain.
American Kestrel	Moderate	Moderate	No Change	Change from irrigated pasture and hayfields to grazed annual grassland would not likely change habitat suitability for kestrel foraging. Tree removal during mining would decrease nesting habitat suitability, which would partly recover with maturation of planted trees.
Western Meadowlark	Low-Moderate (breeding) High (wintering)	Moderate (breeding), Moderate (wintering)	Decrease	Irrigated land is likely better foraging habitat for meadowlarks than annual grassland, but annual grassland is better for nesting. Therefore, summer populations would likely increase, while large wintering populations (a greater risk to aircraft) would decrease.
Swallows	Moderate-High	Low-Moderate	Decrease	Production of insect foods would be substantially reduced under non-irrigated post-project condition. Removal of barns and trees would reduce nesting opportunities for the Barn, Cliff, and Tree Swallows
Sparrows	Moderate	Moderate-High	Increase	In the short term, loss of irrigated land likely would reduce cover for sparrows (Song and Savanna Sparrows, Spotted Towhee
Nighthawks	None	None-Low	Increase	Nighthawks are uncommon species, generally restricted to drier rocky areas. They might increase slightly in mined areas prior to reclamation

5.2 HABITAT CONDITIONS AND BIRD POPULATIONS UNDER THE PROPOSED PROJECT

This section addresses existing habitat conditions and resulting populations of hazardous bird species, as well as potential future conditions on surrounding lands that could affect synergistic bird use patterns in the area.

5.2.1 Post-Project Habitat Conditions

Aggregate extraction would alter habitat conditions over 383 acres of the 683-acre project area. The remaining 320-acre area not slated for mining, which currently consists largely of non-irrigated annual grasslands with scattered seasonal wetlands, will remain in an undisturbed condition, including a 93-acre preserve area. Major changes to habitat on the remainder of the property that would affect bird populations include:

- elimination of irrigated agriculture (including hay farming, and irrigated pasture grazing),
- a minor reduction in wetland and pond acreage,
- elimination of certain farmsteads (including buildings and existing trees),
- onsite creation of permanent, steep-sided stormwater retention basins
- creation of temporarily disturbed areas during mining, and
- creation of additional non-irrigated annual grassland habitat following mining reclamation.

Under the proposed Aspen VIII/IX project, the area of existing wetlands and other waters would decrease by 19% from approximately 27.8 acres to 22.5 acres (ECORP Consulting 2014; Figure 2). A total of 14.2 acres of stormwater ponds, designed to minimize wildlife use, would be constructed to serve onsite storm drainage needs (Figure 3). Therefore, overall, the project would result in a net increase in the area of wetlands and waters by 8.9 acres.

Consistent with requirements of the Sacramento County of Water Resources (2006), Teichert will design and operate two internal stormwater management systems consisting of four retention ponds within the project area (Figure 3). To minimize bird use by hazardous species, Teichert has designed the stormwater detention system to achieve the following characteristics (J. Lane pers. comm.) to minimize waterbird use. Ponds will be:

- located outside the 10,000 ft separation area from Mather Airport
- designed to provide a minimum surface area (see specific features below),
- narrow and linear in shape to reduce bird security for resting, and
- steep-sided at all water elevations to discourage wildlife use and shoreline vegetation growth.

5.2.2 Predicted Post-Project Bird Use

This section describes post-project bird use of the project site and potential for synergistic effects with surrounding lands. Predicted bird use, based on predicted habitat conditions and stormwater management strategies, are shown in Tables 1 and 2. Of the 26 species and species groups analyzed, 17 are predicted to remain at or below a low-moderate population level under post-project conditions (Table 2). Occurrence of these species onsite, therefore, would have little or no potential to pose hazards to aircraft. The remaining 9 species or groups, which have potential to occur at moderate-or-greater relative population levels, warrant more site-specific analysis of hazard risk. These species and groups include the Turkey Vulture, Swainson's and Red-tailed Hawks, Horned Lark, Mourning Dove, blackbirds and starlings, American Kestrel, Western Meadowlark, and sparrows.

Only 4 (15%) of the 26 evaluated hazardous species and groups are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and Nighthawks. The Mourning Dove and sparrows would occur at abundance above moderate (i.e., average background abundance), while the other two would occur at moderate or lower abundance.

Table 2. Summary of Predicted Responses of Hazardous Species to Habitat Changes Proposed for Teichert's Aspen VIII/IX project

2a. Changes in species/group abundances and use levels from existing to post-project condition

Species/Group Responses	Number of Species/Groups	% of Species/Groups
Increase	4	15
Unchanged	7	27
Decrease	12	46
No Use	3	12

2b. Post-project abundance/use levels

Post-Project Relative Abundance	Number of Species/Groups	% of Species/Groups
High	1	4
Moderate-High	3	12
Moderate	5	19
Low-Moderate	5	19
Low	5	19
None-Low	4	15
None	3	12

Only 4 (17%) of the 24 evaluated hazardous species and groups are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and Nighthawks. The Mourning Dove and sparrows would occur at abundance above moderate (i.e., average background abundance), while the other two would occur at moderate or lower abundance.

5.2.3 Synergistic Effects on Bird Populations

Potential synergistic effects of project-related habitat changes could result from changes in surrounding habitat changes or changes in attractiveness of the project site to birds that use surrounding lands.

Future Regional Habitat Conditions. Several Sacramento County guidance documents can be used to generally predict future land uses in the area surrounding the Aspen VIII/IX project area and synergistic bird use that results from the synergy between onsite and offsite lands. The Sacramento County General Plan was recently updated through the year 2030 (Sacramento County Planning and Community Development Department 2011). The draft General Plan identifies numerous adopted and pending development master plans in the Jackson Highway Planning Area. Under these plans, surrounding lands would consist of a variety of land uses, but overall, the intensity of developed uses can reasonably be expected to increase over existing conditions.

Under projected future uses, it is expected that the amount of grassland and agricultural habitats on adjacent lands will decline, while the amount of developed area will increase. Over time, development will increase the amount of tree cover in residential and commercial areas and in parks. Therefore, hazardous bird species that require woodland and urban forest habitats for nesting (American Crow, Mourning Dove, European Starling) likely will increase regionally especially during the nesting season, while species that favor open annual grasslands and agricultural lands for foraging (Swainson's and Red-tailed Hawk, Great Blue Heron and Great Egret, gulls, Horned Lark, American Kestrel, Western Meadowlark) will decline. Effects on open-country species, however, likely will be partially offset by foraging habitat mitigation for the Swainson's hawk and other species, but proposed mitigation areas under County plans will be farther from Mather Airport than the project lands.

Potential for Synergistic Effects on Bird Populations. The proposed project would eliminate irrigation of pasturelands, thereby reducing potential attraction of many species from adjacent lands to forage there (Table 1). Reduction in wetland and pond acreage would reduce the already limited potential to attract roosting birds during non-flood conditions.

Removal of trees would result in a reduction in nesting habitat for raptors, crows, starlings, and doves. Over the long term, the re-establishment of

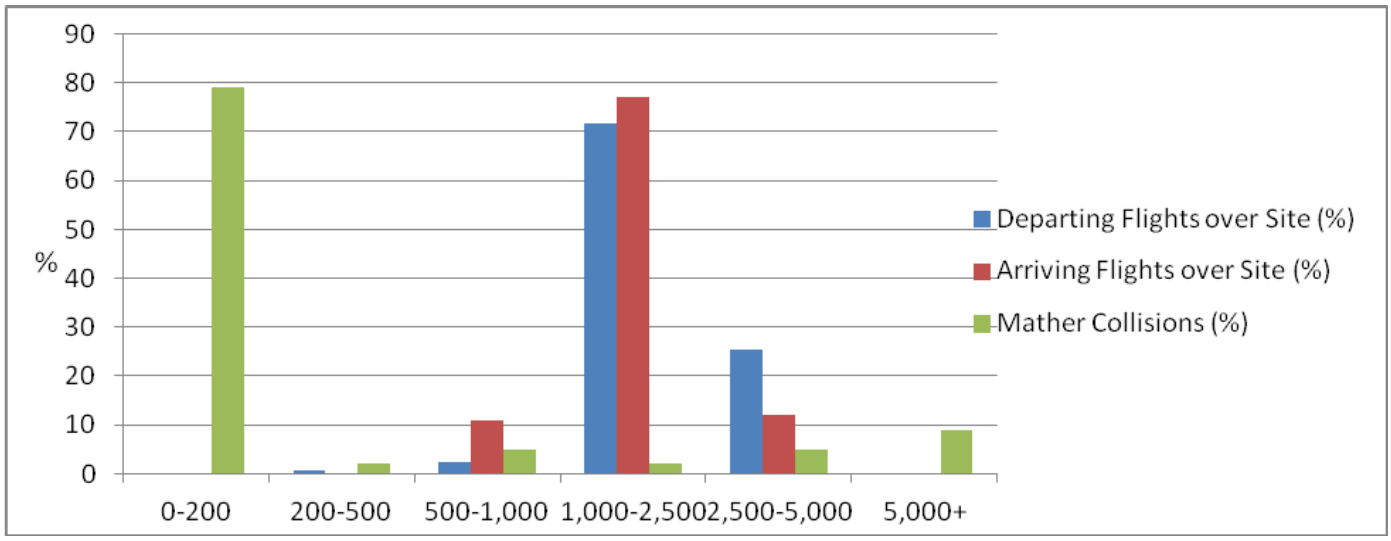
some riparian vegetation and oak woodland along the Elder Creek channel may re-attract some of the existing tree-nesting species to the site. The populations of many of these potential occupants, however, are limited by either territoriality (i.e., raptors) or the low quality of post-project foraging habitat (e.g., herons). For some tree nesting species, such as the Mourning Dove, populations are also likely to increase in response to favorable conditions on adjacent developed lands (e.g., see Airola 2008) as nest sites will be provided on buildings and in ornamental trees as they mature.

5.3 AIRCRAFT ACTIVITY AND BIRD AIRSTRIKE CHARACTERISTICS

5.3.1 Aircraft Flights over the Project Site

A total of 2,250 aircraft departures and 2,154 arrivals occurred from Mather Airport during the August 2007 reference period (Appendix B). Previous information from the Airport System noted that most flights occur at night (Airola 2007b). Nearly one-fourth (23%) of all aircraft departures crossed above the project site (Figure B-3). Of those departing flights that crossed the site, most (72%) occurred at heights of 1,000-2,500 ft above the site (Figures 5 and B-3) and nearly a fourth (24%) occurred above 2,500 ft. Only 3% of departures passed at heights below 1,000 ft and less than 1% of all flights flew below 500 ft.

Figure 5. Comparison of Heights (in ft) of Mather Aircraft Flights above the Aspen VIII/IX Project Site and Heights of Bird-Aircraft Collisions that occurred near Mather Airport



Most arrivals to Mather Airport approach landings from the northeast. As noted by the Sacramento County Airports System, "*the parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, operations arriving from the south or southwest may pass over the parcel as they*

proceed to runway 22." (Figure B-5). Of a total of 2,154 arriving planes recorded at Mather Airport in August 2007, 135 (6.3%) crossed above the project site. Of those arriving flights that crossed the site, most (77%) occurred at heights of 1,000-2,500 ft above the site (Figures 5 and B-6). No flights passed below 500 ft and only 11% of these flights (i.e., < 1 per day) passed at heights below 1,000 ft (Figure 5 and B-6).

In summary, the aircraft arrival and departure data show that a moderate proportion of departing flights and small proportion of arriving flights from Mather Airport crossed the Aspen VIII/IX project site. Over 80% of the departing flights crossed at heights above 1,500 ft, and <1% crossed at below 500 ft height. Arriving planes crossed the site less frequently than departing planes, but at lower heights. No planes flew over the site at heights below 500 ft, and fewer than 1 per day flew between 500-1,000 ft. Flight paths, however, reflect commercially determined flight routes. Future aircraft arrival and departure routes, therefore, could change over time (Taylor, pers. comm.).

5.3.2 Mather Bird Airstrike Characteristics

Characterization of patterns of bird strikes from reported data over 2004-2014 are limited because of small sample sizes and infrequent identification of species involved in the collisions. Collisions were reported at an average rate of 7 per year (78 collisions/11 years) (Table 3a). Sixty-eight percent of birds that collided with aircraft were not identified to species or to any general group to which they belonged. Larger species (coots, hawks) represented 32% of identified species or groups. Medium-sized species (killdeer, starlings, meadowlarks, blackbirds) represented 28% of species. Finally, smaller species (swallows, sparrows, pipits, larks) comprised 40% of reported species groups.

Table 3. Characteristics of Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014

3a. Collisions by species group and location

Species Group	Collision Location				% of Identified Groups
	On Ground	In Air	Unknown	Total	
Coots		1		1	4
Hawks	4		3	7	28
Starlings/blackbirds	1	3		4	16
Killdeer	1		2	3	12
Pipits/larks		1	1	2	8
Swallows	4	2	1	7	28
Sparrow		1		1	4
Unknown birds	16	30	7	53	
Total	**26**	**38**	**14**	**78**	100
% known locations	**41**	**59**			

3b. Bird-aircraft collision heights (ft)

Height	Number of Collisions	%
0	26	41
>0-200	24	38
>200-500	1	2
>500-1,000	3	5
>1,000-2,500	1	2
>2,500- 5,000	4	6
>5,000	5	8

3c. Timing of collisions

Period	Number of Collisions	%
Daytime	34	69
Dusk/Dawn	9	18
Night	6	12

Bird-airstrike information reported at Mather showed that 41% of all airstrikes where height was reported occurred at ground level, and 79% occurred below 200 ft. Only 1 collision (2%) occurred over the 11 year reporting period within the 1,000-2,500 ft height range within which most aircraft cross the project area (Figure 5). Eight percent occurred within 200-2,500 ft, while 14% occurred above 2,500 ft (Table 3b). Nearly 70% of collisions occurred during the daytime (Table 3c).

5.4 NET PROJECT HAZARD EFFECTS

This section evaluates the potential hazards posed by the proposed project by evaluating the net change in hazards from the existing conditions. This evaluation considers hazardous species that occur at greatest abundance (relative to surrounding lands) and those whose populations would increase from existing to post-project conditions. The hazard evaluation considers potential for these species to collide with aircraft, based on known information on previous bird aircraft collisions and on the frequency with which species fly at altitudes at which planes cross the site (mainly at 1,000-2,500 ft). The analysis also considers whether synergistic effects would increase bird aircraft collision hazard.

Under existing conditions, a number of hazardous species make use of the project site as a result of the attractions of irrigated pasture habitat, trees, farmsteads, wetlands, shallow flooding following storm events, and other general habitat conditions (Tables 1 and 2). Nonetheless, the current risk of bird-aircraft collisions is low at the site, mainly because aircraft fly almost entirely at high altitude (>1000 ft) above the project site relative to the heights at which most species regularly fly, as supported by available data on bird-aircraft collisions (Figure 5).

Under post-project conditions, most hazardous species would occur at low to moderate abundances relative to other habitats regionally (See "**Predicted Post-Project Bird Use**" and Tables 1 and 2). It is virtually impossible to eliminate all hazardous species from using a site as large as Aspen VIII/IX because, regardless of land uses or treatments, certain of the hazardous species would continue to find the site suitable. Therefore, it is appropriate to evaluate changes in populations, and associated hazards posed by those species that occur at higher than "typical" regional populations, if these species pose a hazard.

Species of highest post-project relative abundance (i.e., those occurring at greater than "moderate" relative abundance) include: the Horned Lark, Mourning Dove, and various sparrows. Of these species, only the Mourning Dove regularly flies at higher altitudes. If the standard for concern is lowered to populations that would occur at a "moderate" level, the following additional species or groups would be included: Turkey Vulture, Red-tailed Hawk, blackbirds, European Starling, American Kestrel, and Western Meadowlark. All of these species may at least occasionally fly at heights at which aircraft cross the project site. These species are all terrestrial species that are common within surrounding lands with various land uses. Therefore, it does not appear to be practical to significantly reduce their numbers under the post-project conditions.

The elimination of extensive irrigated agricultural lands would reduce the quality and productivity of habitat for many species, and as a result reduce populations of many of the species that pose potential aircraft hazards (Tables 1 and 2). Only

the following species would be expected to increase in abundance as a result of project actions: Horned Lark, Mourning Dove, and various sparrow species, and possibly nighthawks. All of these species characteristically fly at low altitudes (except during infrequent migratory movements).

The project is expected to result in reduced use by a number of hazardous species that are known to frequently fly at high altitudes, including geese Canada Geese, Great Blue Heron, Great Egret, gulls, Rock Pigeons, American Crows, shorebirds, blackbirds, European Starlings, Western Meadowlarks, and swallows.

The potential increase in populations of the Mourning Dove, the hazardous species that most frequently flies at aircraft heights above the project site, is expected to be substantially offset by the decrease in use of the site by many species that could be hazardous to aircraft at the elevations at which planes cross the site.

The preceding analysis conclusively shows that the net effect of Teichert's Aspen VIII/IX project will be to substantially reduce an already-low potential for bird-aircraft collisions.

6. CONCLUSIONS

This analysis shows that, although a moderate number of the aircraft that depart from Mather airport and a small number of arriving aircraft cross the Aspen VIII/IX project site, nearly all flights cross at substantial altitudes (>1,000 feet). Therefore, the existing bird-aircraft collision hazard level is low because most bird flights occur below this height. Teichert's proposed mining would reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads, and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species would decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher elevations would decline in abundance. Therefore, the net effect of the proposed Aspen VIII/IX project is to substantially reduce the already-low existing potential for bird-aircraft collisions.

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7.2 PERSONAL COMMUNICATIONS

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8. AUTHORS' QUALIFICATIONS

8.1 Daniel Airola

Daniel Airola is a Certified Wildlife Biologist, ornithologist, and conservation planner with a detailed knowledge of the identification, distribution, abundance, and ecology of birdlife in the Sacramento region. He has 35 years of experience of professional experience, mostly as a biological consultant in the Sacramento region. He has conducted numerous wildlife surveys, analyzed project impacts for environmental documents and permitting, and developed conservation and habitat restoration plans. He has conducted analyses of potential bird aircraft collisions for several properties in Sacramento County.

Dan also has an extensive research program addressing the ecology, habitat relationships, and conservation of birds in the Sacramento region. He has published over 45 scientific papers, mostly on songbirds in the Sacramento region, including studies of the Purple Martin and other swallows, Tricolored Blackbird (in preparation), Turkey Vulture, and corvids (jays, crows) and other species susceptible to West Nile Virus. He serves as the editor of the Central Valley Bird Club Bulletin, which regularly publishes articles on local bird status, distribution, ecology, and conservation. Dan is also an avid field ornithologist, birding regularly throughout the Sacramento region. For example, he has submitted over 1,600 birding checklists to the online electronic repository *ebird* from Sacramento and surrounding counties.

8.2 Eric Lichtwardt

Eric Lichtwardt has over 25 years of experience conducting wildlife studies in California. He has worked on many infrastructure, development, and conservation projects throughout Northern and Southern California, addressing a full array of biological issues including wetlands, wildlife habitats, movement corridors, listed species, wildlife hazards, and avoidance/mitigation measures. He is an avid field ornithologist and has extensive field experience throughout California.

Eric is qualified under FAA Guidelines to conduct and prepare Wildlife Hazard Assessments (WHAs) and Wildlife Habitat Management Plans; he meets all of the requirements in accordance with Section 5 of FAA Advisory Circular 150/5200-36A. To maintain his qualification as an airport biologist, he attended the annual Bird Strike Committee USA meeting in Atlanta, Georgia in 2014.

Eric has conducted a variety of biological studies involving airports and aviation, including WHAs for airports in Sacramento, Solano, Sonoma, Nevada, San Joaquin, Alameda, San Mateo, Santa Clara, Santa Cruz, Monterey, and Merced counties. He also managed WHAs for eight general aviation airports in southern California.

Appendix A
Summary of FAA Guidance in Advisory Circular on Hazardous Wildlife Attractants on or Near Airports
(AC No: 150/5200-33B)

The Federal Aviation Administration (FAA) issued Advisory Circular 150/5200-33B to provide guidance on certain land uses that have potential to attract hazardous wildlife on or near airports. The most recently updated Advisory Circular (AC) (FAA 2007) was issued just after Teichert submitted its application to the County in August 2007. The main section of this report briefly summarizes the guidance in the AC. This appendix provides a more detailed summary of guidance that is relevant for Teichert's Aspen VIII/IX project.

Purpose. The AC provides guidance on land uses that have potential to attract hazardous wildlife on or near airports.

Applicability. Airports that have received Federal grant-in-aid assistance must use these guidelines. FAA also recommends that the guidance be used by land-use planners and project developers on or near airports.

Background. This section includes a previous ranking of the hazards posed by wildlife groups commonly involved in damaging strikes with aircraft in the U.S. (FAA 2003). It also notes that the AC provides guidance needed "*to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land use practices on or near public-use airports*."

Section 1. General Separation Criteria for Hazardous Wildlife Attractant on or Near Airports. The AC notes "*When considering proposed land uses airport operators, local planners and development must take into account whether the proposed land uses, including new development projects, will* ***increase*** *wildlife hazards. Land use practices that* ***attract or sustain*** *hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes*" (emphasis added).

This AC section introduces separation criteria between airports and "*land-use practices that attract hazardous wildlife.*" As support for the separation criteria the guidance notes that 78% of aircraft strikes occur within 1,000 ft of the ground and 90% occur within 3,000 ft of the ground.

1-3. Airports Serving Turbine-Powered Aircraft. For airports serving turbine-powered aircraft (such as Mather Airport), "*FAA recommends a separation of 10,000 feet… for wildlife attractants identified as hazardous".*

1.4. Protection of Approach, Departure, and Circling Airspace. The FAA "*recommends a distance of 5 statute miles between the farthest edge of the airports AOA (Air Operations Area) and the hazardous wildlife attractant, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace*."

The AOA is defined as: "*any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron*." Approach and departure airspace is defined in the AC as "*the airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff*.

Section 2. Land-Use Practices on or near Airports that Potentially Attract Hazardous Wildlife.

2-1. General. This introduction notes that "*wildlife species and size of populations attracted to the airport environment vary considerably depending on several factors including land-use practices on or near the airport*".

2.3 Water Management Facilities. This section notes that "*storm water facilities…and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife.*" It further states, "*to prevent wildlife hazards, land use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water facilities on or near all public-use airports to ensure a safe airport environment*. "

b. New storm water management facilities. Here, the FAA "*strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4*" (i.e., anywhere within 10,000 ft or within 5 miles of areas within approach and departure airspace) "*be designed and operated so as not to create above-ground standing water. Storm water detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and remain completely dry between storms*."

The guideline also recommends "*the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds* ***away from an airport's AOA*** *(air operations area),* ***airport operators*** *should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water*...". (emphasis added).

Also, this section notes "*All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages the use of underground storm water infiltration*

systems, such as French drains or buried rock fields, because they are less attractive to wildlife."

In summary, section 2.3.b recommends that off-airport storm water facilities located within takeoff and approach zones and less than 5 miles from an airport facility, be capable of being drained within 48-hours, and recommends use of steep-sided riprap lined, narrow ponds. It does not specifically recommend use of physical barriers for offsite ponds.

2-8. Synergistic Effects of Surrounding Land Uses. This section identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

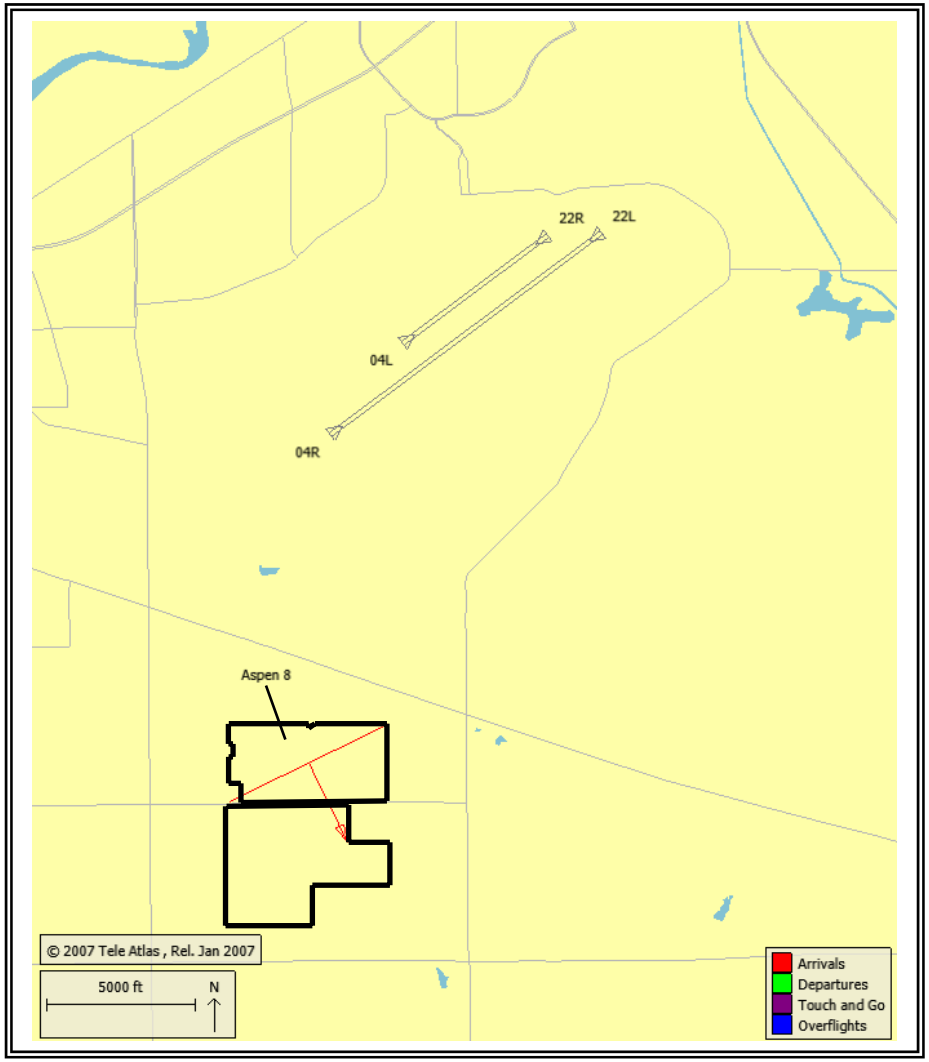
4-3. Other Land-Use Practice Changes

a. Airports that have received Federal grant-in-aid assistance. This section specifies that **"***Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife.*

Appendix B

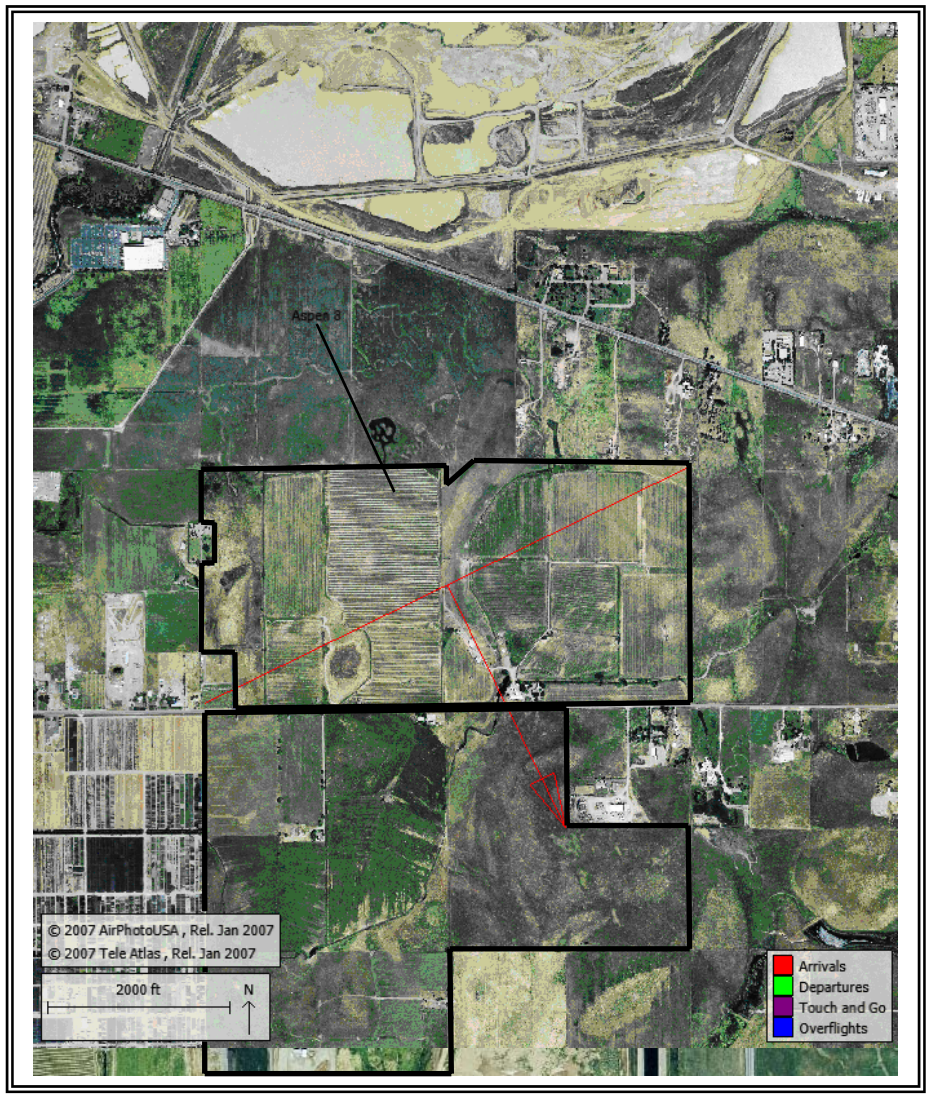
Aircraft Flight Paths and Altitudes Near the Aspen VIII/IX Project Site

Basic Penetration Gate

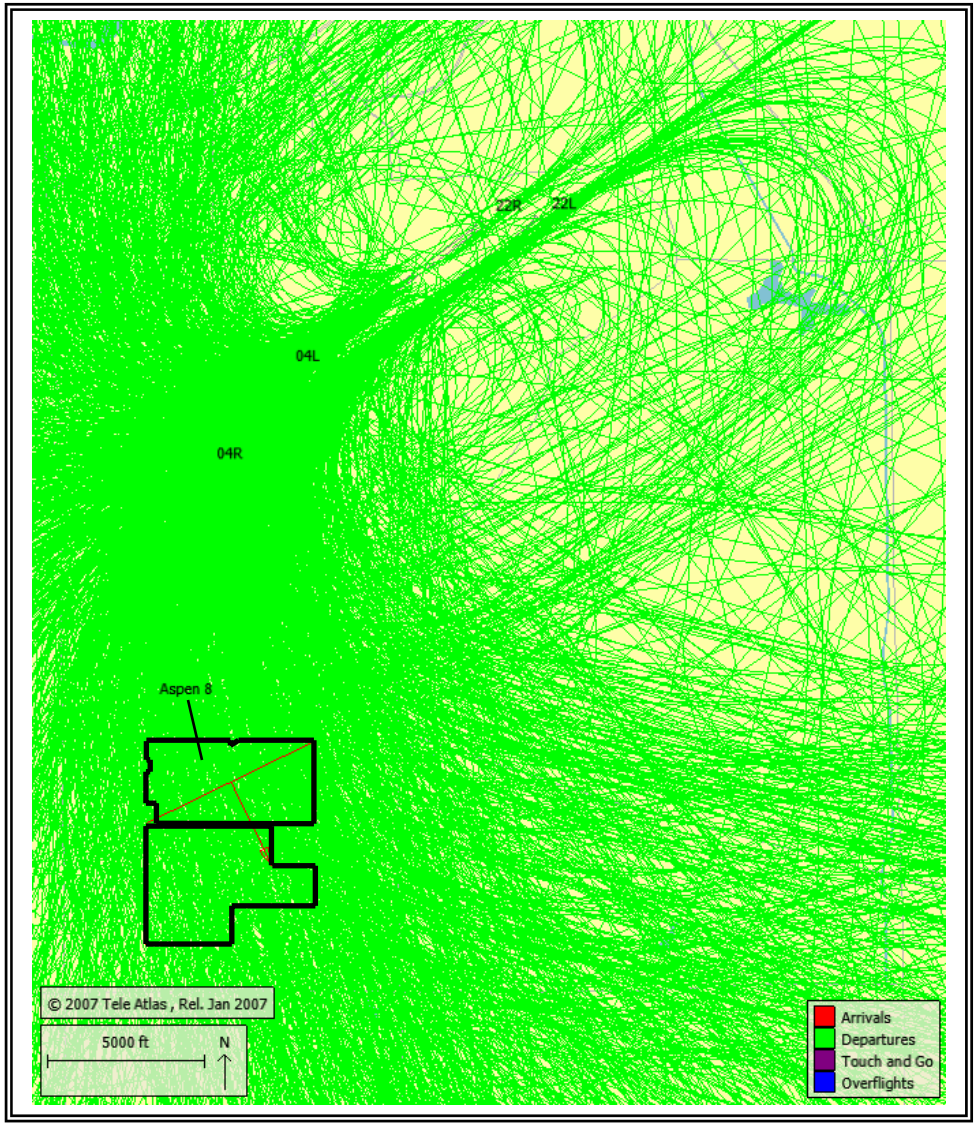


The penetration gate is centered over the parcel, spans it diagonally, and is oriented parallel to Mather Airport's Runway headings. It is designed to capture the majority of the flights that directly overfly the parcel.

Geographic Representation of the Gate

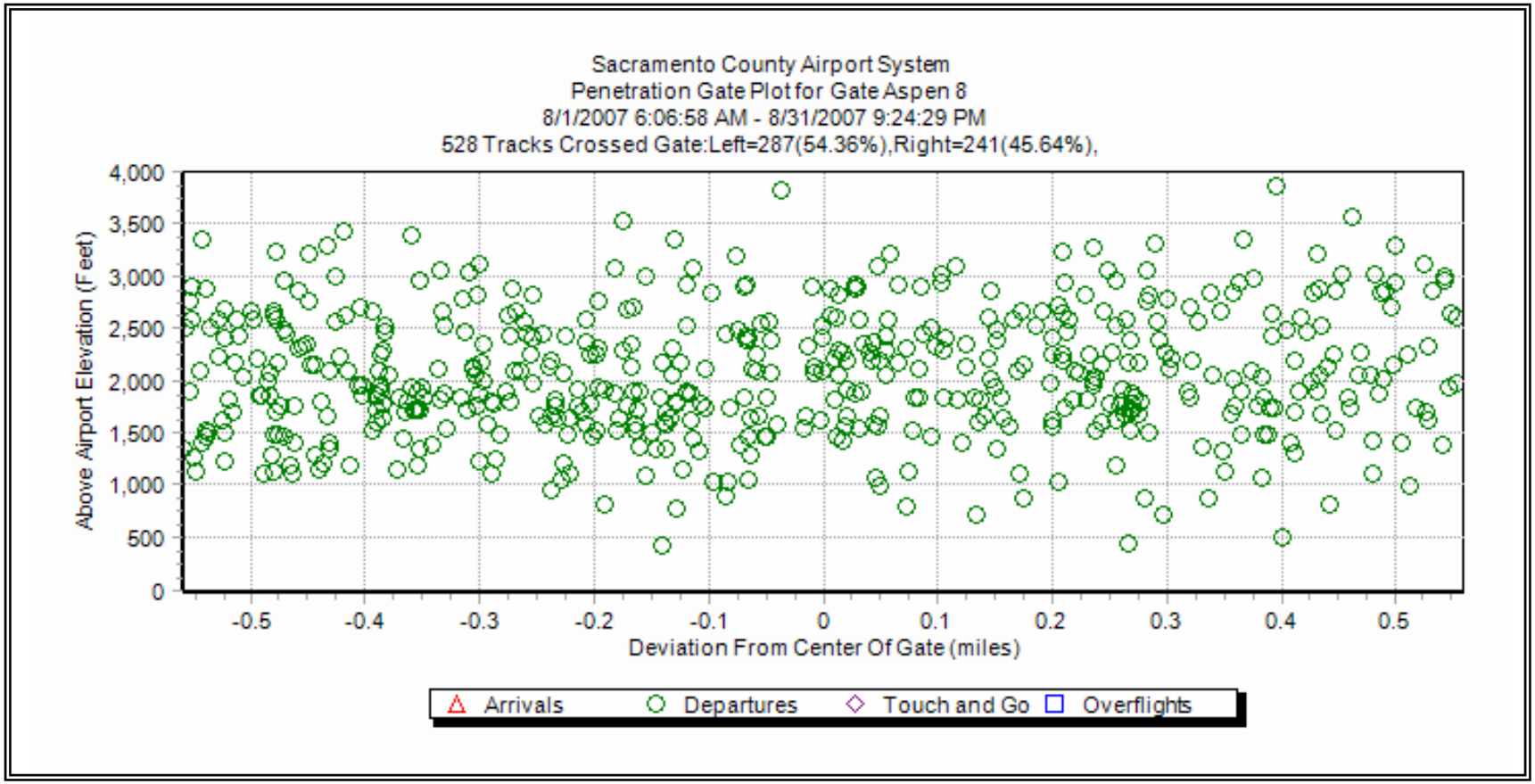


Departure Analysis



Because the prevailing winds at Mather predominately favor operations from runways 22L and 22R, the majority of the overflights of the site are from departing aircraft.

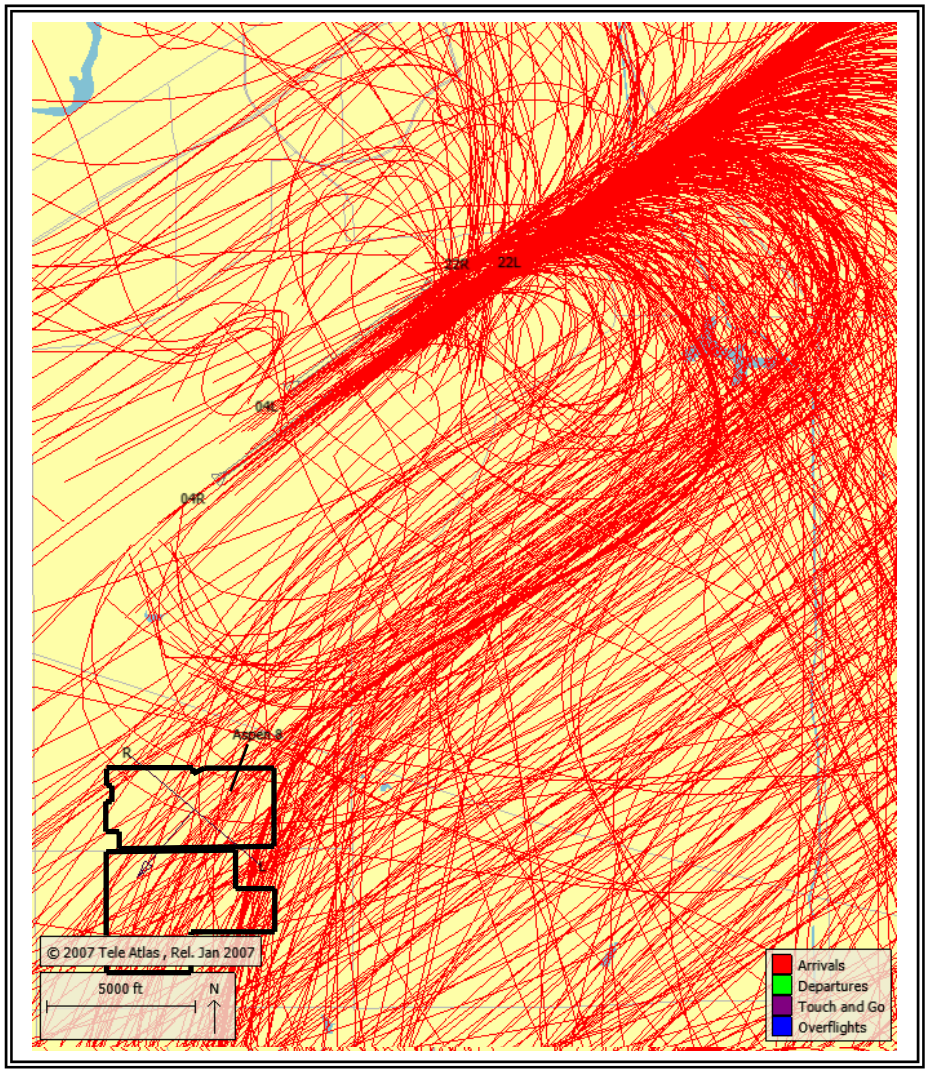
Aircraft Departure Flight Track Proximity to the Parcel



During August of 2007, a total of 2,250 departure flight tracks were recorded at Mather. Of these, 528 penetrated the departure gate centered over the parcel. As indicated by the graphic above, these flights typically passed over the site at altitudes between 500 and 4,000 ft.

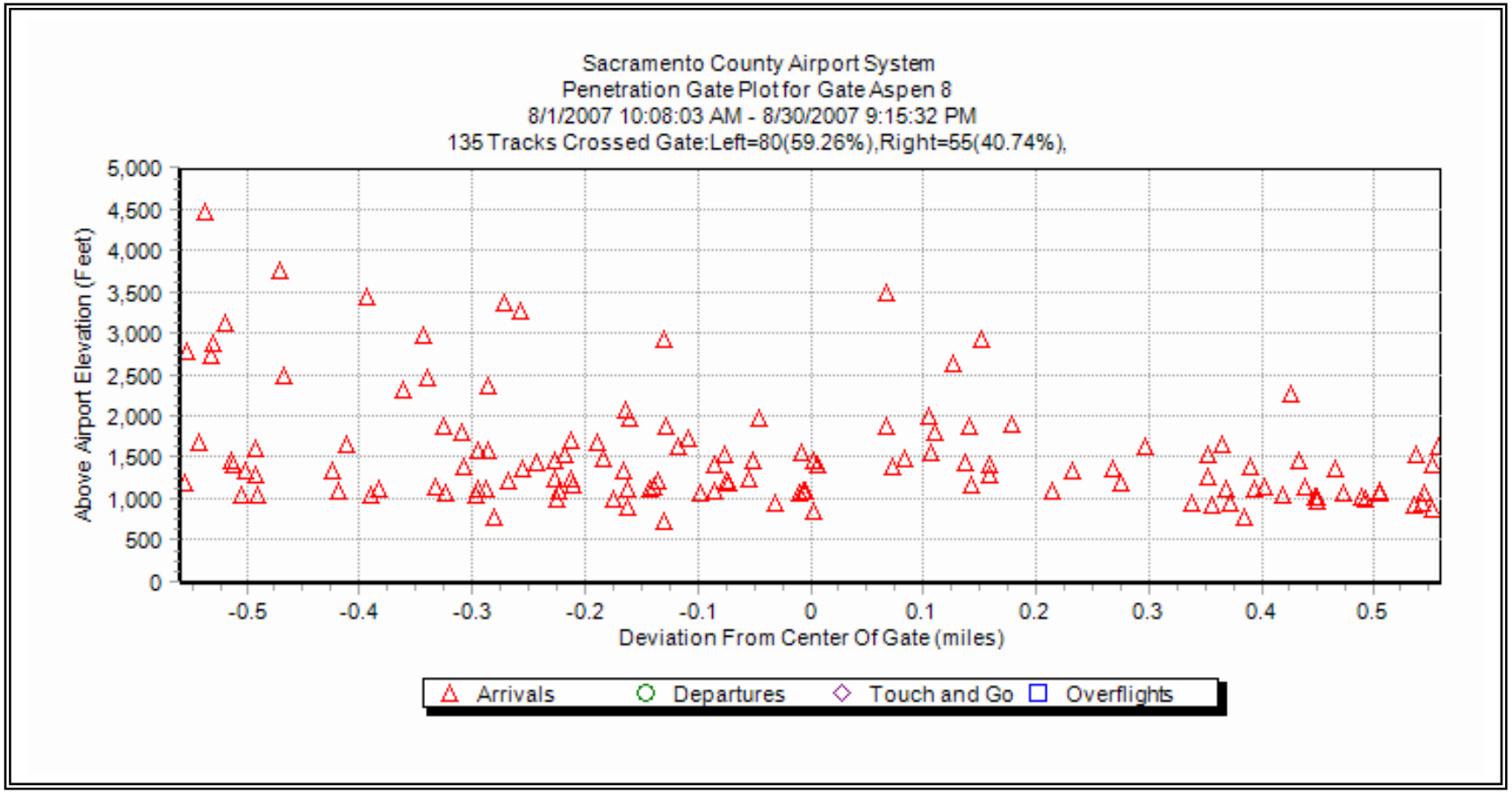
Arrival Analysis

The graphic above illustrates the arrival paths for both of Mather's parallel runways. In order to capture the relative proximity of the flight tracks to the parcel center, the basic penetration turned to a southwesterly orientation.



The parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, operations arriving from the south or southwest may pass over the parcel as they proceed to runway 22L.

Aircraft Arrival Flight Track Proximity to the Parcel



During August of 2007, a total of 2154 arrival flight tracks were recorded at Mather. Of these, 135 penetrated the arrival gate centered over the parcel. As indicated by the graphic above, these flights typically passed over the site at altitudes between 500 and 4,000 ft.

SOUTHGATE
RECREATION & PARK DISTRICT

TRAIL STANDARDS

January 13, 2015

TRAIL STANDARDS
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REVISED 1-13-15

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RESOLUTION 03-150

RESOLUTION OF THE BOARD OF DIRECTORS FOR THE SOUTHGATE RECREATION AND PARK DISTRICT ADOPTING POLICIES FOR BICYCLE, PEDESTRIAN AND EQUESTRIAN TRAILS WITHIN OPEN SPACE AREAS

SOUTHGATE
RECREATION & PARK DISTRICT

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Board of Directors
Rolfe P. Appel
John E. Cockerham
Edwin A. Smith
Christine Thompson
Shirley J. Wirth

General Manager
Rod Cooper

Assistant General Manager
Ward Winchell

WHEREAS, the Southgate Recreation and Park District is committed to being the owner and preserve manager of open space within it's boundaries of South Sacramento County; and

WHEREAS, open space shall be preserved and managed and can also be enjoyed by the public through a variety of recreational uses including a trail system; and

WHEREAS, the District has master planned an extensive trail system throughout the District, primarily along the major creek corridors of Laguna, Florin, Gerber and Elder Creeks and have already constructed portions of these trails; and

WHEREAS, as more and more development in the District continues policies for trails in open space and creek corridors are necessary in order to provide for adequate trail reservations and setback from sensitive areas, future residences, streets and other improvements.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors for the Southgate Recreation and Park District hereby adopt the following Open Space Trail Policies for reservation of adequate open space and placement of bicycle, pedestrian and equestrian trails within the District:

1. Where possible the Sacramento County General Plan of a 600' wide open space area (300' on each side of the creek) shall be provided by the Developer to the District, to preserve open space within a creek corridor. At a minimum the open space area shall be 300' wide (150' on each side of the creek). The District is willing to own and maintain the property, provide necessary public agency easements and be the preserve manager where adequate funds are in place to manage the land under the requirements set forth by the Army Corps of Engineers, the Fish and Wildlife Service and any other jurisdictional agency.

2. The District requires that the trail alignment be placed as far away from homes and streets as possible. Trail alignment shall meander throughout the corridor. Trail design shall be approved by the District. The trail shall not be closer than 20' to the top of bank along the creek and outside of any environmental constraints. Trail setback from the rear or side of residential property lines and streets shall be as far as possible, with a minimum distance of 50'.

3. The District requests to be notified of all environmental constraints affecting the alignment of the trail before approving a final trail alignment. It is important that adequate space be provided in order to provide separation for bicycle, pedestrian and equestrian uses.

4. Typical bicycle/pedestrian trail provides for a 10' wide asphalt path with 2' wide dirt or decomposed granite shoulders on each side of trail. Trail construction specifications are to be provided or approved by the District.

5. Equestrian trail shall be blade graded dirt, 8' wide, with a minimum of a 20' separation from the paved bicycle/pedestrian trail.

PASSED AND ADOPTED this 20th day of April, 2004 by the following vote to wit:

AYES:

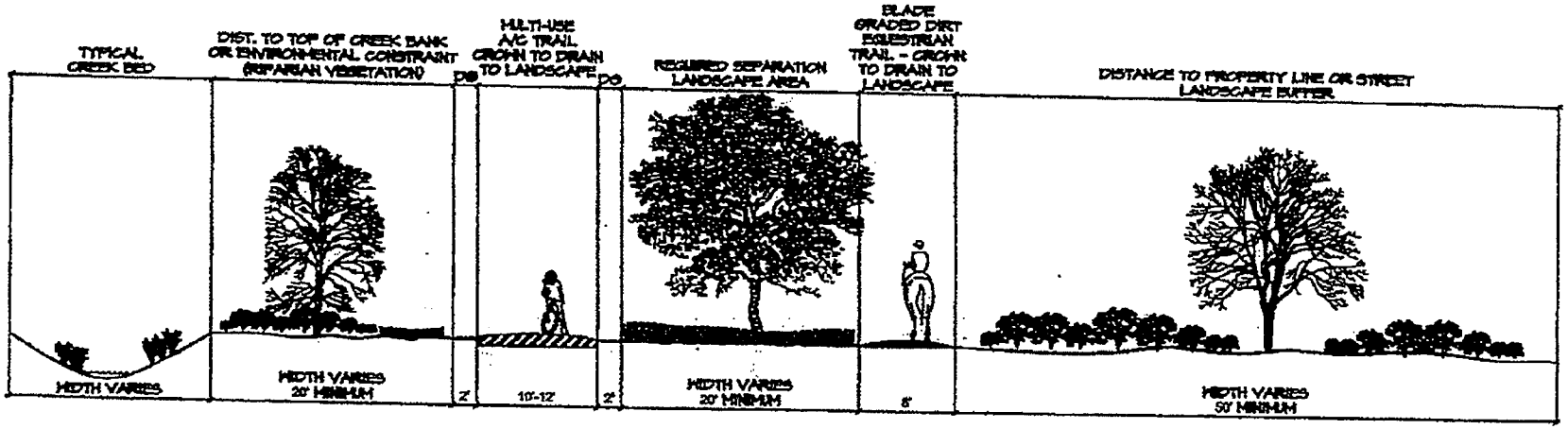
Appel, Cockerham, Smith, Thompson & Wirth

NOES:

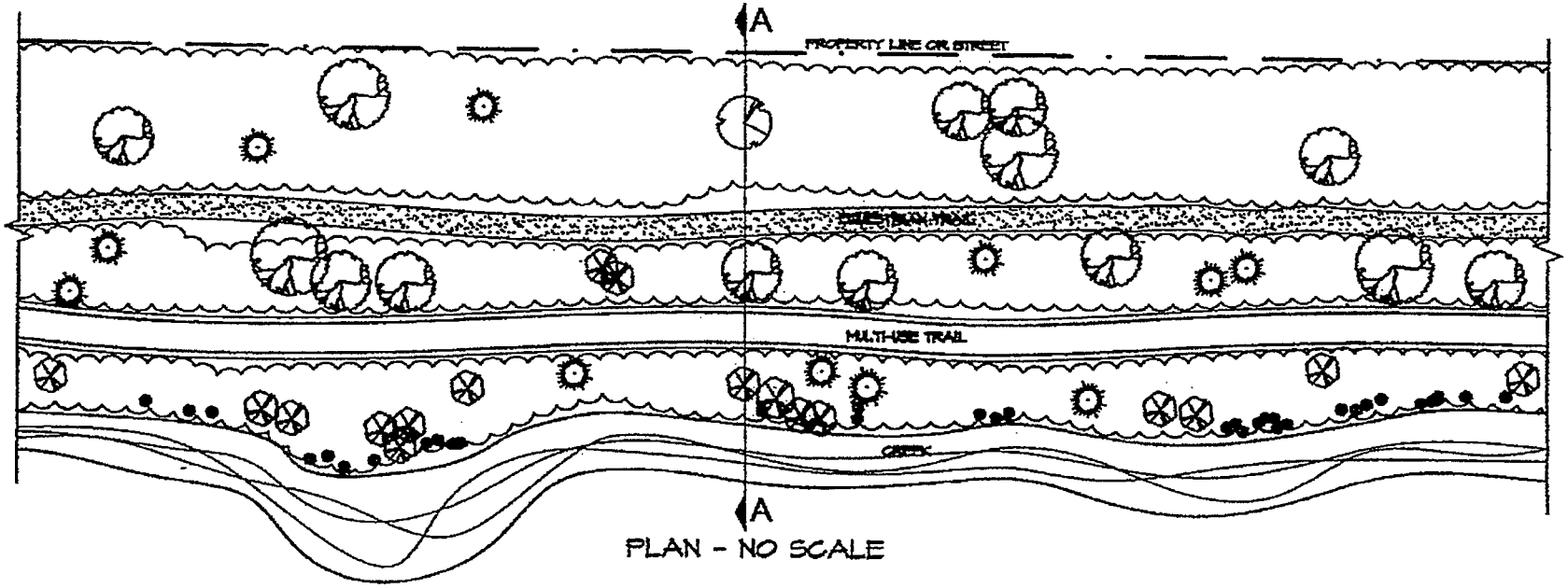
None

Rolfe Appel, Chair

Edwin A. Smith, Clerk



SECTION / ELEVATION A-A



PLAN - NO SCALE

OPEN SPACE TRAIL STANDARDS EXHIBIT

SOUTHGATE RECREATION AND PARK DISTRICT - 4/20/2011

County of Sacramento 2030 General Plan

Public Facilities Element (Amended 11/9/11)

PF-127. Require new residential developments to participate in park O&M financing mechanisms where established by local park districts of the County.

Conservation Element (Amended 11/9/11)

CO-41. Surface Mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

CO-64. Consistent with overall land use policies, the County shall support and facilitate the creation and biological enhancement of large natural preserves or wildlife refuges by other government entities or by private individuals or organizations.

CO-70. Community Plans, Specific Plans, Master Plans and development projects shall:

- Include the location, extent, proximity and diversity of existing natural habitats and special status species in order to determine potential impacts, necessary mitigation and opportunities for preservation and restoration.
- Be reviewed for the potential to identify nondevelopment areas and establish preserves, mitigation banks and restore natural habitats, including those for special status species, considering effects on vernal pools, groundwater, flooding, and proposed fill or removal of wetland habitat.
- Be reviewed for applicability of protection zones identified in this Element, including the Floodplain Protection Zone, Stream Corridor Ordinance, Cosumnes River Protection Combining Zone and the Laguna Creek Combining Zone.

CO-71. Development design shall help protect natural resources by:

- Projects adjacent to rivers and streams shall integrate amenities, such as trail connectivity, that will serve as benefits to the community and ecological function.

CO-72. If land within river and stream watersheds in existing agricultural areas is developed for non-agricultural purposes, the County should actively pursue easement dedication for recreation trails within such development as a condition of approval.

CO-73. Secure easement or fee title to open space lands within stream corridors as a condition of development approval.

CO-114. Protect stream corridors to enhance water quality, provide public amenities, maintain flood control objectives, preserve and enhance habitat, and offer recreational and educational opportunities.

CO-115. Provide stacks along stream corridors and stream channels to protect riparian habitat functions (Figure 1)

- A functional setback of at least 100 feet and measured from the outside edge of the stream bank should be retained on each side of a stream corridor that prohibits development or agricultural activity. This buffer is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates that are known to degrade water quality. The buffer also provides for the protection of vegetation along the stream bank which provides bank stability, erosion control and flood attenuation.

- A transitional setback of at least 50 feet in width beyond the functional buffer should be retained along all stream corridors. This buffer is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. This buffer also provides corridors to facilitate the movement of wildlife.

- An extended setback of at least 50 feet in width beyond the transitional setback should be retained along all stream corridors. This setback will allow for recreational uses such as bike, pedestrian and/or equestrian trails and will allow for the placement of infrastructure such as water and sewer lines.

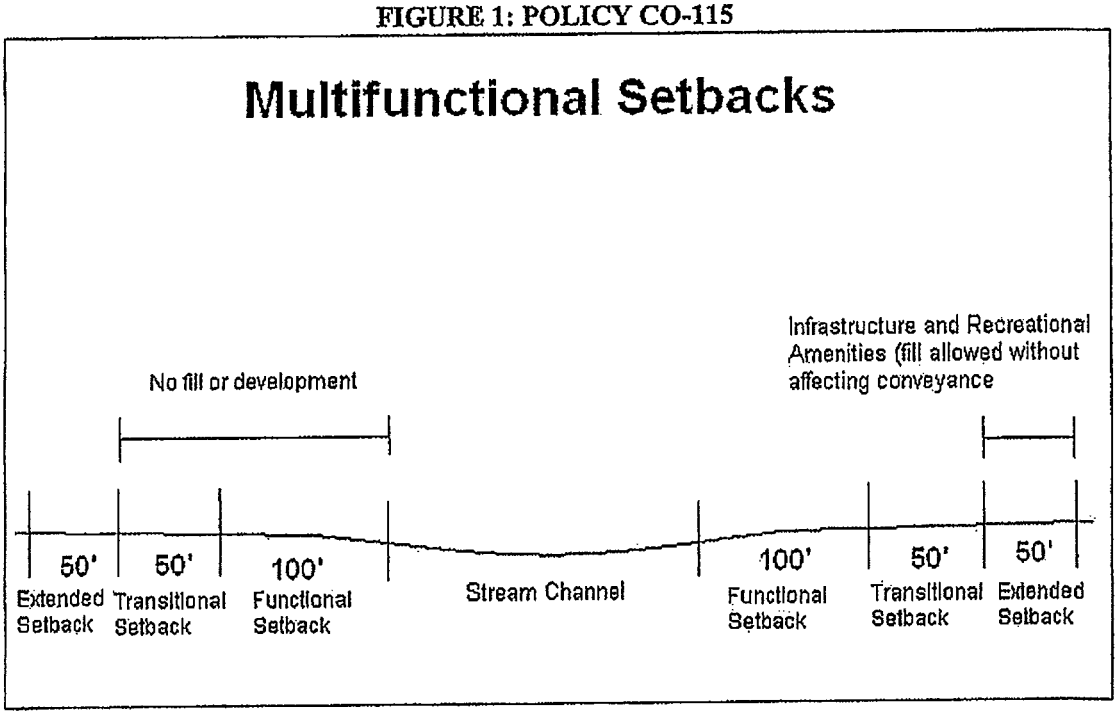
- Stormwater discharge ponds or other features used for improving stormwater quality may be located within the extended or transitional setback area. However, in order to protect stream habitat and floodplain value, the width of the setback shall not be based upon the width of the pollutant discharge pond. The ponds shall be landscaped and maintained with vegetation native to the surrounding area. Detention ponds or other features implementing pollutant discharge requirements, other than approved regional stormwater quality practices that are designed and operated to complement the corridor functionally and aesthetically, are prohibited.

- Setback averaging <u>within individual development projects or as otherwise specified in a County-adopted master plan</u> will be permitted

except when riparian woodland will be lost. The minimum width of setbacks cannot fall below 50 feet.

- Master drainage plans may provide for other standards that meet the intent of this policy.

FIGURE 1: POLICY CO-115



Implementation Measures

A. Require that Community Plans, Specific Plans , Master Plans and development projects:

- Address ownership and maintenance of dedicated/reserved parcels as follows:
  - Dedicated/reserved parcels for schools, fire stations and other community services must have identified ownership, a management plan and a funding mechanism (PLANNING, MSA-LDSIR).

Open Space Element (Amended 5/28/2014)

Types of Open Space

Rural Open Space
Open space areas are largely un-fragmented areas of undeveloped land that are set aside primarily to preserve and/or enhance the County's wildlife habitat, agricultural productivity and recreational opportunities. Recreational use of these areas is generally limited so as to conserve sensitive habitat and protect agricultural activities. Similar to other metropolitan regions with open space resources, recreational access is typically limited to non-motorized trail use that is not disruptive to agricultural activities or harmful to sensitive species. Sacramento County has identified six categories that define valuable open space uses that are important to preserve and protect. All can be effective community separators and most overlap.

- *Recreation:* Natural areas that provide for passive recreation such as wildlife viewing and pedestrian and bicycle travel, as well as wildlife habitat. It may encompass historic sites, scenic vistas, and trails.

- *River and Stream Parkways:* Areas that are typically linear and follow the natural path of a river or stream. They are primarily used as corridors for pedestrians and bicyclists. Recreational uses focus on education and appreciation for natural resources. Parkways may also provide open space linkages, wildlife corridors and/or act as community separators.

Sacramento County Open Space/Rural Principles

Sacramento County has significant high quality natural/rural areas devoted to agriculture, natural resource protection, and recreational uses. As development continues to occur, it is important to protect these areas as they provide valuable habitat for both humans and wildlife as well as help retain the rural character of the County that makes it a desirable place to live. To meet this objective, Sacramento County has identified five open space/rural principles that serve as the basis for the Open Space Vision Diagram.

- Greenbelts/Parkways: Maintaining areas for passive and active recreation contributes to the overall health and well being of County residents. Trails and parkways encourage pedestrian and bicycle travel while providing connectivity between open space areas. Through the incorporation of public use open space within development projects, above state requirements, a valuable sense of place is also created.

Open Space Preservation Strategy

Open space lands in Sacramento permanently protected through coordinated use of regulation, education, acquisition, density transfer and incentive programs. (Open Space Element)

Key Open Space Concepts
Open space linkages in the urban environment are also important because they provide definition and scale to neighborhoods and visual, psychological relief to the pervasiveness of urban sprawl. They also create the opportunity for attractive, safe transportation corridors for non-vehicular travel.

Open Space Implementation Policies

OS-11. Establish trail connections and linkages within the County and across jurisdictional boundaries that are compatible with existing land uses. These trail connections shall have the capability of being Class I trails (off-street, separated facilities) with grade separations wherever feasible.

Circulation Element (Amended 5/28/14)

CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

CI-34. Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.

CI-35. The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.

CI-36. Collaborate with neighboring jurisdictions and regional agencies to coordinate planning and development of the County's bikeways, pedestrian facilities and multiuse trails with those of neighboring jurisdictions, and to support a regional bicycle and pedestrian network.

CI-37. Pursue all available sources of funding for the development, improvement, and maintenance of bikeways, pedestrian facilities and multi-use trails, and to support bicycle and pedestrian safety, education, encouragement and enforcement programs.

Land Use Element (Amended 11/9/11)

LU-27. Provide safe, interesting and convenient environments for pedestrians and bicyclists, including inviting and adequately-lit streetscapes, networks of trails, paths and parks and open spaces located near residences, to encourage regular exercise and reduce vehicular emissions.

LU-37. Provide and support development of pedestrian and bicycle connections between transit stations and nearby residential, commercial, employment or civic uses by eliminating physical barriers and providing linking facilities, such as pedestrian overcrossings, trails, wide sidewalks and safe street crossings.

2010 Sacramento City/County Bikeway Master Plan

Chapter Four – Bicycling and Section D – Mountain Bicycling Program

Guidelines for Multi-Use Trails

a. Use existing firebreaks and service roads to the maximum extent feasible.
b. Avoid designated horse trails to the maximum extent feasible.
c. Avoid designated Nature study Areas and Open Space Preserve Areas.
d. Avoid levee crowns.
e. Avoid crossing roadways and crossing the designated bicycle trail to the maximum extent feasible.
f. Avoid areas narrower than an 8' tread and with less than a 12' clearance.
g. Avoid steep grades and blind curves to the maximum extent feasible.
h. Avoid the removal of vegetation to the maximum extent feasible.
i. Avoid adverse impacts upon environmentally sensitive areas (wetlands, riparian vegetation, habitat for rare plant and animal species, archaeological sites, etc.).

Multi-Use Trail Corridors

A multi-use trail corridor is a recreational area of sufficient width which may by developed to accommodate touring/commuter bicycling, horseback riding, hiking, jogging, and all-terrain bikes. These activities should be separated sufficiently to minimize user conflicts and constructed with appropriate trail surfacing materials.

When planning multi-use trails, an important feature is the present and future "carrying capacity" of the corridor. The corridor type, i.e., narrow linear right-of-way, levees, or a wide floodplain, and the anticipated demand are features in determining the carrying capacity.

Therefore, it is recommended that the following potential recreational corridors be studied to determine their suitability for multi-use trail systems.

Chapter Five – Planning and Section B – Specific Planning Criteria

The following planning criteria were used in the establishment of recommended bikeways and should be used in all future bikeway planning:

4. Establish, where appropriate, bikeways along existing trails, levees, railroads, streams, rivers, power lines and drainage canals for both recreational and commuter bicycling.

6. Establish whenever feasible recreational bikeways in scenic and open space areas taking into account terrain, human history, and scenic resources.

8. Consider and encourage multiple use (bicycle-equestrian/hiking) trails where feasible.

Chapter Nine – Design Standards and Section C – Class I Bikeways (Bike Path)

1. Widths

The minimum paved width for a two-way bike path shall be 8 feet. The minimum paved width for a one-way bike path shall be 5 feet. A minimum 2-foot wide graded area shall be provided adjacent to the pavement. A 3-foot graded area is recommended. Where the paved width is wider than the minimum required, the graded area may be reduced accordingly; however, the graded area is a desirable feature regardless of the paved width. Development of a one-way bike path should be undertaken only after careful consideration due to the problems of enforcing one-way operation.

Where heavy bicycle volumes are anticipated and/or significant pedestrian traffic is expected, the paved width of a two-way path should be greater than 8 feet, preferably 12 feet or more (Sacramento County Standard is 12 feet wide). Dual use by pedestrians and bicycles is undesirable, and the two should be separated wherever possible. To accommodate joggers, a 4 to 6-foot unpaved shoulder should be provided. Another important factor to consider in determining the appropriate width is that bicyclists will tend to ride side by side on bike paths, necessitating more width for safe use.

Experience has shown that paved paths less than 12 feet wide sometimes break up along the edge as a result of loads from maintenance vehicles.

Where equestrians are expected, a separate facility should be provided.

Cal Trans Highway Design Manual
6th Edition
9/22/14

Chapter 1000 Bicycle Transportation Design

Topic 1002- Bikeway Facility

(2) *Class I Bikeway (Bike Path)*
Generally, bike paths should be used to serve corridors not served by streets and highways or where wide right of way exits, permitting such facilities to be constructed away from the influence of parallel streets. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity, or in some instances, can serve as direct high-speed commute routes if cross flow by motor vehicle and pedestrian conflicts can be minimized. The most common applications are along river, ocean fronts, canals, utility right of way, abandoned railroad right of way, within school campuses, or within and between parks. There may also be situation where such facilities can be provided as part of planned development. Another common application Class I facilities is to close gaps to bicycle travel caused by construction of freeways or because of the existence of natural barriers (rivers, mountains, etc.).

Topic 1003- Bikeway Design Criteria
1003.1 Class I Bikeways (Bike Paths)

Class I bikeways (bike paths) are facilities with exclusive right of way, with cross flow by vehicles minimized. Class I bikeway, unless adjacent to an adequate pedestrian facility, (See Index 1003.3(n)) are for the exclusive use of bicycle and pedestrians, therefore any facility serving pedestrians must meet accessibility requirements, see DIB 82. However, experience has shown that if regular pedestrian use is anticipated, separate facilities for pedestrians may be beneficial to minimize conflicts. Please note, sidewalks are not Class I bikeways because they are primarily intended to serve pedestrians, generally cannot meet the design standards for Class I bikeways, and do not minimize vehicle cross flow. See Index 1003.3 for discussion of the issue associated with sidewalk bikeways.

Motor vehicles are prohibited from bike paths per the CVC, These prohibitions can be reinforced by signing.

(1) Widths and Cross Slopes
The minimum paved width of travel way for a two-way bike path shall be 8 feet, 10-foot preferred. The minimum paved width for a one-way bike path shall be 5 feet. It should be assumed that bicycle paths will be used for two-way travel. Development of a one-way bike path should be undertaken only in rare situations where there is a need for only one-direction of travel. Two-way use of paths designed for one-way travel increases the risk of head-on collisions, as it is difficult to enforce one-way operation. This is not meant to apply to two one-way paths that are parallel and adjacent to each other within a wide right of way. See Index 1003.1(15) Drainage, for cross slope information.

1003.4 Trails

Trails are generally, unpaved multipurpose facilities suitable for recreational use by hikers, pedestrians, equestrians, and off-road bicyclist. While many Class I facilities are named as trails (e.g. Iron Horse Regional Trail, San Gabriel River Trial), trails as defined here do not meet Class I bikeway standards and should not be signed as bicycle paths. Where equestrians are expected, a separate equestrian trail requirements for ADA. See Index 2083.7 for equestrian undercrossing guidance.

- Pavement requirements for bicycle travel are not suitable for horses. Horses require softer surfaces to avoid leg injuries.
- Bicyclist may not be aware if the need to go slow or of the separation need when approaching or passing a horse. Horses reacting to perceived danger from predators may behave unpredictably; thus, if a bicyclist appears suddenly within their visual field, especially from behind they may bolt. To help horses not be surprised by a bicyclist, good visibility should be provided at all points on equestrian paths.
- When a corridor includes equestrian paths and Class I bikeways, the widest possible lateral separation should be provided between the two. A physical obstacle, such as an open rail fence, adjacent to the equestrian trail may be beneficial to introduce horses to shy away from the bikeway, as long as the obstacle does not block visibility between the equestrian trail and bicycle path

Figure 1003.1A

Two-Way Class I Bikeway (Bike Path)

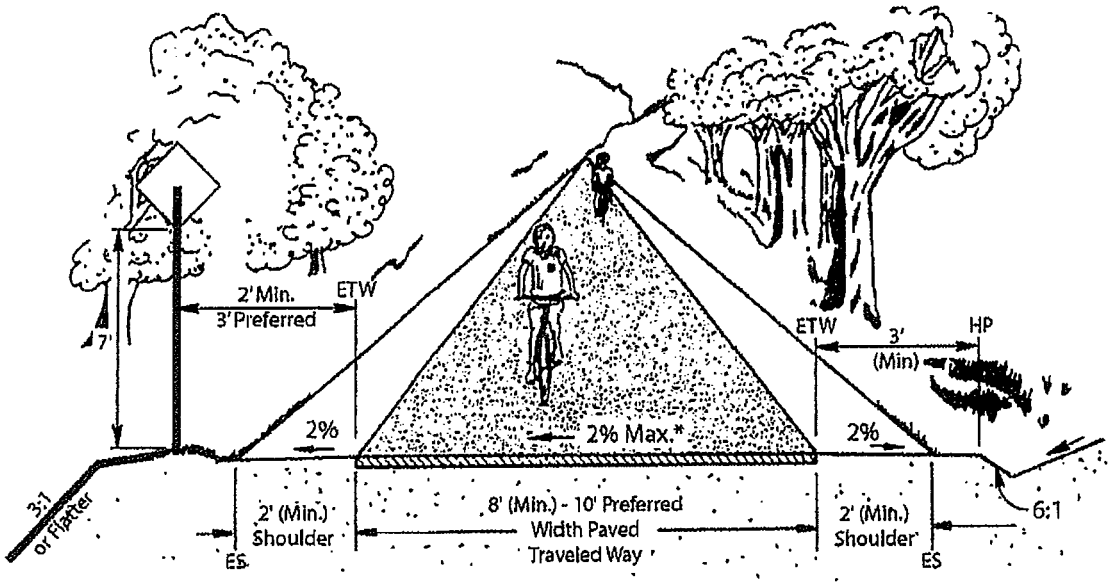


Figure Not To Scale

NOTES:

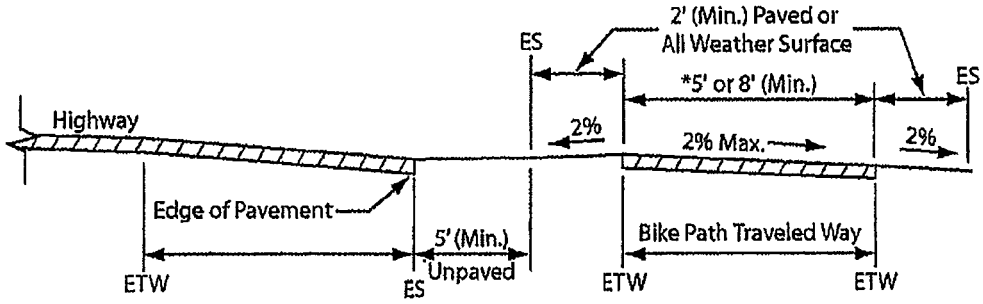
(1) See Index 1003.1(13) for pavement structure guidance of bike path.

(2) For sign clearances, see California MUTCD, Figure 9B-1.

* 1% cross-slope minimum.

Figure 1003.1B

Typical Cross Section of Class I Bikeway (Bike Path) Parallel to Highway



NOTE:

(1) See Index 1003.1(6) for guidance on separation between bike paths and highways.

* One-Way: 5' Minimum Width

Two-Way: 8' Minimum Width

County of Sacramento Improvement Standards
Section 4: Street Design

October 1, 2006

4-3 STREET TYPE AND DESIGN WIDTH

The standard approved street types and design widths for Sacramento County are as follows:

A. 20-Foot Street (Alley) - A street depressed in the center with a right-of-way and surface width of 20 feet. An alley will be accepted by Sacramento County as a public alley only when it is constructed of a minimum of 6-inch thick Portland cement concrete over a minimum of six inches of aggregate base in accordance with Standard Drawing 4-39 of these Improvement Standards.

B. 32-Foot Street (Minor Residential) - A street with a right-of-way width of 32 feet measured between the backs of the curbs.

As a standard, Minor Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Minor Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Minor Residential

streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

32-foot streets are normally used when serving fewer than 400 single-family residential units. Some duplexes may be included when the total number of duplexes represents less than ten percent of the residential units served by the street. Each duplex, for this purpose, shall be counted as two residential units.

Where a 32-foot street provides access onto an Arterial or Thoroughfare street, the street approach shall conform to the standard for a 38-foot street. The 38-foot street approach shall be provided for a distance of 100 feet from the cross street right-of-way line along with a 40-foot taper to transition to the standard 32-foot street.

C. 38-Foot Street (Primary Residential) - A street with a right-of-way width of 38 feet measured between the backs of the curbs.

As a standard Primary Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Primary Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Primary Residential streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

38-foot streets are normally used for serving 400 or more, but less than 700, single family residential units, and for serving duplex developments. A 38-foot street cross-section shall be used as the approach width for 32-foot streets that provide access onto Arterial and Thoroughfare streets.

Where a 38-foot street provides access onto an Arterial or a Thoroughfare street and where left turn movements are allowed for traffic traveling from the smaller street onto the Arterial or Thoroughfare street, the street approach shall conform to the standard for a 48-foot street. The 48-foot street approach shall be provided for a distance of 150 feet from the cross street right-of-way line with an additional 100-foot long taper to transition to the standard 38-foot street.

D. 48-Foot Street (Collector) - A street with a right-of-way width of 48 feet measured between the backs of the curbs. The street shall have five foot

wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Collector streets are typically striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

A 48-foot street approach shall be used as the approach width for 38-foot streets that provide access onto Arterial and Thoroughfare streets. 48-foot streets are used when serving 700 or more residential units, commercial, industrial, and multiple family developments, and are used in the vicinity of parks, schools and other public facilities in residential areas. Where 48-foot streets provide access onto Arterial and Thoroughfare streets, the street approach shall conform to the standard for a 60-foot street. See Standard Drawing 4-9.

E. 60-Foot Street (Major Collector) - A street with a right-of-way width of 60 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Major Collector streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Major Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

60-foot streets may be required in residential or industrial developments when warranted to provide a continuous 12-foot wide center turn lane or a 12-foot wide raised landscaped median. If a raised landscaped median is used on a Major Collector street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

A 60-foot street cross-section shall also be used as the approach width for 48-foot streets that provide access onto Arterial and Thoroughfare streets. See Standard Drawings 4-9.

F. 74-Foot Street (Arterial) - A street with a right-of-way width of 74 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Arterial streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-10 and 4-11.

74-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-6, 4-7, 4-8, 4-10, 4-11 and 4-12 for intersection widening geometry.

If a raised landscaped median is used on an Arterial street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

G. 96-Foot Street (Thoroughfare) - A street with a right-of-way width of 96 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-3. Thoroughfare streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-13 and 4-14.

96-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-8, 4-9, 4-12, 4-13 and 4-14 for intersection widening geometry.

H. Major Street Design

1. Raised Medians:

96-foot streets (Thoroughfares) shall have a solid non-traversable landscaped median between cross street intersections. 74-foot streets (Arterials) shall have a solid non-traversable landscaped median between cross street intersections when a continuous center turning lane is not required by the Director of Transportation or specified by the development's conditions of approval. The standard width for such medians is twelve feet, measured from top front of median curbing, eleven feet between the backs of median curbs. Median areas that are five feet wide or wider for a distance of thirty feet or more shall include landscaping and irrigation facilities. Landscaping and irrigation facilities shall conform to County's water conservation ordinance and meet the approval of the Director of Transportation.

Decorative hardscape treatment shall be installed in median areas less than five feet in width and along the back of curbing in landscaped portions of the median. The design, color, appearance, and associated construction details for decorative median hardscape treatment shall meet the approval of the Director of Transportation.

Raised medians may also be constructed on 60-foot streets (Major Collectors) where specified by a development's conditions of approval,

where desired by a developer, or where required by the Director of Transportation.

2. Median Openings on Major Streets:

   Median openings on Arterial and Thoroughfare streets shall be allowed at locations approved by the Director of Transportation and in conformance with the following:

   - Median breaks that allow for left turn movements from side streets or driveways shall be allowed only at signalized intersections. The minimum spacing between signalized intersections is 1,200 feet.

   - All proposed median breaks shall be analyzed by a traffic study prepared by a qualified Traffic Engineer hired by the Developer. Should the traffic study indicate that traffic signal warrants are met in the cumulative condition, the median break shall be located a minimum of 1,200 feet from the nearest signalized intersection and a minimum of 650 feet from the nearest unsignalized median break.

   - Unsignalized median breaks on Arterial or Thoroughfare streets that allow only left turn movements into side streets or driveways may be allowed if all of the follow criteria are met:

     - The Development generates a minimum of 350 peak hour vehicular trips or 3,500 daily trips.

     - Spacing between median breaks shall provide a minimum of 150 feet of full width landscaped median.

     - Median breaks shall be a minimum of 650 feet apart and a minimum of 650 feet from any existing intersection or median break. The spacing is measured along the roadway centerline from the location of the ends of the continuous median between the existing and proposed median breaks.

     - A traffic study shows that the proposed location for a median break does not meet traffic signal warrants for the fully developed (cumulative) condition.

     - Should the median break provide left turn access that could conflict with through traffic on the street that is approaching a signalized intersection within 1,200 feet of the proposed median break, a traffic study shall include queuing, safety, and operational analysis of the proposed left movement turn in both existing and cumulative conditions. The traffic study

must show that both the existing and cumulative condition peak hour queues at the traffic signal will not extend to the location of the proposed median break such that there will be no conflict of the proposed left turning movement with the traffic queue from the neighboring traffic signal.

- Greater consideration will be given to median breaks that provide for joint access to adjacent parcels. If joint access cannot be accomplished then the County reserves the right to require a dedication of a cross access easement between adjacent properties in order to consolidate future driveways.

3. Emergency Vehicle Crossings of Raised Medians:

Emergency vehicle median crossings shall be constructed on all streets with raised medians that that exceed 1,000 feet in length between median breaks. For the purpose of determining the need for emergency vehicle median crossings, median breaks shall only be those interruptions in median construction at intersections that allow all through and turning movements. Channelized median openings that restrict some traffic movements (such as those shown on drawing 4-17) shall not be considered median breaks for the purpose of locating emergency vehicle median crossings. For medians that exceed one thousand feet in length between median breaks but are less than two thousand feet long, emergency vehicle median crossings shall be located approximately in the middle of the length of the median. For longer medians, multiple emergency median crossings shall be installed such that the maximum spacing between median breaks and emergency crossings, or between adjacent median crossings, does not exceed one thousand feet.

Emergency vehicle median crossings shall be located a minimum of fifty feet clear distance from any existing or planned side street or major driveway. Emergency median crossings shall be twenty-five feet in length and extend across the full width of the median. Mountable curbing (modified type 1A curb shape extending six inches below pavement surface elevation but without the gutter section) shall be placed on both sides of the median for the twenty-five foot length of the emergency median crossing with five foot long curb transitions to match standard median curbing beyond the limits of the emergency median crossing. Expansion joints shall be placed through the curb at each side of the emergency vehicle crossing. Hardscape paving of the median in the area of the emergency vehicle median crossing shall consist of eight inch thick P.C.C. on six inches of aggregate base. The hardscape median paving shall have integral color and a stamped pattern to match

median hardscape appearance at other adjoining median locations along the roadway or as approved by the Director of Transportation.

4. Design of Streets and Driveways Intersecting with Major Streets:

   Where intersecting with 74-foot or wider streets, Minor Residential streets shall have a minimum right-of-way width of 38 feet. Where intersecting with 74-foot or wider streets, Primary Residential streets that only have right turn movements onto the larger street shall have a minimum right-of-way width of 38 feet. Street intersections with right turns only onto 74-foot or wider streets should be no closer than 450 feet from each other or from the nearest cross street intersections. Major driveways which will serve significant traffic volume, as determined by the Director of Transportation, shall be considered as intersecting streets and shall be no closer than 450 feet from each other or from cross street intersections. Driveways should be located as far apart as practical with a minimum of 150 feet between driveways or from driveways to intersections. Major driveways that will be signalized shall be designed in accordance with public street intersection standards and shall not have concrete valley gutters.

   Pavement widening shall be required where private lanes and where Class C or Class D streets (see Section 4-5) intersect with 74-foot and 96-foot streets in accordance with Standard Drawing 4-41. Major driveways serving significant traffic or truck volumes, and as determined by the Director, shall be considered as intersecting streets with regard to pavement widening on Class C streets.

5. Intersection Widening on Major Streets:

   Intersection widening shall be in accordance with Standard Drawings 4-6 through 4-14 and the requirements in these Special Provisions. The transition lengths associated with intersection widening shall be longer than as indicated on the above listed standard drawings on roadways with a curving centerline so as to accommodate the safe travel of vehicles through the transition area at the design speed of the roadway.

6. Roadway Widening for U-Turns on Streets with Raised Medians:

   All Arterial and Thoroughfare streets shall be required to accommodate "U" turns at all traffic signals and at locations of breaks in raised medians that allow for left-turn movements from roadway with raised medians. A minimum outside clear path of 44 feet of pavement shall be required. This requirement also applies to Major Collector streets that have raised medians.

I. Frontage Road - A street located parallel to and abutting a major roadway or freeway which provides service to abutting properties for which direct access to the major roadway or freeway is prohibited or undesirable. Frontage roads adjacent to State freeways shall conform to the full width standards for 50-foot streets, as shown on Standard Drawing 4-3, unless designated as an Arterial or Thoroughfare street on the County's General Plan. All other frontage roads shall have a 28-foot paved surface with a Type 5 vertical curb on the undeveloped side and curb and gutter and a minimum 5-foot sidewalk with an 8 foot landscaped buffer on the developed side (See Standard Drawing 4-3).

J. School Frontage – Along the roadway frontage of any school development on Arterial or Thoroughfare streets an additional eight feet of roadway and right-of-way, beyond that shown for standard Arterial and Thoroughfare streets, shall be provided. The additional area shall allow for six feet of roadway width adjacent to the gutter section for on-street pick up and drop off of students along the school's roadway frontage plus two feet of clear area between the on-street parking area and the adjoining bicycle lane.

K. Other Street Designs – Class C street improvements vary in width and are used as interim improvements for roadways sections not yet improved by adjacent development or in rural areas where Class A or Class D improvements are not required. See Standard Drawing 4-4. Class D street improvements also vary in width and are used in certain portions of rural areas within the County's Urban Services Boundary. Class D streets provide enhanced pedestrian facilities over that of Class C streets. See Standard Drawing 4-5. See Section 4-5 for more information on the use of the various classes of street improvements.

County of Sacramento Standard Construction Specifications
Section 6: Legal Relations and Responsibilities
Revised January 2008

County of Sacramento
Municipal Services Agency

Paul Hahn, Administrator

STANDARD CONSTRUCTION SPECIFICATIONS

September 2001
Revised March 2004
Revised January 2008

employees and the public from ATD exposure in and around facilities owned and operated by the Agency.

6-11.10 Mining and Tunnel Safety

The Contractor must be aware of any Work that may be under the jurisdiction of either the Tunneling Safety Orders (TSO), California Code of Regulations, Title 8, Sections 8400 through 8568 or the Mine Safety Orders (MSO), California Code of Regulations, Title 8, Sections 6950 through 7283. It is the Contractor's responsibility to apply for and obtain any permits and licenses and to comply with all applicable laws and regulations.

6-12 PUBLIC CONVENIENCE AND SAFETY

6-12.01 Public Convenience

All work within public streets and/or roadway rights-of-way shall be done in an expeditious manner and cause as little inconvenience to the traveling public as possible. Vehicles, bicycles, and pedestrians must be allowed to pass at all times except during an emergency closure. See Section 7-8, "Peak Hours, Hours of Darkness, Holidays and Weekends", of these Specifications for time limitations. See Section 7-8, "Emergency Repairs", for the criteria of what constitutes an emergency.

The surface of roadways open to the public shall be kept in a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic at all times as determined by the Agency.

Temporary facilities used by the Contractor to perform the Work or store or stage material or equipment shall not be installed or placed where they will interfere with the free and safe passage of public vehicular, bicycle, or pedestrian traffic.

6-12.02 Pedestrian and Bicyclist Access

The Contractor shall not block the movement of pedestrian or bicycle traffic. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations and/or by providing alternative pedestrian and bicyclist access through or adjacent to construction areas. Proper advance notice signage with reasonable detours shall be installed and maintained through all phases of construction. Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. At no time shall pedestrians be diverted into a portion of the street used for vehicular traffic or on to private property unless proper barriers, delineation, and adequate signage is in place. Pedestrian and bicycle access shall consist of five-foot (5') wide bridges across trenches and five-foot (5') wide passageways through construction areas. Hand railings for pedestrians shall be provided when required by Cal/OSHA Regulations or the Americans with Disabilities Act (ADA) on each side of each bridge or passageway to protect pedestrians from hazards caused by construction operations or adjacent vehicular traffic.

Railings or barriers, which border passageways located in roadway areas, shall be retro-reflectorized on the side facing oncoming traffic.

6-12.02.A Pedestrians (Temporary Alternate Circulation Path)

When crosswalk or other pedestrian facilities are temporarily closed or relocated, temporary alternate circulation paths are required to be provided by the Contractor to achieve the maximum accessibility feasible under existing conditions.

6-12.02.A(1) Components

A Temporary Alternate Circulation Path (hereafter referred to as "path" or "pathway") shall consist of one or more of the following components: walkways, ramps, curb ramps (excluding flared sides) and landings, blended transitions, crosswalks, and pedestrian overpasses and underpasses. Elevators, platform lifts, stairways and escalators shall not be part of a path. All components of a path shall comply with the applicable portions of these Specifications.

6-12.02.A(2) Continuous Width

Unless otherwise approved by the Agency, the minimum continuous and unobstructed clear width of a path shall be five feet (5'), exclusive of the width of the pedestrian barricades and channelizing devices. If the alignment of the temporary path does not allow for a minimum continuous and unobstructed clear width of five feet (5'), the width may be reduced to four feet (4') upon the written approval of the Agency. Where a path turns or changes direction, it shall accommodate the continuous passage of a wheelchair or scooter. As with street or highway design for vehicles, additional maneuvering width or length may be needed along curved or angled routings, particularly where the grade exceeds five percent (5%). Individual segments of paths shall have a minimum straight length of four feet (4').

California Code of Regulations, Title 24, Part 2, Chapter 11B, Section 1133B.8.6, and Americans with Disabilities Act Accessibility Guidelines (ADAAG) 4.4 "Provisions for Protruding Objects" apply across the entire width of the path.

6-12.02.A(3) Width at Passing Spaces

Paths that are less than five feet (5') in clear width shall provide passing spaces at intervals of two hundred feet (200') maximum. Paths at passing spaces shall be five feet (5') wide for a distance of five feet (5').

6-12.02.A(4) Walkway Grade and Cross Slope

Unless otherwise approved by the Agency, the pathway surface shall be level and navigable and shall not have a slope greater than twelve to one (12:1) or a cross slope greater than two percent (2%). Where the walkway of a pedestrian access route is contained within a street or highway border, its grade shall not exceed the general grade established for the adjacent street or highway.

6-12.02.A(5) Surface

Unless otherwise approved by the Agency there shall be no surface discontinuities. Additionally, the installation of gratings in the surface of the pathway is not acceptable. All non-slip surfaces shall have a surface static coefficient of friction of 0.50 per ASTM C 1028.

The surface of the path shall be firm, stable, and slip resistant. The pathway shall be constructed of concrete, asphalt, non-slip plywood or non-slip steel plate. Non-slip plywood used for a walkway surface shall have a minimum thickness of one and one-eighth inch (1-1/8") and shall be thoroughly supported to provide a firm stable surface. Compacted soil or aggregate base material is not considered an acceptable surface.

Surface discontinuities shall not exceed one-half inch (½") maximum. Changes in level up to one-quarter inch (¼") may be vertical and without edge treatment. Vertical discontinuities between one-quarter inch (¼") and one-half inch (½") maximum shall be beveled at one to two (1:2) minimum. The bevel shall be applied across the entire level change. Changes in level greater than one-half inch (½") shall be accomplished by means of a ramp that complies with California Code of Regulations, Title 24, Part 2, Chapter 11B, Section 1127B.5 and ADAAG 4.7.

6-12.02.A(6) Location

Sidewalks at the construction location may be closed with adequate detours. Detours shall not increase the path of travel by more than five hundred feet (500'). Detour routes shall be limited to existing sidewalks, private properties (see above requirements) and crossings at roadway intersections. To the maximum extent feasible, the alternate circulation path shall be provided on the same side of the street as the disrupted route. Where it is feasible to provide a same-side alternate circulation path and pedestrians will be detoured, Section 6D.02 of the current California Manual on Uniform Traffic Control Devices (CA/MUTCD) specifies that the alternate path provide a similar level of accessibility to that of the existing disrupted route. This may require the installation of temporary accessible pedestrian signals (APS), curb ramps, or other accessibility features.

Pedestrians may be detoured onto private property only if written permission from the property owner is obtained along with documentation indicating that the County would not be liable in the event of an accident.

6-12.02.A(7) Protection

Where the temporary alternate circulation path is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a pedestrian barricades, channelizing devices, concrete barriers, or other TTB devices necessary to provide clear guidance for pedestrians.

When it is necessary to block travel at the departure curb to close a crosswalk that is disrupted by excavation, construction, or construction activity, care must be taken to preserve curb ramp access to the perpendicular crosswalk. This may require additional pedestrian channelization if only a single diagonal curb ramp serves the corner.

Figures 6H-28 and 6H-29 of the CA/MUTCD specify notification signage for pedestrian closings and detours. Audible signage triggered by proximity switches should be used whenever possible to provide information to pedestrians who are unable to properly see print signs, such as the blind and visually impaired.

Pedestrians routed into normal bicycle or automobile traffic lanes must be protected from traffic via pedestrian barricades channelizing devices, concrete barriers, or other TTB devices that are continuous, immovable, stable, rigid, and visible and free of splintered, jagged, and sharp surfaces/edges. Caution tapes, cones, drums, sawhorses, and A-frames are not considered effective substitutions for this purpose.

Pedestrians routed onto the roadway shoulder at locations not normally traveled by bicycles or locations where bicycle traffic has been relocated must be protected with a continuous, immovable, stable, rigid, and visible barrier that is free of splintered, jagged, and sharp surfaces/edges. Pedestrian barricades and channelizing devices shall consist of a wall, fence, or enclosures specified in section 6F-58, 6F-63, and 6F-66 of the CA/MUTCD. Caution tape, cones, drums, sawhorses, and A-frames are not allowed for this purpose. Barriers shall have a bottom or lower continuous rail two-inches by six-inches (2"x6") secured in a vertical orientation and a two-inch by six-inch (2"x6") minimum upper rail at least thirty-six inches (36") above the ground or walkway surface. Barrier support members shall not protrude beyond the barricade face into the pedestrian access route or alternate circulation path.

The pathways shall be well marked with retroreflective materials to assist both visually impaired pedestrians and vehicles traveling at times when visibility may be limited. The retroreflective materials shall be color yellow conforming to Federal Color No. 33538, as shown in Table IV of Federal Standard No. 595B, "Colors Used in Government Procurement".

During working hours, at least one worker shall be assigned the responsibility to escort elderly, disabled or any other pedestrians in need of assistance through and/or around the construction site. The worker assigned this responsibility may also participate in other construction activities; however, the assigned worker shall be aware of his or her primary responsibilities for providing this assistance.

6-12.02.A(8) Lighting

The pathway is to be continuously and uniformly illuminated at all times. When existing artificial lighting does not continuously and uniformly illuminate the path or there is no artificial lighting, there shall be temporary lights installed. Minimum illumination shall be ten (10) foot candles. The Contractor shall employ means to distinguish the path from its surroundings. Factors such as shadows cast by lighting sources, surface reflectance, and the uniformity of the color and texture of the materials making up the walking surface must be considered.

6-12.02.A(9) Holes in the Permanent Path of Travel

When there is a hole or opening, e.g. manhole cover, within the permanent pathway of travel, there shall be a continuous, immovable, stable, rigid, and visible pedestrian barrier surrounding the boundary of the opening that is free of splintered, jagged, and sharp

surfaces/edges. Unless otherwise approved by the Agency, there shall be a five-foot (5') clear pathway around the pedestrian barrier. The pedestrian barrier/pathway must also meet all requirements as listed above.

6-12.03 Written Notification To Residences and Businesses

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least ten (10) Working Days prior to road closures and at least three (3) Working Days prior to disruption of ingress and egress. The notice provided to the residences or businesses shall include, at a minimum, schedule of closures with estimated closure times, closure location, alternate route or detour, and name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least three (3) Working Days prior to placing parking restrictions within the County right-of-way. The notice provided to the residences or businesses shall include, at a minimum, schedule of parking restrictions with estimated times, location, and a name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

6-12.04 Access To Driveways, Houses and Buildings

Access and passable grades shall be maintained at all times for business establishments during construction. Safe and passable pedestrian, bicyclist, and vehicular access shall be provided and maintained to fire hydrants, homes, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals, and establishments of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved. Ramps and driveways shall not have "lips" or elevation differences greater than three-eighths of an inch (3/8") or one (1) cm.

When abutting property owner's access across the right-of-way line is to be eliminated, repaired, or replaced under the Contract, the existing access shall not be closed until the replacement access facilities are completed and functional.

6-12.05 Property Damage

Any property damage caused by the Contractor shall be repaired at the Contractor's expense to the satisfaction of the Agency.

6-12.06 Erection of Signs To Facilitate Passage of Vehicles

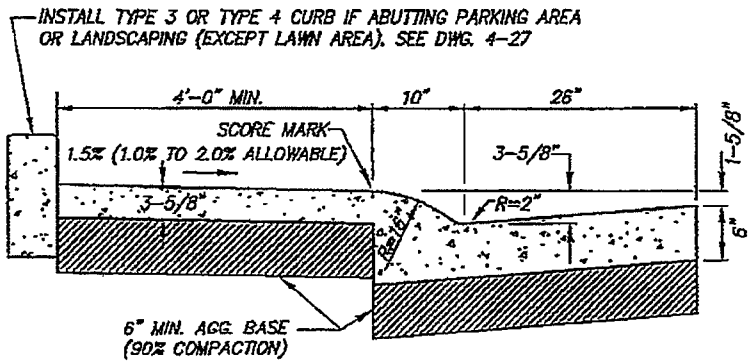
The Contractor shall erect such warning and directional signs as necessary or as directed by the Agency for facilitating the passage of public traffic through or around the Work and the approaches. All warning and directional signs shall comply with Section 6-13, "Public Safety and Traffic Control", in this Section of these Specifications; Section 12, "Construction Area Traffic Control", of these Specifications; and the California Manual of Uniform Traffic Control Devices (CA/MUTCD).

6-12.07 Traffic Obstructions, Delays and Inconveniences

All public traffic shall be permitted to pass through the Work and the Contractor shall conduct operations that offer the least possible obstruction, delay, and inconvenience to the public, except where authorized by the Agency or in an emergency situation where access may endanger the public. See Section 7-8 Emergency Repairs for criteria on what constitutes an emergency.

6-12.08 Work On Private Property

The Contractor must obtain written permission from the owner of any privately owned property prior to beginning any work, storing materials or otherwise conducting any operations on said property. The written approval from the property owner must be on file with the Agency before any operations will be permitted on said property.



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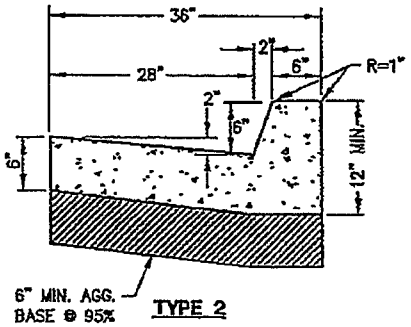

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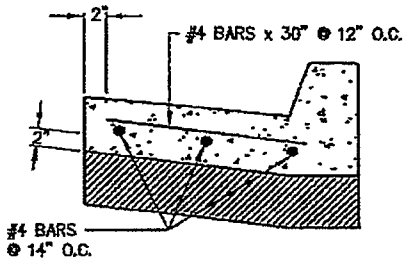

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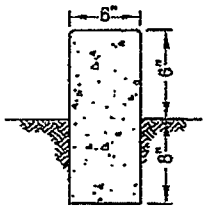

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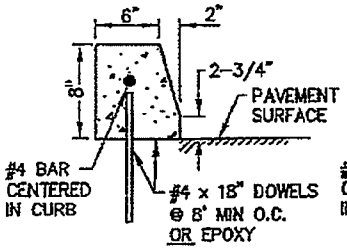

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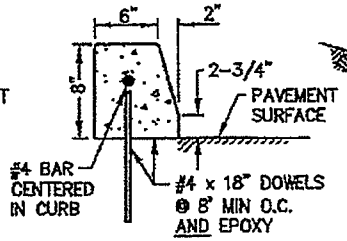

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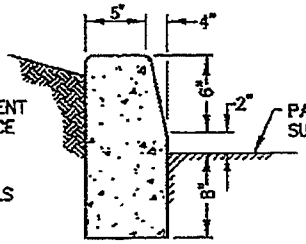

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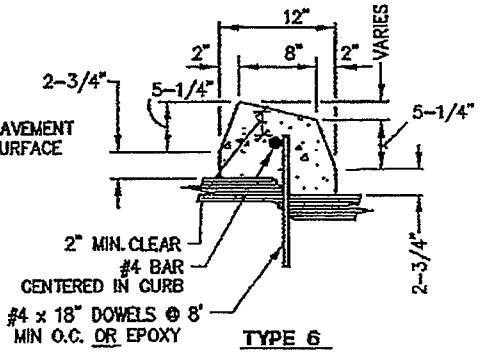
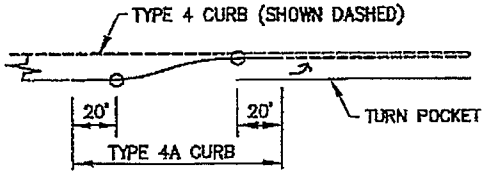


TYPE 6

NOTES:

SEE SECTION 27-3.01 OF STANDARD CONSTRUCTION SPECIFICATIONS FOR REQUIREMENT FOR EXPANSION JOINTS, WEAKENED PLANE JOINTS AND SCORE MARKS. 1/2" RADIUS ON EXPOSED EDGES UNLESS NOTED OTHERWISE.



PLAN FOR TYPICAL PLACEMENT OF TYPE 4A CURB

CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

TYPICAL CURB & GUTTER SECTIONS

SCALE: NONE
DATE: 11/06/2007
DRAWN BY: TRU P.

4-25

Aspen VIII and Aspen IX Mining Project

Air Quality and Greenhouse Gas Study

PREPARED FOR:

Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864

April 8, 2016

Aspen VIII and Aspen IX Mining Project

Air Quality and Greenhouse Gas Study

PREPARED FOR

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April 8, 2016

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ACRONYMS/ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
ARB	California Air Resources Board
BACT	Best Available Control Technology
BMPs	Best Management Practices
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CCAA	California Clean Air Act
CEC	California Energy Commission
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Delta	Sacramento River–San Joaquin River Delta
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
HAP	hazardous air pollutants
IPCC	Intergovernmental Panel on Climate Change
km	kilometers
lb/day	pounds per day
MMT	million metric tons
MT	metric tons
NAAQS	national ambient air quality standards
NESHAP	national emissions standards for HAPs
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen

OEHHA	Office of Environmental Health Hazard Assessment
ozone	photochemical smog
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
ppb	parts per billion
ppm	parts per million
PSD	New Source Review Prevention of Significant Deterioration
ROG	reactive organic gases
SIP	State Implementation Plan
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SVAB	Sacramento Valley Air Basin
TAC	toxic air contaminant
Teichert	Teichert Aggregates
WRCC	Western Regional Climate Center

1 INTRODUCTION

Teichert Aggregates (Teichert) is seeking approval from Sacramento County to commence aggregate mining on 363 acres within its Aspen VIII and Aspen IX properties, located in the unincorporated portion of Sacramento County. Teichert is requesting that the County approve conditional use permits and reclamation plans for both Aspen VIII and Aspen IX, amend the General Plan designation (aggregate resource overlay) for both properties to allow mining followed by future development, and rezone both properties to include a Surface Mining overlay zone.

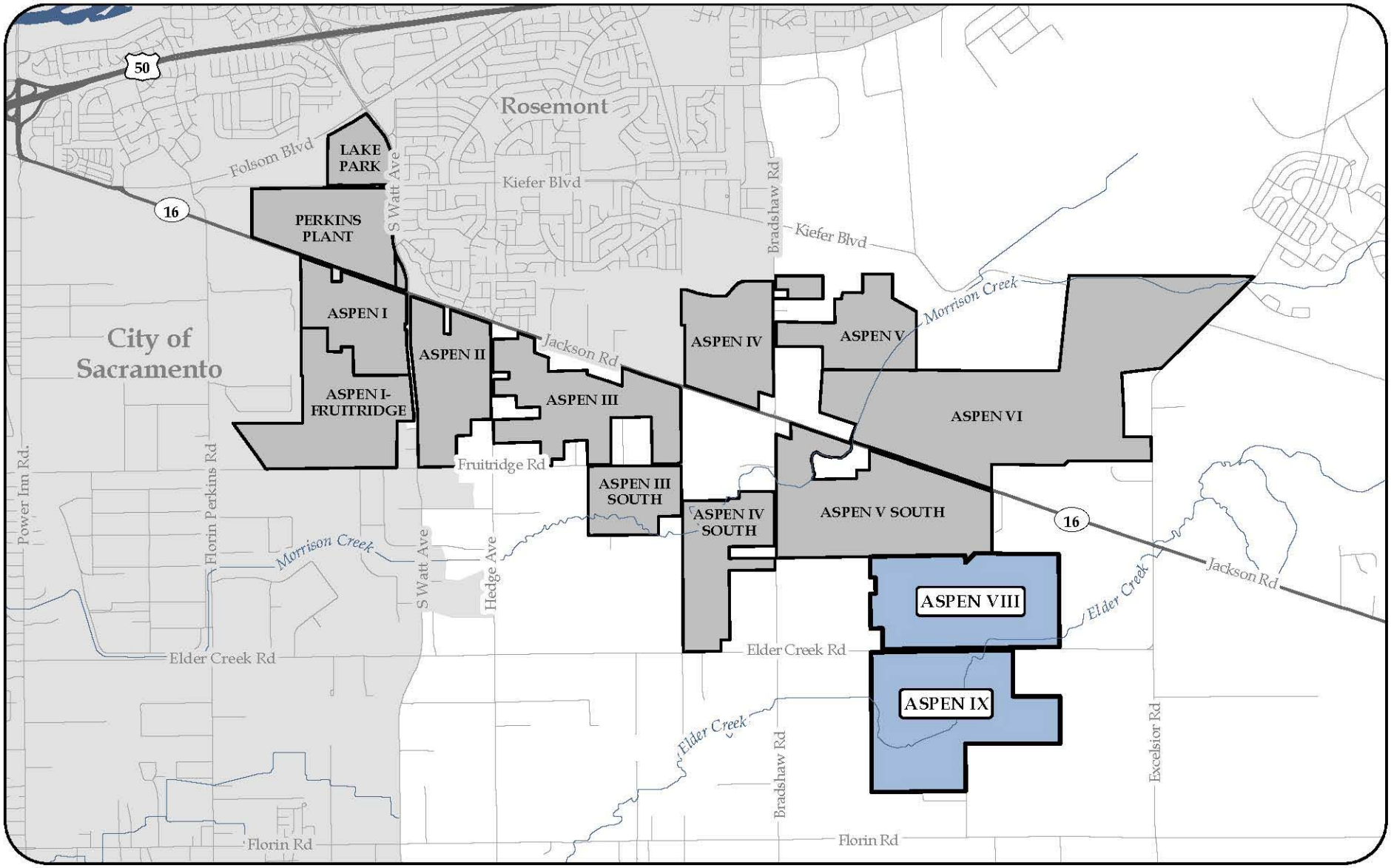
The proposed project is a continuation of mining on Teichert "Aspen" properties that began in the 1950s and has continued uninterrupted since that time. During most economic conditions, the Sacramento region experiences a high demand for aggregate products due to extensive housing needs and local infrastructure needs. Aspen VIII and Aspen IX are two local sources of construction aggregate to support the regional need. The sites contain a large quantity of aggregate base, construction aggregate (used in concrete) and mineral aggregate (used in asphalt).

This Study includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential air quality impacts caused by the project. Mitigation measures are recommended as necessary to reduce significant air quality impacts to the extent feasible.

The Study also includes an estimate and analysis of greenhouse gases (GHGs) associated with the project. Emissions of GHGs adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The proper context for addressing this issue in CEQA documents is as a discussion of cumulative impacts, because although the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world have a cumulative impact with respect to global climate change. In turn, there is scientific consensus that global climate change will result in rising sea levels, which can inundate low-lying areas; affect rainfall and snowfall, leading to changes in water supply; affect habitat, leading to adverse effects on biological resources; and result in other adverse environmental and economic effects.

2 PROJECT DESCRIPTION

The proposed project is located within Sacramento County, east of the City of Sacramento limits and immediately south of Jackson Highway and approximately one half mile east of Bradshaw Road. Elder Creek Road transects the center of the project site, with Aspen VIII (APNs 063-0180-005, -006 and 063-0160-001) to the north and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) to the south. The site, including both Aspen VIII and Aspen IX properties, encompasses a total of 683 acres. Aspen VIII is located immediately north of Elder Creek Road, south of Teichert's Aspen V South property and approximately one-half mile east of Bradshaw Road. Aspen IX is located south of Elder Creek Road and the Aspen VIII property. The sites are located in close proximity to Teichert's Perkins aggregate processing facility (Plant), enabling the mined aggregate material to be transported via a conveyor belt system to Teichert's Perkins Plant, which is located on Jackson Road between Florins Perkins Road and Watt Avenue. Exhibit 1 shows the location for the Aspen VIII and Aspen IX proposed project. Exhibit 2 shows the proposed mining boundary and buffers. Access to each site will be from Elder Creek Road.



TEICHERT AGGREGATES

LEGEND:

- Teichert Aggregates Aspen VIII & IX Property Boundaries
- Teichert Aggregates Aspen Property Boundaries

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

0 2,000 4,000 Feet

Exhibit 1
Location for the Aspen VIII and Aspen IX Proposed Project

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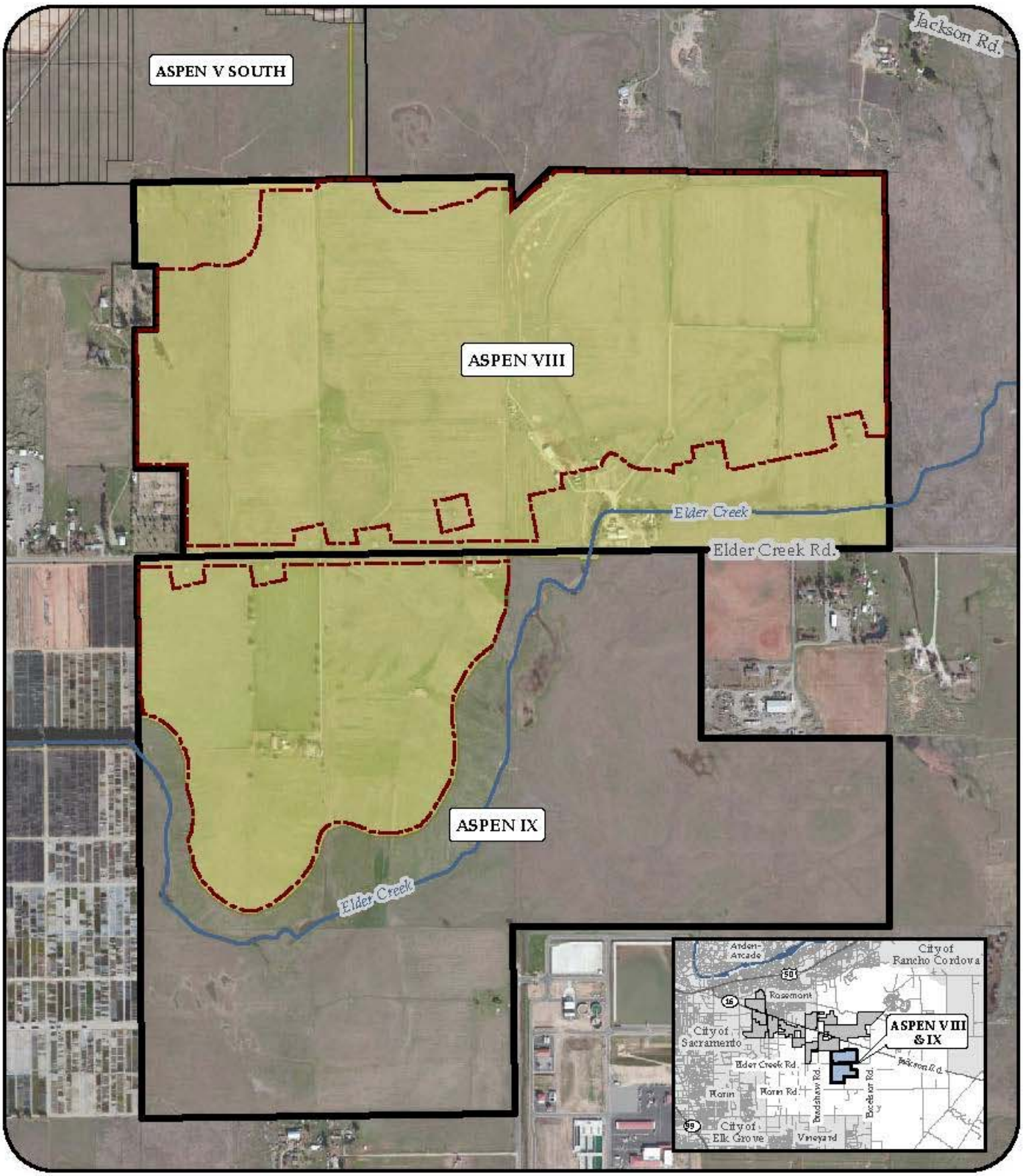

TEICHERT AGGREGATES

LEGEND:

- Elder Creek
- Proposed Mining Boundary
- Project Boundary
- Aspen VIII & IX Property Boundaries
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Exhibit 2
Proposed Mining Boundary and Buffers

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2.1 PROJECT SITE

The Aspen VIII and Aspen IX properties consist of 683 acres of land, including the Elder Creek right of way, which has been utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Neither site contains prime agricultural land. There are also ranch houses and associated outbuildings on the sites. Land uses surrounding the sites include rural residential, agricultural cropland, rangeland, annual grassland, a nursery facility, Arlington Memorial Cemetery, and Bellevue Cemetery. Additionally, the Sacramento County Vineyard Surface Water Treatment Plant is located on the south side of Aspen IX, bound by Knox Road to the west and Florin Road to the south.

Moderate rolling hills and extensive flatlands characterize the topography of the site and the surrounding area. Slopes are dominantly convex and incised by many shallow drainage ways and depressions. Elevation ranges from 60 to 85 feet above mean sea level. The hydrologic regime onsite is dominated by seasonal precipitation and storm water runoff, primarily between November and March.

2.2 DESCRIPTION OF PROPOSED PROJECT

The proposed project will consist of aggregate removal and conveyance, as well as reclaiming the sites for agricultural grazing. Each of these elements is discussed in greater detail below.

2.2.1 Proposed Mining Operations

Aggregate mining operations will commence with the removal of approximately 5-10 feet of topsoil/clay/silt overburden that overlies the sand and gravel comprising the aggregate deposit. The topsoil and other overburden will be used to phase reclamation as soon as can be accommodated by the mining schedule, as discussed below. Topsoil that can be utilized immediately for reclamation will be stockpiled in an area where it will not be disturbed until needed for reclamation. In the event excess topsoil or other overburden is available, Teichert is proposing the potential transfer of a maximum of 500,000 cubic yards of this overburden material using off-road trucks to the adjacent Aspen V site where it would be used for mine reclamation.

When the topsoil and overburden are removed, and the sand and gravel is exposed, extraction of the aggregate resource begins. The deposit, which may vary in thickness from 20 to 35 feet, will then be mined with a variety of heavy equipment (loaders, bulldozer, scrapers, excavator) and transported to Teichert's Perkins processing plant via an electric conveyor system. The main conveyor system presently extends from Teichert's Aspen V South site to Perkins Plant, located on the south side of Jackson Highway east of Bradshaw Road, a distance of about 6 miles. The existing conveyor will be extended from the Aspen V South main line onto Aspen VIII. The conveyor system will connect to Aspen IX by an undercrossing at Elder Creek Road. No processing of materials would occur onsite and no new stationary sources are proposed.

Teichert intends to begin mining operations on Aspen VIII and generally proceed south onto Aspen IX. Teichert proposes to mine between 1 million – 3 million tons of material per year depending on market conditions at the time of mining.

At Teichert's Perkins processing facility, the aggregate is sorted, crushed and washed before being sold or used at the processing facility. The silt-like material from washing the aggregate may be transported in a slurry using existing PVC pipelines located under and alongside the conveyor, and placed in accumulation areas, called drying beds. This will eventually help raise the pit floor after mining. Utilizing drying beds will be included in the use permit and as a component of the reclamation process, and the location will be depicted on the site's approved reclamation plan.

2.2.2 Reclamation

Teichert will reclaim mined out areas in compliance with the State Surface Mining and Reclamation Act. The term "reclamation" refers to the restoration of a mined site to a usable condition that is readily adaptable for other subsequent land uses. The majority of the mined areas on Aspen VIII and Aspen IX will be reclaimed for agricultural uses. To accomplish this, topsoil and overburden will be placed and graded in specified areas to provide a suitable growing medium for the establishment of protective vegetative cover and viable agricultural crops. All salvageable topsoil suitable for revegetation will be removed as a separate layer from areas to be disturbed by mining. Topsoil and vegetation removal will not precede surface mining activities by more than one year; the topsoil and other overburden will be used to phase reclamation as soon as can be accommodated by the mining schedule. Topsoil that cannot be utilized immediately for reclamation will be stockpiled in an area where it will not be disturbed until needed for reclamation. If storage is necessary, stockpiles will be seeded to control erosion and the loss of biological components. Topsoil will be redistributed in such a manner that places it on top of the reclaimed surface in a stable form and uniform thickness.

In order to help achieve the reclamation objectives set forth above, Teichert seeks the ability to use "drying beds" as part of the reclamation process for those properties. The "drying beds" method involves the accumulation of a silt-like material obtained from washing aggregate at its processing facilities (located offsite) and the subsequent placement of this material on mined out areas in order to raise the mined floor closer to original adjacent grade.

3 REGULATORY BACKGROUND

Air quality within the project area is regulated through the efforts of various federal, State, regional and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of other programs. The agencies responsible for improving the air quality within the air basin are discussed below.

3.1 FEDERAL

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

3.1.1 Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 1, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area.

If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 1 Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
Ozone	1-hour	0.09 ppm (180 µg/m³)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m³)	0.070 ppm (147 µg/m³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m³)	9 ppm (10 mg/m³)	
Nitrogen dioxide (NO_2) [g]	Annual arithmetic mean	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)	–
	3-hour	–	–	0.5 ppm (1300 µg/m³)
	1-hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m³	–	Same as primary standard
	24-hour	50 µg/m³	150 µg/m³	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
	24-hour	–	35 µg/m³	Same as primary standard
Lead [g]	Calendar quarter	–	1.5 µg/m³ (for certain areas)	Same as primary standard
	30-Day average	1.5 µg/m³	–	–
	Rolling 3-Month Average	–	0.15 µg/m³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m³)	No national standards	
Sulfates	24-hour	25 µg/m³		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

[a] California standards for ozone, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was issued. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board 2015

3.1.2 Toxic Air Contaminants/Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs), or in federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established (Table 1) Instead, EPA and, in California, the California Air Resources Board (ARB) regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. (See the discussion of TACs in Section 3.2.2 under the "State" section below for a description of ARB's efforts.) These in conjunction with additional rules set forth by the Sacramento Metropolitan Air Quality Management District (SMAQMD), the primary agency in charge of air quality in the project area, described below under "Sacramento Metropolitan Air Quality Management District," in Section 3.3 establish the regulatory framework for TACs.

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP for major sources may differ from that for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year of any HAP or more than 25 tons per year of any combination of HAPs; all other sources are considered area sources. The emissions standards were to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA was required to promulgate health risk–based emissions standards when deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

3.1.3 Greenhouse Gases

SUPREME COURT RULING

EPA is the federal agency responsible for implementing the CAA. The Supreme Court of the United States ruled on April 2, 2007 (*Massachusetts, et al., Petitioners v. Environmental Protection Agency, et al.)*, that carbon dioxide (CO_2) is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in that case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

EPA ACTIONS

In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Greenhouse Gas Permitting Requirements

New major stationary emissions sources and major modifications at existing stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. On May 13, 2010, EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailor Rule (EPA 2011). This final rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

PSD permitting requirements now cover new construction projects that emit GHG emissions of at least 100,000 tons carbon dioxide equivalent (CO_2e) (90,718 metric tons [MT]) per year even if they do not

exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that increase GHG emissions by at least 75,000 tons (68,039 MT) per year will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant. Title V Operating Permit requirements apply to sources based on their GHG emissions even if they would not apply based on emissions of any other pollutant. Facilities that emit at least 100,000 tons (90,718 MT) per year of CO_2e will be subject to Title V permitting requirements.

EPA issued a final rule on June 29, 2012 that continues to focus permitting on the largest emitters. The EPA did not revise the GHG permitting thresholds that were established by the GHG Tailoring Rule. Therefore, at this time, PSD and Title V permitting requirements are not applicable to additional, smaller sources of GHG emissions (EPA 2012a)

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 MT or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

3.2 STATE

ARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California ambient air quality standards (CAAQS) (Table 1).

3.2.1 Criteria Air Pollutants

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides air districts with the authority to regulate indirect sources.

3.2.2 Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, PM exhaust from diesel engines (diesel PM) was added to ARB's list of TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

3.2.3 Greenhouse Gases

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that is being phased in (starting in 2012). To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan, reapproved by ARB in August 2011, includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The first update to the Scoping Plan was approved by the ARB Board in May 2014 (ARB 2014a). The updated Scoping Plan revised the 2020

projection to 509 MMT CO_2e and the 2020 emission limit to 431 MMT CO_2e. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the following reductions in GHG emissions from sector-based measures:

- Energy (25 MMT CO_2e),
- Transportation (23 MMT CO_2e),
- High global warming potential (5 MMT CO_2e),
- Waste (2 MMT CO_2e), and
- Cap-and-Trade Regulations (23 MMT CO_2e)

SENATE BILL X7-7

Global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada (Intergovernmental Panel on Climate Change [IPCC] 2007). These conditions can have major implications on the agriculture industry in California. SB x7-7, enacted in November 2009, requires all water suppliers in California to increase water use efficiency. Specifically, the legislation sets an overall goal for the State of California to reduce per capita urban water use by 20 percent by December 31, 2020. An interim goal of a 10 percent per capita reduction was set for December 31, 2015.

3.3 LOCAL

3.3.1 Sacramento Metropolitan Air Quality Management District

CRITERIA AIR POLLUTANTS

SMAQMD is the primary agency responsible for planning to meet federal and State ambient air quality standards in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the federal Clean Air Act requirements to attain and maintain the federal ozone standard. Ozone plans in the Sacramento Metro region include the 1994 Sacramento Area Regional Ozone Attainment Plan and the 2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan. These plans were produced to develop a strategy to attain the federal one-hour and 8-hour ozone standards. The Sacramento Region has been designated as a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019.

SMAQMD also enforces air quality regulations, educates the public about air quality, and implements a number of programs to provide incentives for the replacement or retrofit of older diesel engines and to influence land use development in Sacramento County.

SMAQMD's Sacramento Area Regional Ozone Attainment Plan also commits to obtaining one ton per year of reactive organic gases (ROG) reductions and one ton per year of oxides of nitrogen (NO_X) reductions from Land Use and Transportation Control Measures. The plan lists land use mitigation and transit-oriented development as examples of the types of programs that SMAQMD will use to reach their one ton goal. SMAQMD does not develop specific rules to implement these programs, but instead does so mostly through the CEQA process. SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria pollutants and TACs, and also make recommendations for conducting air quality analyses. Once SMAQMD guidelines have been

consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or ARB portable equipment registration.

- Rule 402: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.

- Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, effective as of October 10, 2005, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day [lb/day]) after the standard construction mitigation is applied, then an offsite construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase offsite emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

TOXIC AIR CONTAMINANTS

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source-review standards and air-toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

ODORS

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 (Nuisance) regulates odorous emissions.

GREENHOUSE GASES

SMAQMD has adopted GHG thresholds, to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and AB 32 in 2013. SMAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with AB 32.

SMAQMD utilized guidance from the California Air Pollution Control Officers Association to develop threshold concepts. The goal was to develop a threshold screening level that would capture 90 percent of emissions from new stationary source and land development projects.

The adopted threshold for stationary source projects subject to CEQA is 10,000 direct MT CO_2e per year. The land development threshold was created to ensure small projects would not be economically disadvantaged. The adopted land development threshold is 1,100 MT CO_2e per year.

3.3.2 Sacramento County

SACRAMENTO COUNTY GENERAL PLAN

The project site lies within the jurisdictional boundaries of Sacramento County; therefore, the County's policies with respect to air quality and climate change would be germane. Relevant policies and standards related to air quality and GHG emissions are described below.

- **Policy AQ-3.** Buffers and/or other appropriate mitigation shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective," and the AQMD's approved Protocol (Protocol for Evaluating the Location of Sensitive Land uses Adjacent to Major Roadways) shall be utilized when establishing these buffers.
- **Policy AQ-16.** Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.
- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.
- **Policy LU-115**. It is the goal of the County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of state and local action.

SACRAMENTO COUNTY CLIMATE ACTION PLAN

The Sacramento County Climate Action Plan was adopted on November 9, 2011 by the Sacramento County Board of Supervisors. The plan includes a GHG inventory for the unincorporated county of Sacramento (as well as for the City of Elk Grove), GHG emissions target, and goals and implementation measures developed to help the county and associated cities reach these targets. The plan includes goals and strategies for reducing GHG emissions associated with transportation and land use, energy, water, waste management and recycling, and agriculture and open space.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code contains the following regulations relevant to the project

- 235-51 (e): Air Pollution Control Measures.
  - The application shall include dust control measures designed to comply with any relevant rules of SMAQMD, including Rules 402 and 403. The air pollution control measures shall include signage and other notification that provides neighbors with information needed for reporting nuisance dust concerns to the operator and to SMAQMD. Such signage shall be placed at intervals of not more than 500 feet.
- 235-54 (h): Guidelines for Suppressing Dust.
  - Goal: Minimize impacts of dust to surrounding residential and agricultural uses.
  - Overburden Stockpiles.
    - Should be treated with appropriate dust suppressants, watered regularly, or otherwise treated to minimize wind erosion.
    - Every effort should be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water-spraying equipment should be used to cut dust emission. Water-spraying equipment should likewise be used, as needed, when removing aggregate.
    - Seeding of stockpiled overburden and exposed soils is required at the next appropriate planting time unless the site is excavated within 6 months of overburden removal, or if site has been partially excavated, but is to remain dormant for a period of more than 1 year. Saleable aggregate products produced by the processing plant are exempt from this provision.
  - Unpaved Haul Roads
    - Unpaved haul roads should be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliatives). The frequency of application should vary according to the weather and moisture level of the soils on the site, but should be frequent enough to avoid visible dust plumes.

SACRAMENTO COUNTY GREENHOUSE GAS THRESHOLDS

Sacramento County published GHG thresholds of significance as part of the General Plan EIR, in May of 2009. In April 2011 the thresholds were updated via a memorandum to the Environmental Coordinator, and attached to this memorandum was a document titled “Sacramento County Greenhouse Gas Thresholds: Guidance on Application.” The guidance document was subsequently updated in July 2012, to reflect new analysis information (such as the availability of the California Emissions Estimator Model). The thresholds were further revised in April 2014 to reflect minor changes to the Countywide GHG inventory. The thresholds are based on per capita metrics for residential projects and per 1,000 square feet for commercial/industrial projects. The County acknowledges that for some specialized types of industrial projects where emissions are primarily from exterior operations (such as mining operations), expressing the threshold as a function of building square footage is not most appropriate. Because industrial facilities are so diverse, it is likely a tailored analysis specific to the project will be required.

4 EXISTING ENVIRONMENTAL SETTING

The project site is located east of the City of Sacramento limits, within Sacramento County, California, which is within the Sacramento Valley Air Basin (SVAB). The SVAB also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; the western portion of Placer County; and the eastern portion of Solano County. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

4.1 TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50°F to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient-air quality standards.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Sacramento WSO station. The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40°F to a normal maximum of 54°F. July temperatures range from a normal minimum of 59°F to a normal maximum of 92°F (Western Regional Climate Center [WRCC] 2012a). The predominant wind direction is from the south (WRCC 2012b).

4.2 EXISTING AIR QUALITY

4.2.1 Criteria Air Pollutants

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Emission source types, health effects are summarized in Table 2. Sacramento County's attainment status for the CAAQS and the NAAQS are shown in Table 3. Monitoring data applicable to the project site is provided in Table 4 on the following page.

Table 2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2012b

Table 3 Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone	Nonattainment (1-hour)[1] Classification= Severe	Nonattainment (1-hour) Classification-Serious[2]
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Severe	
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Unclassified/Attainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:
1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.
2 Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.
3 1997 Standard.
4 2008 Standard.
5 Cannot be classified.
Source: SMAQMD 2013

Table 4 Summary of Annual Data on Ambient Air Quality (2011-2013)[1]

	2011	2012	2013
Ozone			
Maximum concentration (1-hr/8-hr avg, ppm)	0.123/0.094	0.125/0.107	0.105/0.084
Number of days state standard exceeded (1-hr/8-hr)	9/27	10/25	2/5
Number of days national standard exceeded (8-hr)	19	18	2
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour $\mu g/m^3$)	50.7	29.0	40.0
Number of days national standard exceeded (24-hour measured[2])	4	0	3
Respirable Particulate Matter (PM_{10})			
Maximum concentration ($\mu g/m^3$)	73.0	60.0	63.0
Number of days state standard exceeded (measured/calculated[2])	2/12.2	3/17.8	1/6.1
Number of days national standard exceeded (measured/calculated[2])	0/0	0/0	0/0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million
1 Measurements from the Sloughhouse station for Ozone. Measurements of respirable particulate matter (PM_{10}) obtained from the Sacramento-Branch Center Road #2 air monitoring station. Measurements of and fine particulate matter ($PM_{2.5}$) obtained from the Sacramento – Health Dept. Stockton Blvd. station.
2 Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
Source: ARB 2014b

OZONE

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NOx decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (ARB 2013).

NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012b).

PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (ARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are dominated by the same sources as emissions of PM_{10} (ARB 2013).

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Sloughhouse station is the closest station to the project site with recent data for ozone. The closest station to the project site with data for PM_{10} is the Sacramento-Branch Center Road #2 air monitoring station while $PM_{2.5}$ is monitored at the Sacramento – Health Department monitoring station. In general, the ambient air quality measurements from these stations are representative of the air quality near the project site. Table 4 summarizes the air quality data from the last three years (2011—2013).

Both ARB and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants (attainment designations are summarized above in Table 2).

4.2.2 Toxic Air Contaminants

Concentrations of TACs are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a

hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the *California Almanac of Emissions and Air Quality* (ARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, ARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (ARB 2009).

The project area consists of multiple mining operations. Sources of TACs near the project could include off-road diesel equipment and stationary sources such as material processing plants.

4.2.3 Odors

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

4.2.4 Sensitive Receptors

Sensitive receptors are generally considered to include those uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants.

For the proposed project, the nearest sensitive receptor is the Slavic Missionary Church located on the south side of Jackson Road, approximately ¼ mile east of Bradshaw Road. A few rural residential properties are located northeast and west of the project site.

4.2.5 Greenhouse Gases

ATTRIBUTING CLIMATE CHANGE—THE PHYSICAL SCIENTIFIC BASIS

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are realized globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

ATTRIBUTING CLIMATE CHANGE—GREENHOUSE GAS EMISSION SOURCES

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural emissions sectors (ARB 2014c). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2014c). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills,

and wastewater treatment plants. N_2O, an even more potent GHG, is also largely attributable to agricultural practices and soil management. Carbon sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

ADAPTATION TO CLIMATE CHANGE

According to the IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature is expected to increase by three to seven degrees Fahrenheit by the end of the century, depending on future GHG emission scenarios (IPCC 2007). According to the CNRA temperatures in California are projected to increase two to five degrees Fahrenheit by 2050 and by four to nine degrees Fahrenheit by 2100 (California Natural Resources Agency [CNRA] 2009).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and resulting rise in global average temperature. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. According to the California Energy Commission (CEC) (2012), the snowpack portion of the state's water supply could potentially decline 30 to 90 percent by the end of the 21st century. An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the snowpack of the Sierra Nevada until spring would flow into the Central Valley concurrently with winter storm events. This scenario would place more pressure on California's levee/flood control system.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2014).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also expected. These changes are expected to lead to increased frequency and intensity of wildfires (CNRA 2014).

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and it is predicted to rise an additional seven to 22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2007). CNRA projects that sea levels along California will rise 5 to 24 inches by 2050 and 17 to 66 inches by 2100 (CNRA 2014).

5 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

This section describes the project's effects on air quality and climate change. The discussion includes the criteria for determining the level of significance of the effects and a description of the methods and assumptions used to conduct the analysis.

5.1 SIGNIFICANCE CRITERIA

Per Appendix G of the CEQA Guidelines and SMAQMD recommendations, air quality impacts are considered significant if the project would do any of the following:

- cause construction-generated criteria air pollutant or precursor emissions to exceed the SMAQMD-recommended threshold of 85 lb/day for NO_X, or exceed 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$ if all feasible best available control technology (BACT) or best management practices (BMPs) are applied;
- result in a net increase in long-term regional criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, or exceed 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$ if all feasible best available control technology (BACT) or best management practices (BMPs) are applied;
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the California 1-hour ambient air-quality standard of 20 ppm or the 8-hour standard of nine ppm;
- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in 1 million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of one or greater; or
- create objectionable odors affecting a substantial number of people.

SMAQMD thresholds identify both short-term construction and long-term operational air quality emissions standards of significance. The types of emissions generated by the project are similar to construction emissions due to the operation of off-road equipment and soil disturbance; however they will occur over a long-term duration. Therefore, the project's emissions are compared to the operational thresholds recommended by SMAQMD.

Based on Appendix G of the State CEQA Guidelines, the project could have a significant adverse effect related to climate change if it would:

- generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

SMAQMD has adopted a CEQA significance threshold of 10,000 direct MT CO_2e/year for stationary source-type projects and a threshold of 1,100 MT CO_2e/year for other land use development projects. In addition, a threshold of 1,100 MT CO_2e/year is adopted for short-term construction projects.

The incremental increase in GHG emissions associated with the project, both direct and indirect, is evaluated using the 10,000 MT CO_2e/year screening level proposed by SMAQMD staff. This threshold, while

applicable to stationary sources, is the most appropriate for a project such as the proposed one. The mining operation represents an industrial use with emissions from mobile sources, off-road equipment, electricity use, and water consumption. The proposed mining operation would occur over a limited 15-year period. Therefore, SMAQMD's adopted threshold for land use development projects with a longer lifetime would not apply to this project. This level is notable for additional reasons as well. Unlike some environmental resources that are more aptly considered in the context of local or regional conditions, GHG emissions contribute to a global problem regardless of where they are emitted, and control policies have been developed on a state-wide basis. Thus, it is informative, absent a locally-adopted threshold, to review thresholds adopted by other agencies expert on the subject. This threshold level has been formally adopted by the Bay Area Air Quality Management District and the South Coast Air Quality Management District as the CEQA significance threshold for industrial projects where the air district is the lead agency. These are the two largest (in terms of population served) air districts in California. The level of 10,000 MT CO_2e/year is also notable because it's the level at which most stationary sources are required to inventory and report their emissions to ARB's cap-and-trade program.

5.2 METHODS AND ASSUMPTIONS

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, odors, and GHGs were assessed in accordance with SMAQMD-recommended methodologies. As described in Section 5.1, the project's emissions are compared to SMAQMD's operational thresholds because of the long-term operational nature of activities onsite.

The project would not involve the construction of any new land uses onsite. There would be some site preparation activities that would occur for a limited duration before mining can begin. These include demolition of the ranch houses and associated outbuildings onsite, installation of perimeter landscaping and fencing, and assembly of the electric conveyors. These activities would require limited use of off-road equipment and emissions generated during this time-period would be minimal. The analysis presents emissions for a worst-case day when maximum onsite equipment use and off-site overburden transfer would occur simultaneously, along with an average operational day. Therefore, separate quantification of emissions from site preparation activities is not included because they would be captured in the worst-case and average emissions analysis.

Teichert intends to begin mining operations on Aspen VIII and generally proceed south onto Aspen IX. Teichert proposes to mine between 1 million – 3 million tons of material per year depending on market conditions at the time of mining. Mining would begin in 2017 and proceed over a 15-year period. Aggregate mining operations will commence with the removal of approximately 5-10 feet of topsoil/clay/silt overburden that overlies the sand and gravel comprising the aggregate deposit. The overburden removal of approximately 500,000 cubic yards would occur over the first five years of the project. A portion of the overburden removed would potentially be transferred to the adjacent Aspen V site. Teichert estimates that the overburden would be transferred using off-road diesel trucks with 20 cubic yards of capacity.

Aggregate mining would occur over an area of 363 acres. It is estimated that a total of approximately 15 million tons of material will be mined over the life of the project. A maximum of 4.5 million cubic yards of material could be mined in a single year depending upon market conditions. Teichert estimates that average mining rates would be 2.2 million cubic yards per year which is equivalent to approximately 7,500 cubic yards per day.

Maximum daily hours of operation could vary from 8 to 14 hours of mining per day. It should be noted that the maximum amounts noted above for mining and hours of operation would only occur under extremely favorable market conditions. Based on current market conditions, it is reasonable to assume that the project would typically operate at closer to the typical levels of excavation over an 8-hour workday. In order to characterize the worst-case scenario, emissions were estimated based on the maximum levels of activity in

addition to the average levels. Given the relatively short lifetime of the mine, it is not anticipated that market conditions would improve to the extent that allows the project to achieve the maximum levels.

Teichert has determined that the maximum daily off-road equipment operation would consist of six scrapers, two loaders and one dozer along with a water truck. Equipment would be refueled onsite using a fuel truck from Teichert's maintenance yard located at Watt Avenue/Kiefer Blvd. A single fuel truck services multiple Teichert mining sites in the area.

Quantification of air pollutant emissions were based on a combination of methods, including the use of emission factors from the EPA published AP-42 and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in the California Emissions Estimator Model (CalEEMod) Version 2013.2.2. Project-generated emissions were modeled based on this information and information provided in the project description to estimate reasonable worst-case conditions. Teichert's current fleet in use at other facilities is Tier 1 compliant or better; therefore, emission factors reduced from ARB's default fleet mix were used in the analysis.

In accordance with SMAQMD-recommended methodologies, ROG, NO_X, PM_{10} and $PM_{2.5}$ emissions generated by the project were modeled using the methodology described above. It should be noted that NO_X emissions are the focus of SMAQMD's efforts to bring the SVAB in attainment of the CAAQS and NAAQS for ozone because, as a secondary pollutant, ozone in the SVAB is NO_X –limited. Emissions of PM_{10} and $PM_{2.5}$ were estimated based on the detailed construction parameters explained above.

As described above, the project involves a long-term mining operation using heavy-duty off-road equipment and does not represent a construction project. Teichert anticipates that up to one acre of the site area would be disturbed daily. The project would also implement all Basic Construction Emission Control Practices recommended by SMAQMD which constitute BACT/BMPs for the proposed project. Therefore, in accordance with SMAQMD guidance, the applicable thresholds of significance for PM_{10} and $PM_{2.5}$ are 80 lb/day and 82 lb/day, respectively.

Project-generated TAC emissions and odors were also assessed in accordance with methodologies recommended by ARB and/or SMAQMD.

California Code of Regulations (CCR) Section 15064.4 and other guidance by the Governor's Office of Planning and Research (2008) recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a project, including the emissions associated with construction activities, stationary sources, vehicular traffic, and energy consumption, and to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impacts where feasible mitigation is available.

GHG emission levels associated with the project would be generated by off-road equipment use associated with mining, vehicle trips associated with workers and overburden export, and indirect emissions from electricity and water consumption. The project does not propose any new stationary sources onsite. In addition, no processing of materials would occur onsite. Mined materials would be transported to a permitted use, i.e. Teichert's Perkins Plant, via an electric conveyor for processing. Operation of the Perkins Plant and associated truck trips are considered baseline by the County and SMAQMD.

Project-specific data, including detailed mining information (equipment use, employee trips, etc.), was used in the analysis. Quantification of GHG emissions were based on a combination of methods, including the use of emission factors from EPA-published AP-42 emission factors, and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in CalEEMod Version 2013.2.2. Reasonable worst-case project-generated emissions were estimated based on information provided in the project description.

Indirect emissions from electricity consumption were calculated based on utility emission factors for the Sacramento Municipal Utility District (SMUD) for CO_2, N_2O, and CH_4 as provided by SMUD, and estimates of project-specific electricity consumption. Water for dust control would be provided by a groundwater well

onsite. Emissions associated with pumping the groundwater were estimated using SMUD emission factors. See Appendix A for detailed calculations.

5.3 IMPACT ANALYSIS AND MITIGATION MEASURES

Impact 1: Mining-related emissions of criteria air pollutants and precursors (NO_X, ROG, PM_{10}, and $PM_{2.5}$).

Mining activities would result in project-generated emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ (a subset of PM_{10}) from excavation, off-road equipment, overburden export trips, and worker commute trips. Both potential scenarios, the maximum and average daily activities, would result in mass emissions of NO_X that exceed SMAQMD's threshold of 65 lb/day for project operation. The project would not generate PM_{10} and $PM_{2.5}$ emissions that exceed SMAQMD's threshold of 80 lb/day and 82 lb/day, respectively. Therefore, project-generated emissions of NO_X would contribute to existing nonattainment status of the SVAB with respect to the respective ambient air quality standards. This impact would be **significant**.

The project consists of an aggregate mining operation that would involve the use of diesel-powered off-road equipment for excavation and materials movement. Mining activities would result in project-generated emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ (a subset of PM_{10}) from excavation, off-road equipment, overburden export, and worker commute trips. Fugitive dust (e.g., PM_{10} and $PM_{2.5}$) emissions are associated primarily with soil and aggregate excavation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled on and off the site. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment and on-road mobile exhaust. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Both maximum daily and average daily emissions were modeled based on the methodology and assumptions outlined in Section 5.2. As noted above, the project is expected to operate at the average levels on a typical day. Project emissions account for Teichert's cleaner fleet which achieves reductions in exhaust emissions above ARB's default construction fleet. Daily construction emissions of NO_X, ROG, PM_{10}, and $PM_{2.5}$ for both scenarios are summarized in Table 5 below. Detailed input parameters and modeling results are provided in Appendix A. The project would implement all Basic Construction Emission Control Practices.

As shown in Table 5, mining activities under the worst-case scenario and the average scenario would result in emissions of NO_X that exceed the SMAQMD-recommended threshold of 65 lb/day. Mining activities under the worst-case scenario would also result in emissions of ROG that exceed the SMAQMD-recommended threshold of 65 lb/day. This assumption is consistent with SMAQMD guidance (SMAQMD 2014). Therefore, this impact would be **significant**.

Table 5 Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_X	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Maximum Daily Emissions						
Off-road Equipment	19.8	270.6	6.7	–	6.3	–
Off-road Trucks (Overburden Transfer)	52.3	590.1	21.9	41.6	20.2	4.2
On-road Travel (Worker and Vendor Trips)	0.2	0.6	0.6	<0.1	0.2	<0.1
Onsite Fugitive Dust	–	–	–	8.8	–	1.4
Total Emissions (lb/day)	***72.3***	***861.3***	*79.6*		*32.3*	
SMAQMD Thresholds of Significance (lb/day)	65	65	80		82	

Table 5 Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_X	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Average Daily Emissions						
Off-road Equipment	5.2	70.9	1.8	–	1.7	–
Off-road Trucks (Overburden Transfer)	21.8	245.9	9.1	34.7	8.4	3.5
On-road Travel	0.2	0.6	0.6	<0.1	0.2	<0.1
Onsite Fugitive Dust	–	–	–	4.8	–	0.9
Total Emissions (lb/day)	*27.2*	***317.1***	*51.0*		*14.7*	
SMAQMD Thresholds of Significance (lb/day)	65	65	80		82	

Notes: Maximum daily emissions were calculated based on 14 hours of mining operations. Maximum daily emissions for PM_{10} and $PM_{2.5}$ are shown for disclosure purposes. Fugitive dust emissions from equipment use onsite (dozers, scrapers) are estimated using CalEEMod. Emissions from conveyor loading/unloading and off-road truck use (loading/unloading and travel on unpaved roads) are estimated using AP-42 emission factors. Emissions of PM shown account for application of best available control technology and best management practices.

Teichert's construction fleet is Tier 1 compliant. Reduction percentages for each pollutant are based on compliance reports approved by SMAQMD. Detailed calculations are shown in Appendix A.

ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
lb/day = pounds per day
SMAQMD = Sacramento Metropolitan Air Quality Management District
NA = not applicable
$\mu g/m^3$ = micrograms per cubic meter
CAAQS = California Ambient Air Quality Standards

See Appendix A for detail on model inputs, assumptions, and project specific modeling parameters.

Source: Modeling Conducted by Ascent Environmental in 2014

SMAQMD also recommends reporting annual PM_{10} and $PM_{2.5}$ emissions and comparing them to annual thresholds of 14.6 tons/year and 15 tons/year, respectively. The maximum annual PM_{10} emissions would be 10 tons/year while maximum annual $PM_{2.5}$ emissions would be 4 tons/year. Annual emissions would be below the SMAQMD's applicable thresholds and would decline once overburden transfer is complete. Moreover, the maximum daily emissions would only occur under extremely favorable market conditions. Based on current market conditions, it is reasonable to assume that the project would typically operate at closer to the typical intensity over an 8-hour workday.

Mitigation Measure 1: Reduce mining-related ROG, NO_X and exhaust PM emissions.

Teichert will comply with the following measures during all phases of mining to reduce emissions of NO_X:

- The Applicant shall prepare an Air Quality Mitigation Plan (AQMP) and submit the Plan to the SMAQMD for approval prior to issuance of the Work Authorization Permit by the Planning and Community Development Department for ground disturbing activities. The AQMP should provide narrative, descriptions, and exhibits that illustrate and justify the measures chosen to reduce the project's operational emissions of ROG and NO_X. At a minimum the AQMP shall include:
  - A plan for approval by SMAQMD demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the mining portion of the project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction, 20 percent ROG reduction, and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. SMAQMD's Construction

Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction. It should be noted that 92% of Teichert's fleet is Tier I complaint. Teichert also participates in the both the Carl Moyer Program and the Sacramento Emergency Clean Air and Transportation (SECAT) program.

It should be noted that while Teichert's owned fleet is Tier I compliant or better, Teichert will be using a contractor to provide off-road trucks for overburden transfer to the Aspen V site. Every effort will be made to acquire trucks that meet the above-mentioned criteria, with the constraint that availability of such vehicles may be limited in the region.

- Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after treatment products, and/or other options as they become available.

- The applicant shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory will include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory will be updated and submitted annually throughout the duration of the project. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative will provide SMAQMD with the anticipated start date, and name and phone number of the project manager and onsite foreman.

- Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliance equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.

- The applicant shall ensure that all construction and grading equipment is properly maintained.

- The applicant shall ensure that all vehicles and compressors utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

- The applicant shall limit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

Project Design Measure 2: Reduce mining-related fugitive exhaust PM emissions.

Control of fugitive dust is required by SMAQMD Rule 403. Implement Best Available Control Technology to control emissions on and off site, including:

- All exposed surfaces shall be watered as necessary to control fugitive dust emissions. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- All trucks transferring soil, sand, or other loose material off-site shall be covered or shall maintain at least two feet of free board space.

- Material handling and storage units shall be watered periodically as needed, or kept moist through the use of water spray units to effectively control dust.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill activities shall be effectively controlled for fugitive dust emissions, as necessary, utilizing application of water or by presoaking.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
- Trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Traffic speeds on unpaved roads shall be limited to 15 miles per hour.
- Unpaved roads used for overburden transfer shall be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliatives such as magnesium chloride). The frequency of application shall vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.
- Equipment idling time shall be minimized by either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Clear signage that posts this requirement shall be posted for workers at the entrances to the site.
- All construction equipment shall be maintained in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Significance after Mitigation

Implementation of exhaust control measures outlined in Mitigation Measure 1 would reduce ROG and NO_X emissions from off-road equipment by 20 percent; however, maximum and average daily emissions of NO_X would still exceed SMAQMD's recommended threshold during overburden transfer. Therefore, this impact would be significant and unavoidable.

It is worth providing some additional context for daily NO_X emissions from the project. NO_X emissions would be highest during overburden transfer due to use of off-road trucks; however, daily NO_X emissions would decline once overburden transfer is complete. Off-road trucks would only be used if/when overburden is transferred to the Aspen V South site. Overburden volumes of up to 500,000 cubic yards could be transferred only during the early phases of the project. Secondly, overburden would not be hauled to large distances from the site using on-road trucks, therefore, emissions would be limited to the general vicinity of the project and would occur temporarily. Therefore, the analysis presented herein represents a conservative, worst-case scenario. Nevertheless, daily NO_X would be significant and unavoidable.

Impact 2: Exposure of sensitive receptors to TACs.

Mining activities would result in emissions of diesel PM. However, mining activities would vary over the entire life of the mine, with peak emissions expected to occur very rarely. Further, most of the mining activities would take place relatively far away from offsite sensitive receptors and, therefore, given the dispersive properties of diesel PM, concentrations would be minimal at this distance. Therefore, levels of TACs from

project operation would not result in an increase in health risk exposure at offsite sensitive receptors. This impact would be **less than significant**.

Mining activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for excavation and other miscellaneous activities.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by the ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003), so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Table 5 above, maximum daily exhaust emissions of $PM_{2.5}$, considered a surrogate for diesel PM, would be 26.7 lb/day.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2012:11-3). Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to a period of 15 years, with peak daily activity occurring very rarely under extremely favorable market conditions. Use of off-road trucks onsite would also cease once overburden transfer is complete and off-road haul trucks being used at the site would reduce substantially at that point. Also, studies show that diesel PM is highly dispersive (e.g., decrease of 70 percent at 500 feet from the source) (Zhu et al. 2002). The nearest existing offsite sensitive receptors are scattered residential units in the vicinity of the project site with the closest one located 250 feet from the site. A church located to the north of the project site, is located over 5,000 feet away.

Therefore, considering the highly dispersive properties of diesel PM and the distance to the nearest offsite sensitive receptor, it is not anticipated that mining-related TAC emissions would expose any sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than one. Project-related activities would not expose nearby, offsite sensitive receptors to incremental increases in cancer, chronic, and acute risk that exceed applicable thresholds. Therefore, the levels of health risk exposure to nearby sensitive receptors would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3: Mobile source CO concentrations.

Operation of the project would not result in a substantial increase in vehicle trips on the local roadway network. SMAQMD provides screening levels to determine project-level significance with regards to CO concentrations. Operation of the project would not exceed the recommended level of 31,600 vehicles per hour at any affected intersection. Therefore, project-generated traffic would not result in excessive levels of CO concentrations. This impact would be **less than significant**.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect.

CO concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, it is recommended that CO not be analyzed at the regional level, but at the local level.

Operation of the project would result in approximately seven additional full-time employees which would result in up to 14 daily worker commute trips (Fehr and Peers 2014). No offsite overburden hauling would occur.

SMAQMD provides a screening methodology to determine project impacts from localized CO emissions. This screening methodology was utilized to analyze local CO emissions from the construction and operation of this project. The screening methodology has two tiers of screening criteria. If the first set is not met, than the second tier may be applied. It states that the following criteria must be met:

First-Tier
The project will result in a less-than-significant impact to air quality for local CO if:

- Traffic generated by the project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F

Second-Tier
If all the following criteria are met, the project will result in a less-than-significant impact to air quality for local CO.

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project will not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway; or other locations where horizontal or vertical mixing of air will be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or CalEEMod models).

Based on the traffic study conducted, project-related trips would not result in LOS E or F at any study intersection. Moreover, considering the second-tier of screening criteria, no single hour of operation would exceed the 31,600 vehicle per hour limit with the addition of project-related trips. Therefore, concentrations of CO from project traffic would not exceed the ambient standards. As a result, this impact would be would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4: Odorous emissions.

Odorous emissions from the project would be temporary and would dissipate rapidly with an increase in distance from the source. This impact would be **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; atmospheric conditions, and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to distress among the public and sometimes generating citizen complaints to local governments or in some cases regulatory agencies.

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and not be generated at any one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Therefore, these activities would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a less than significant impact.

Mitigation Measures

No mitigation is required.

Impact 5: Generation of greenhouse gas emissions.

The project would result in GHG emissions from mining activities including exhaust from worker commute trips, overburden transfer, electricity consumption by the conveyor, water consumption onsite, and the use of heavy-duty off-road equipment. Project-generated GHG emissions would result in a net increase of 6,321 MT CO_2e/year, which would be below the 10,000 MT CO_2e/year, the threshold used in this analysis to determine impact significance. Therefore, the project's GHG emissions would be a **less than significant** impact.

Project-related mining activities would result in increased generation of GHG emissions. Heavy-duty off-road equipment, materials transport, and worker commutes would result in exhaust emissions of GHGs.

The total net increase in operational GHG emissions was estimated using the methods described above. The net increase in project-related operational emissions is presented in Table 6. See Appendix A for all inputs and calculations.

Table 6 Summary of Net Increase in GHG Emissions Associated with the Project[1]

Source	CO_2e (MT/year)
Onsite Equipment Use	1,467
Off-road Trucks (Overburden Transfer to Aspen V South)	3,989
Mobile Sources (Worker commute, fuel truck)	73
Electricity Consumption	750
Water Consumption	42
Operational Total	6,321

Notes: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric tons

[1] Detailed assumptions and modeling output files are included in Appendix A.

Source: Modeled by Ascent Environmental in 2014

As shown in Table 6 operation of the project would result in an increase of approximately 6,321 MT CO_2e/year. This level of emissions would occur when mining and overburden transfer to Aspen V South are occurring simultaneously. Overburden transfer would cease after five years, therefore, annual GHG emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an incremental increase in annual emissions. Therefore, annual GHG emissions would be below the 10,000 MT CO_2e/year threshold and, therefore, would have a less than significant impact.

It is also useful to provide additional context for emissions from an aggregate mining operation. Aggregate demand arises from the need for construction materials for the new construction or maintenance of buildings, roads and structures. Such demand is typically driven by population growth. Therefore, an

increasing demand for aggregate is the underlying trigger to any GHG emissions associated with a proposed aggregate mining facility. In most cases, aggregate has inelastic demand—that is, an increase or decrease in the price of aggregate has little or no effect on the quantity of aggregate demanded by consumers. As local sources of aggregate are depleted and aggregate is hauled longer distances to the consumer, prices will increase and so will the GHG emissions associated with the longer haul routes. The proposed project would meet the local need for aggregate driven by growth in the region and could potentially reduce the need to import aggregate from outside the Sacramento area.

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APPENDIX A

AIR QUALITY AND GREENHOUSE GAS MODELING DATA

Average Daily Exhaust Emissions

Equipment Type	Make and Model	Number	Horsepower	Daily hours of operation	Load Factor	NO_X EF (g/bhp-hr)	ROG EF (g/bhp-hr)	PM_{10} EF (g/bhp-hr)	$PM_{2.5}$ EF (g/bhp-hr)	NO_X (lb/day)	ROG (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Scraper	Caterpillar 637G	2	773	8	0.4824	3.16	0.23	0.078	0.07	41.6	3.0	1.0	1.0
Rubber Tired Loader	Komatsu WA900	2	853	8	0.3618	2.43	0.18	0.062	0.06	26.5	2.0	0.7	0.7
Dozer	Caterpillar D10R	1	570	2	0.4154	2.74	0.20	0.068	0.06	2.9	0.2	0.1	0.1
										70.9	**5.2**	**1.8**	**1.7**

Conversion Factors

1 lb	453.6	g

Notes:
Equipment list, make and model and horsepower provided by applicant. The equipment is based on the fleet used on other Teichert sites and is assumed to be representative of the fleet at project site.
Emission factors are estimated from SMAQMD's construction mitigation calculator and Teichert's reported fleet emissions based on the Tier I compliant fleet at the Aspen V site.
g = grams; bhp = brake horsepower; hr = hour; lb = pounds

Maximum Daily Exhaust Emissions

Equipment Type	Make and Model	Number	Horsepower	Daily hours of operation	Load Factor	NO_X EF (g/bhp-hr)	ROG EF (g/bhp-hr)	PM_{10} EF (g/bhp-hr)	$PM_{2.5}$ EF (g/bhp-hr)	NO_X (lb/day)	ROG (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Scraper	Caterpillar 637G	6	773	14	0.4824	3.16	0.23	0.078	0.07	218.5	15.9	5.4	5.0
Rubber Tired Loader	Komatsu WA900	2	853	14	0.3618	2.43	0.18	0.062	0.06	46.3	3.4	1.2	1.1
Dozer	Caterpillar D10R	1	570	4	0.4154	2.74	0.20	0.068	0.06	5.7	0.4	0.1	0.1
										270.6	**19.8**	**6.7**	**6.3**

Conversion Factors

1 lb	453.6	g

Notes:
Equipment list, make and model and horsepower provided by applicant. The equipment is based on the fleet used on other Teichert sites and is assumed to be representative of the fleet at project site.
Emission factors are estimated from SMAQMD's construction mitigation calculator and Teichert's reported fleet emissions based on the Tier I compliant fleet at the Aspen V site.
g = grams; bhp = brake horsepower; hr = hour; lb = pounds

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9980	246.0889	120.2344	0.3359	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,176.8585	34,176.8585	10.3226	0.0000	34,393.6331
2018	19.4135	207.2975	107.3160	0.3360	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,623.8045	33,623.8045	10.3203	0.0000	33,840.5310
2019	17.8209	179.0353	102.0091	0.3359	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	33,057.1707	33,057.1707	10.3143	0.0000	33,273.7716
2020	16.6458	157.4583	97.1911	0.3357	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,312.2299	32,312.2299	10.3077	0.0000	32,528.6910
2021	15.2140	131.0946	91.9298	0.3357	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,301.2359	32,301.2359	10.3059	0.0000	32,517.6598
Total	**91.0920**	**920.9745**	**518.6804**	**1.6792**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,471.2995**	**165,471.2995**	**51.5708**	**0.0000**	**166,554.2865**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9980	246.0889	120.2344	0.3359	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,176.8585	34,176.8585	10.3226	0.0000	34,393.6330
2018	19.4135	207.2975	107.3160	0.3360	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,623.8045	33,623.8045	10.3203	0.0000	33,840.5310
2019	17.8209	179.0353	102.0091	0.3359	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	33,057.1707	33,057.1707	10.3143	0.0000	33,273.7716
2020	16.6458	157.4583	97.1911	0.3357	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,312.2298	32,312.2298	10.3077	0.0000	32,528.6910
2021	15.2140	131.0946	91.9298	0.3357	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,301.2359	32,301.2359	10.3059	0.0000	32,517.6598
Total	**91.0920**	**920.9745**	**518.6804**	**1.6792**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,471.2994**	**165,471.2994**	**51.5708**	**0.0000**	**166,554.2864**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967		33,606.5613	33,606.5613	10.2970		33,822.7981
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**		**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.1983**	**0.2303**	**3.1005**	**7.2200e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**570.2972**	**570.2972**	**0.0256**		**570.8350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967	0.0000	33,606.5613	33,606.5613	10.2970		33,822.7980
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**	**0.0000**	**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.1983**	**0.2303**	**3.1005**	**7.2200e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**570.2972**	**570.2972**	**0.0256**		**570.8350**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540		33,075.0272	33,075.0272	10.2967		33,291.2581
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**		**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.1766**	**0.2076**	**2.7973**	**7.2200e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**548.7773**	**548.7773**	**0.0236**		**549.2729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540	0.0000	33,075.0272	33,075.0272	10.2967		33,291.2580
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**	**0.0000**	**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2580**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.1766**	**0.2076**	**2.7973**	**7.2200e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**548.7773**	**548.7773**	**0.0236**		**549.2729**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834		32,530.6350	32,530.6350	10.2924		32,746.7743

Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**		**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7743**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1616**	**0.1901**	**2.5867**	**7.1800e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**526.5358**	**526.5358**	**0.0220**		**526.9974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834	0.0000	32,530.6350	32,530.6350	10.2924		32,746.7742
Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**	**0.0000**	**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7742**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1616**	**0.1901**	**2.5867**	**7.1800e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**526.5358**	**526.5358**	**0.0220**		**526.9974**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719		31,806.5173	31,806.5173	10.2869		32,022.5416
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**		**31,806.5173**	**31,806.5173**	**10.2869**		**32,022.5416**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1506**	**0.1764**	**2.4125**	**7.1800e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**505.7126**	**505.7126**	**0.0208**		**506.1495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719	0.0000	31,806.5172	31,806.5172	10.2869		32,022.5415
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**	**0.0000**	**31,806.5172**	**31,806.5172**	**10.2869**		**32,022.5415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1506**	**0.1764**	**2.4125**	**7.1800e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**505.7126**	**505.7126**	**0.0208**		**506.1495**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183		31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**		**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1418**	**0.1650**	**2.2693**	**7.1800e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**497.1813**	**497.1813**	**0.0198**		**497.5976**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183	0.0000	31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**	**0.0000**	**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1418**	**0.1650**	**2.2693**	**7.1800e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**497.1813**	**497.1813**	**0.0198**		**497.5976**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9710	246.1443	119.7917	0.3350	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,106.7398	34,106.7398	10.3226	0.0000	34,323.5144
2018	19.3876	207.3471	106.8949	0.3351	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,556.2854	33,556.2854	10.3203	0.0000	33,773.0119
2019	17.7963	179.0806	101.6044	0.3350	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	32,992.3882	32,992.3882	10.3143	0.0000	33,208.9891
2020	16.6227	157.5001	96.8040	0.3348	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,249.9861	32,249.9861	10.3077	0.0000	32,466.4473
2021	15.1922	131.1335	91.5582	0.3348	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,240.0103	32,240.0103	10.3059	0.0000	32,456.4342
Total	**90.9698**	**921.2055**	**516.6531**	**1.6747**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,145.4097**	**165,145.4097**	**51.5708**	**0.0000**	**166,228.3968**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9710	246.1443	119.7917	0.3350	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,106.7398	34,106.7398	10.3226	0.0000	34,323.5144
2018	19.3876	207.3471	106.8949	0.3351	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,556.2854	33,556.2854	10.3203	0.0000	33,773.0118
2019	17.7963	179.0806	101.6044	0.3350	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	32,992.3881	32,992.3881	10.3143	0.0000	33,208.9891
2020	16.6227	157.5001	96.8040	0.3348	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,249.9861	32,249.9861	10.3077	0.0000	32,466.4472
2021	15.1922	131.1335	91.5582	0.3348	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,240.0102	32,240.0102	10.3059	0.0000	32,456.4341
Total	**90.9698**	**921.2055**	**516.6531**	**1.6747**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,145.4096**	**165,145.4096**	**51.5708**	**0.0000**	**166,228.3966**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967		33,606.5613	33,606.5613	10.2970		33,822.7981
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**		**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.1714**	**0.2856**	**2.6578**	**6.3300e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**500.1785**	**500.1785**	**0.0256**		**500.7163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967	0.0000	33,606.5613	33,606.5613	10.2970		33,822.7980
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**	**0.0000**	**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.1714**	**0.2856**	**2.6578**	**6.3300e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**500.1785**	**500.1785**	**0.0256**		**500.7163**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540		33,075.0272	33,075.0272	10.2967		33,291.2581
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**		**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1508**	**0.2572**	**2.3762**	**6.3300e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**481.2582**	**481.2582**	**0.0236**		**481.7538**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540	0.0000	33,075.0272	33,075.0272	10.2967		33,291.2580
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**	**0.0000**	**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2580**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1508**	**0.2572**	**2.3762**	**6.3300e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**481.2582**	**481.2582**	**0.0236**		**481.7538**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834		32,530.6350	32,530.6350	10.2924		32,746.7743

Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**		**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7743**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1371**	**0.2354**	**2.1819**	**6.2900e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**461.7532**	**461.7532**	**0.0220**		**462.2148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834	0.0000	32,530.6350	32,530.6350	10.2924		32,746.7742
Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**	**0.0000**	**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7742**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1371**	**0.2354**	**2.1819**	**6.2900e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**461.7532**	**461.7532**	**0.0220**		**462.2148**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719		31,806.5173	31,806.5173	10.2869		32,022.5416
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**		**31,806.5173**	**31,806.5173**	**10.2869**		**32,022.5416**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1275**	**0.2182**	**2.0254**	**6.2900e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**443.4689**	**443.4689**	**0.0208**		**443.9057**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719	0.0000	31,806.5172	31,806.5172	10.2869		32,022.5415
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**	**0.0000**	**31,806.5172**	**31,806.5172**	**10.2869**		**32,022.5415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1275**	**0.2182**	**2.0254**	**6.2900e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**443.4689**	**443.4689**	**0.0208**		**443.9057**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183		31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**		**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1200**	**0.2039**	**1.8977**	**6.2900e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**435.9556**	**435.9556**	**0.0198**		**436.3720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183	0.0000	31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**	**0.0000**	**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1200**	**0.2039**	**1.8977**	**6.2900e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**435.9556**	**435.9556**	**0.0198**		**436.3720**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7724	7.7900	6.4239	0.0132	8.4837	0.2711	8.7548	1.6796	0.2494	1.9290	0.0000	1,177.4973	1,177.4973	0.1802	0.0000	1,181.2811
2018	0.7239	7.2837	6.0453	0.0132	8.4837	0.2584	8.7421	1.6796	0.2377	1.9173	0.0000	1,146.1091	1,146.1091	0.1782	0.0000	1,149.8503

2019	0.6535	6.6299	5.6408	0.0132	8.4837	0.2278	8.7116	1.6796	0.2096	1.8892	0.0000	1,114.2633	1,114.2633	0.1765	0.0000	1,117.9699
2020	0.6394	6.5769	5.4233	0.0132	8.4837	0.2274	8.7111	1.6796	0.2092	1.8888	0.0000	1,080.5473	1,080.5473	0.1753	0.0000	1,084.2285
2021	0.6302	6.5242	5.2597	0.0132	8.4837	0.2270	8.7107	1.6796	0.2089	1.8884	0.0000	1,071.9526	1,071.9526	0.1743	0.0000	1,075.6131
Total	**3.4194**	**34.8048**	**28.7930**	**0.0658**	**42.4187**	**1.2116**	**43.6303**	**8.3979**	**1.1148**	**9.5127**	**0.0000**	**5,590.3695**	**5,590.3695**	**0.8845**	**0.0000**	**5,608.9430**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7724	7.7900	6.4239	0.0132	3.6753	0.2711	3.9463	0.7526	0.2494	1.0020	0.0000	1,177.4973	1,177.4973	0.1802	0.0000	1,181.2811
2018	0.7239	7.2837	6.0453	0.0132	3.6753	0.2584	3.9336	0.7526	0.2377	0.9903	0.0000	1,146.1091	1,146.1091	0.1782	0.0000	1,149.8503
2019	0.6535	6.6299	5.6408	0.0132	3.6753	0.2278	3.9031	0.7526	0.2096	0.9623	0.0000	1,114.2633	1,114.2633	0.1765	0.0000	1,117.9699
2020	0.6394	6.5769	5.4233	0.0132	3.6753	0.2274	3.9026	0.7526	0.2092	0.9618	0.0000	1,080.5473	1,080.5473	0.1753	0.0000	1,084.2285
2021	0.6302	6.5242	5.2597	0.0132	3.6753	0.2270	3.9022	0.7526	0.2089	0.9615	0.0000	1,071.9526	1,071.9526	0.1743	0.0000	1,075.6131
Total	**3.4194**	**34.8048**	**28.7930**	**0.0658**	**18.3763**	**1.2116**	**19.5879**	**3.7631**	**1.1148**	**4.8779**	**0.0000**	**5,590.3695**	**5,590.3695**	**0.8845**	**0.0000**	**5,608.9430**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.68**	**0.00**	**55.10**	**55.19**	**0.00**	**48.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406		502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**7.8828**	**0.2615**	**8.1443**	**1.5196**	**0.2406**	**1.7602**		**502.0171**	**502.0171**	**0.1538**		**505.2472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406	0.0000	502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**3.0743**	**0.2615**	**3.3358**	**0.5926**	**0.2406**	**0.8332**	**0.0000**	**502.0171**	**502.0171**	**0.1538**		**505.2472**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294		494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**7.8828**	**0.2494**	**8.1321**	**1.5196**	**0.2294**	**1.7490**		**494.0813**	**494.0813**	**0.1538**		**497.3114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294	0.0000	494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**3.0743**	**0.2494**	**3.3236**	**0.5926**	**0.2294**	**0.8220**	**0.0000**	**494.0813**	**494.0813**	**0.1538**		**497.3114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017		486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1020**	**1.5196**	**0.2017**	**1.7213**		**486.1454**	**486.1454**	**0.1538**		**489.3754**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017	0.0000	486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2935**	**0.5926**	**0.2017**	**0.7944**	**0.0000**	**486.1454**	**486.1454**	**0.1538**		**489.3754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5672**	**475.5672**	**0.1538**		**478.7971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5672**	**475.5672**	**0.1538**		**478.7971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000

Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5568**	**475.5568**	**0.1538**		**478.7867**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5568**	**475.5568**	**0.1538**		**478.7867**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7581	7.8719	6.2387	0.0123	8.4837	0.2711	8.7549	1.6796	0.2495	1.9290	0.0000	1,106.6604	1,106.6604	0.1802	0.0000	1,110.4447
2018	0.7077	7.3570	5.8855	0.0123	8.4837	0.2584	8.7422	1.6796	0.2378	1.9173	0.0000	1,077.8822	1,077.8822	0.1782	0.0000	1,081.6238

2019	0.6373	6.6965	5.4947	0.0123	8.4837	0.2279	8.7116	1.6796	0.2097	1.8893	0.0000	1,048.7834	1,048.7834	0.1765	0.0000	1,052.4905
2020	0.6226	6.6370	5.2977	0.0123	8.4837	0.2274	8.7111	1.6796	0.2092	1.8888	0.0000	1,017.6200	1,017.6200	0.1753	0.0000	1,021.3016
2021	0.6138	6.5784	5.1455	0.0123	8.4837	0.2270	8.7108	1.6796	0.2089	1.8885	0.0000	1,010.0430	1,010.0430	0.1743	0.0000	1,013.7039
Total	**3.3394**	**35.1408**	**28.0621**	**0.0614**	**42.4187**	**1.2119**	**43.6306**	**8.3979**	**1.1150**	**9.5129**	**0.0000**	**5,260.9889**	**5,260.9889**	**0.8846**	**0.0000**	**5,279.5645**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7581	7.8719	6.2387	0.0123	3.6753	0.2711	3.9464	0.7526	0.2495	1.0021	0.0000	1,106.6604	1,106.6604	0.1802	0.0000	1,110.4447
2018	0.7077	7.3570	5.8855	0.0123	3.6753	0.2584	3.9337	0.7526	0.2378	0.9904	0.0000	1,077.8822	1,077.8822	0.1782	0.0000	1,081.6238
2019	0.6373	6.6965	5.4947	0.0123	3.6753	0.2279	3.9032	0.7526	0.2097	0.9623	0.0000	1,048.7834	1,048.7834	0.1765	0.0000	1,052.4905
2020	0.6226	6.6370	5.2977	0.0123	3.6753	0.2274	3.9027	0.7526	0.2092	0.9619	0.0000	1,017.6200	1,017.6200	0.1753	0.0000	1,021.3016
2021	0.6138	6.5784	5.1455	0.0123	3.6753	0.2270	3.9023	0.7526	0.2089	0.9615	0.0000	1,010.0430	1,010.0430	0.1743	0.0000	1,013.7039
Total	**3.3394**	**35.1408**	**28.0621**	**0.0614**	**18.3763**	**1.2119**	**19.5882**	**3.7631**	**1.1150**	**4.8781**	**0.0000**	**5,260.9889**	**5,260.9889**	**0.8846**	**0.0000**	**5,279.5645**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.68**	**0.00**	**55.10**	**55.19**	**0.00**	**48.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406		502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**7.8828**	**0.2615**	**8.1443**	**1.5196**	**0.2406**	**1.7602**		**502.0171**	**502.0171**	**0.1538**		**505.2472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406	0.0000	502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**3.0743**	**0.2615**	**3.3358**	**0.5926**	**0.2406**	**0.8332**	**0.0000**	**502.0171**	**502.0171**	**0.1538**		**505.2472**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294		494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**7.8828**	**0.2494**	**8.1321**	**1.5196**	**0.2294**	**1.7490**		**494.0813**	**494.0813**	**0.1538**		**497.3114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294	0.0000	494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**3.0743**	**0.2494**	**3.3236**	**0.5926**	**0.2294**	**0.8220**	**0.0000**	**494.0813**	**494.0813**	**0.1538**		**497.3114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017		486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1020**	**1.5196**	**0.2017**	**1.7213**		**486.1454**	**486.1454**	**0.1538**		**489.3754**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017	0.0000	486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2935**	**0.5926**	**0.2017**	**0.7944**	**0.0000**	**486.1454**	**486.1454**	**0.1538**		**489.3754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5672**	**475.5672**	**0.1538**		**478.7971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5672**	**475.5672**	**0.1538**		**478.7971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000

Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5568**	**475.5568**	**0.1538**		**478.7867**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5568**	**475.5568**	**0.1538**		**478.7867**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Max

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	40.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.7158	590.5213	287.3224	0.8034	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,796.3415	81,796.3415	24.7640	0.0000	82,316.3853
2018	46.5217	497.4309	256.4394	0.8035	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,477.6200	80,477.6200	24.7593	0.0000	80,997.5652
2019	42.7054	429.6087	243.7872	0.8032	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	79,126.5954	79,126.5954	24.7456	0.0000	79,646.2530
2020	39.8897	377.8294	232.2936	0.8028	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,347.0666	77,347.0666	24.7301	0.0000	77,866.3987
2021	36.4568	314.5609	219.7238	0.8029	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,324.0937	77,324.0937	24.7262	0.0000	77,843.3446
Total	**218.2893**	**2,209.9511**	**1,239.5663**	**4.0157**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**396,071.7172**	**396,071.7172**	**123.7252**	**0.0000**	**398,669.9468**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.7158	590.5213	287.3224	0.8034	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,796.3414	81,796.3414	24.7640	0.0000	82,316.3853
2018	46.5217	497.4309	256.4394	0.8035	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,477.6199	80,477.6199	24.7593	0.0000	80,997.5652
2019	42.7054	429.6087	243.7872	0.8032	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	79,126.5954	79,126.5954	24.7456	0.0000	79,646.2529
2020	39.8897	377.8294	232.2936	0.8028	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,347.0666	77,347.0666	24.7301	0.0000	77,866.3986
2021	36.4568	314.5609	219.7238	0.8029	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,324.0936	77,324.0936	24.7262	0.0000	77,843.3445
Total	**218.2893**	**2,209.9511**	**1,239.5663**	**4.0157**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**396,071.7169**	**396,071.7169**	**123.7252**	**0.0000**	**398,669.9464**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	40	12.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	40	100.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520		80,655.7472	80,655.7472	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**		**80,655.7472**	**80,655.7472**	**24.7128**		**81,174.7153**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3966	0.4605	6.2010	0.0145	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,140.5943	1,140.5943	0.0512		1,141.6700
Total	**0.3966**	**0.4605**	**6.2010**	**0.0145**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,140.5943**	**1,140.5943**	**0.0512**		**1,141.6700**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520	0.0000	80,655.7471	80,655.7471	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**	**0.0000**	**80,655.7471**	**80,655.7471**	**24.7128**		**81,174.7153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3966	0.4605	6.2010	0.0145	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,140.5943	1,140.5943	0.0512		1,141.6700
Total	**0.3966**	**0.4605**	**6.2010**	**0.0145**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,140.5943**	**1,140.5943**	**0.0512**		**1,141.6700**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896		79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**		**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3533	0.4152	5.5945	0.0144	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		1,097.5546	1,097.5546	0.0472		1,098.5459
Total	**0.3533**	**0.4152**	**5.5945**	**0.0144**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**1,097.5546**	**1,097.5546**	**0.0472**		**1,098.5459**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896	0.0000	79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**	**0.0000**	**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3533	0.4152	5.5945	0.0144	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		1,097.5546	1,097.5546	0.0472		1,098.5459
Total	**0.3533**	**0.4152**	**5.5945**	**0.0144**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**1,097.5546**	**1,097.5546**	**0.0472**		**1,098.5459**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600		78,073.5239	78,073.5239	24.7016		78,592.2583

Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**		**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3232	0.3803	5.1733	0.0144	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		1,053.0715	1,053.0715	0.0440		1,053.9947
Total	**0.3232**	**0.3803**	**5.1733**	**0.0144**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**1,053.0715**	**1,053.0715**	**0.0440**		**1,053.9947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600	0.0000	78,073.5239	78,073.5239	24.7016		78,592.2582
Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**	**0.0000**	**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3232	0.3803	5.1733	0.0144	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		1,053.0715	1,053.0715	0.0440		1,053.9947
Total	**0.3232**	**0.3803**	**5.1733**	**0.0144**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**1,053.0715**	**1,053.0715**	**0.0440**		**1,053.9947**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526		76,335.6414	76,335.6414	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**		**76,335.6414**	**76,335.6414**	**24.6885**		**76,854.0997**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3011	0.3528	4.8250	0.0144	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		1,011.4252	1,011.4252	0.0416		1,012.2989
Total	**0.3011**	**0.3528**	**4.8250**	**0.0144**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**1,011.4252**	**1,011.4252**	**0.0416**		**1,012.2989**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526	0.0000	76,335.6413	76,335.6413	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**	**0.0000**	**76,335.6413**	**76,335.6413**	**24.6885**		**76,854.0997**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.3011	0.3528	4.8250	0.0144	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		1,011.4252	1,011.4252	0.0416		1,012.2989
Total	**0.3011**	**0.3528**	**4.8250**	**0.0144**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**1,011.4252**	**1,011.4252**	**0.0416**		**1,012.2989**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038		76,329.7311	76,329.7311	24.6866		76,848.1493
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**		**76,329.7311**	**76,329.7311**	**24.6866**		**76,848.1493**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2836	0.3301	4.5386	0.0144	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		994.3626	994.3626	0.0397		995.1953
Total	**0.2836**	**0.3301**	**4.5386**	**0.0144**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**994.3626**	**994.3626**	**0.0397**		**995.1953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038	0.0000	76,329.7310	76,329.7310	24.6866		76,848.1492
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**	**0.0000**	**76,329.7310**	**76,329.7310**	**24.6866**		**76,848.1492**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2836	0.3301	4.5386	0.0144	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		994.3626	994.3626	0.0397		995.1953
Total	**0.2836**	**0.3301**	**4.5386**	**0.0144**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**994.3626**	**994.3626**	**0.0397**		**995.1953**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Max

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	40.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.6619	590.6320	286.4369	0.8016	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,656.1042	81,656.1042	24.7640	0.0000	82,176.1480
2018	46.4699	497.5301	255.5972	0.8017	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,342.5817	80,342.5817	24.7593	0.0000	80,862.5269
2019	42.6563	429.6992	242.9778	0.8014	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	78,997.0303	78,997.0303	24.7456	0.0000	79,516.6879
2020	39.8435	377.9130	231.5194	0.8010	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,222.5791	77,222.5791	24.7301	0.0000	77,741.9111
2021	36.4132	314.6387	218.9807	0.8011	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,201.6424	77,201.6424	24.7262	0.0000	77,720.8932
Total	**218.0447**	**2,210.4130**	**1,235.5119**	**4.0068**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**395,419.9376**	**395,419.9376**	**123.7252**	**0.0000**	**398,018.1672**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.6619	590.6320	286.4369	0.8016	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,656.1041	81,656.1041	24.7640	0.0000	82,176.1480
2018	46.4699	497.5301	255.5972	0.8017	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,342.5816	80,342.5816	24.7593	0.0000	80,862.5269
2019	42.6563	429.6992	242.9778	0.8014	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	78,997.0302	78,997.0302	24.7456	0.0000	79,516.6878
2020	39.8435	377.9130	231.5194	0.8010	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,222.5791	77,222.5791	24.7301	0.0000	77,741.9111
2021	36.4132	314.6387	218.9807	0.8011	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,201.6423	77,201.6423	24.7262	0.0000	77,720.8932
Total	**218.0447**	**2,210.4130**	**1,235.5119**	**4.0068**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**395,419.9373**	**395,419.9373**	**123.7252**	**0.0000**	**398,018.1668**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	40	12.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	40	100.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520		80,655.7472	80,655.7472	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**		**80,655.7472**	**80,655.7472**	**24.7128**		**81,174.7153**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3427	0.5712	5.3156	0.0127	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,000.3570	1,000.3570	0.0512		1,001.4327
Total	**0.3427**	**0.5712**	**5.3156**	**0.0127**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,000.3570**	**1,000.3570**	**0.0512**		**1,001.4327**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520	0.0000	80,655.7471	80,655.7471	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**	**0.0000**	**80,655.7471**	**80,655.7471**	**24.7128**		**81,174.7153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3427	0.5712	5.3156	0.0127	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,000.3570	1,000.3570	0.0512		1,001.4327
Total	**0.3427**	**0.5712**	**5.3156**	**0.0127**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,000.3570**	**1,000.3570**	**0.0512**		**1,001.4327**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896		79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**		**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3015	0.5144	4.7523	0.0127	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		962.5163	962.5163	0.0472		963.5076
Total	**0.3015**	**0.5144**	**4.7523**	**0.0127**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**962.5163**	**962.5163**	**0.0472**		**963.5076**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896	0.0000	79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**	**0.0000**	**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3015	0.5144	4.7523	0.0127	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		962.5163	962.5163	0.0472		963.5076
Total	**0.3015**	**0.5144**	**4.7523**	**0.0127**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**962.5163**	**962.5163**	**0.0472**		**963.5076**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600		78,073.5239	78,073.5239	24.7016		78,592.2583

Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**		**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2741	0.4708	4.3639	0.0126	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		923.5064	923.5064	0.0440		924.4296
Total	**0.2741**	**0.4708**	**4.3639**	**0.0126**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**923.5064**	**923.5064**	**0.0440**		**924.4296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600	0.0000	78,073.5239	78,073.5239	24.7016		78,592.2582
Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**	**0.0000**	**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2741	0.4708	4.3639	0.0126	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		923.5064	923.5064	0.0440		924.4296
Total	**0.2741**	**0.4708**	**4.3639**	**0.0126**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**923.5064**	**923.5064**	**0.0440**		**924.4296**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526		76,335.6414	76,335.6414	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**		**76,335.6414**	**76,335.6414**	**24.6885**		**76,854.0997**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2549	0.4363	4.0508	0.0126	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		886.9377	886.9377	0.0416		887.8114
Total	**0.2549**	**0.4363**	**4.0508**	**0.0126**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**886.9377**	**886.9377**	**0.0416**		**887.8114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526	0.0000	76,335.6413	76,335.6413	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**	**0.0000**	**76,335.6413**	**76,335.6413**	**24.6885**		**76,854.0997**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.2549	0.4363	4.0508	0.0126	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		886.9377	886.9377	0.0416		887.8114
Total	**0.2549**	**0.4363**	**4.0508**	**0.0126**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**886.9377**	**886.9377**	**0.0416**		**887.8114**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038		76,329.7311	76,329.7311	24.6866		76,848.1493
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**		**76,329.7311**	**76,329.7311**	**24.6866**		**76,848.1493**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2401	0.4079	3.7955	0.0126	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		871.9113	871.9113	0.0397		872.7439
Total	**0.2401**	**0.4079**	**3.7955**	**0.0126**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**871.9113**	**871.9113**	**0.0397**		**872.7439**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038	0.0000	76,329.7310	76,329.7310	24.6866		76,848.1492
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**	**0.0000**	**76,329.7310**	**76,329.7310**	**24.6866**		**76,848.1492**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2401	0.4079	3.7955	0.0126	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		871.9113	871.9113	0.0397		872.7439
Total	**0.2401**	**0.4079**	**3.7955**	**0.0126**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**871.9113**	**871.9113**	**0.0397**		**872.7439**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	15,500.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	1.3010	15.0003	9.2061	0.0181	14.7817	0.5326	15.3143	2.3596	0.4900	2.8496	0.0000	1,679.5143	1,679.5143	0.3340	0.0000	1,686.5284
2018	1.2331	14.0459	8.8190	0.0181	14.7817	0.5077	15.2894	2.3596	0.4671	2.8267	0.0000	1,640.1904	1,640.1904	0.3320	0.0000	1,647.1617
2019	1.1106	12.7849	8.2527	0.0181	14.7817	0.4471	15.2288	2.3596	0.4114	2.7710	0.0000	1,600.4086	1,600.4086	0.3303	0.0000	1,607.3453
2020	1.0983	12.7320	8.0382	0.0181	14.7817	0.4467	15.2284	2.3596	0.4110	2.7706	0.0000	1,556.1145	1,556.1145	0.3291	0.0000	1,563.0256
2021	1.0908	12.6793	7.8775	0.0181	14.7817	0.4463	15.2281	2.3596	0.4106	2.7703	0.0000	1,547.5094	1,547.5094	0.3281	0.0000	1,554.3998
Total	**5.8338**	**67.2424**	**42.1934**	**0.0904**	**73.9086**	**2.3804**	**76.2890**	**11.7980**	**2.1901**	**13.9881**	**0.0000**	**8,023.7372**	**8,023.7372**	**1.6535**	**0.0000**	**8,058.4608**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.3010	15.0003	9.2061	0.0181	6.1315	0.5326	6.6641	1.0178	0.4900	1.5078	0.0000	1,679.5143	1,679.5143	0.3340	0.0000	1,686.5284
2018	1.2331	14.0459	8.8190	0.0181	6.1315	0.5077	6.6392	1.0178	0.4671	1.4850	0.0000	1,640.1904	1,640.1904	0.3320	0.0000	1,647.1617
2019	1.1106	12.7849	8.2527	0.0181	6.1315	0.4471	6.5786	1.0178	0.4114	1.4292	0.0000	1,600.4086	1,600.4086	0.3303	0.0000	1,607.3453
2020	1.0983	12.7320	8.0382	0.0181	6.1315	0.4467	6.5781	1.0178	0.4110	1.4288	0.0000	1,556.1145	1,556.1145	0.3291	0.0000	1,563.0256
2021	1.0908	12.6793	7.8775	0.0181	6.1315	0.4463	6.5778	1.0178	0.4106	1.4285	0.0000	1,547.5094	1,547.5094	0.3281	0.0000	1,554.3998
Total	**5.8338**	**67.2424**	**42.1934**	**0.0904**	**30.6574**	**2.3804**	**33.0378**	**5.0892**	**2.1901**	**7.2792**	**0.0000**	**8,023.7372**	**8,023.7372**	**1.6535**	**0.0000**	**8,058.4608**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.52**	**0.00**	**56.69**	**56.86**	**0.00**	**47.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 15500

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	4.00	570	0.40
Grading	Scrapers	2	14.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	14.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812		1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**14.1807**	**0.5230**	**14.7038**	**2.1996**	**0.4812**	**2.6808**		**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812	0.0000	1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**5.5305**	**0.5230**	**6.0535**	**0.8579**	**0.4812**	**1.3390**	**0.0000**	**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588		988.1626	988.1626	0.3076		994.6228

Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**14.1807**	**0.4987**	**14.6794**	**2.1996**	**0.4588**	**2.6584**		**988.1626**	**988.1626**	**0.3076**		**994.6228**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588	0.0000	988.1626	988.1626	0.3076		994.6228
Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**5.5305**	**0.4987**	**6.0292**	**0.8579**	**0.4588**	**1.3167**	**0.0000**	**988.1626**	**988.1626**	**0.3076**		**994.6228**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034		972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**14.1807**	**0.4385**	**14.6193**	**2.1996**	**0.4034**	**2.6031**		**972.2907**	**972.2907**	**0.3076**		**978.7508**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034	0.0000	972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**5.5305**	**0.4385**	**5.9690**	**0.8579**	**0.4034**	**1.2613**	**0.0000**	**972.2907**	**972.2907**	**0.3076**		**978.7508**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974

Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035		951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**14.1807**	**0.4386**	**14.6193**	**2.1996**	**0.4035**	**2.6031**		**951.1343**	**951.1343**	**0.3076**		**957.5943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035	0.0000	951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**5.5305**	**0.4386**	**5.9691**	**0.8579**	**0.4035**	**1.2614**	**0.0000**	**951.1343**	**951.1343**	**0.3076**		**957.5943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036		951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**14.1807**	**0.4387**	**14.6194**	**2.1996**	**0.4036**	**2.6032**		**951.1136**	**951.1136**	**0.3076**		**957.5734**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036	0.0000	951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**5.5305**	**0.4387**	**5.9692**	**0.8579**	**0.4036**	**1.2614**	**0.0000**	**951.1136**	**951.1136**	**0.3076**		**957.5734**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	15,500.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	1.2867	15.0822	9.0209	0.0172	14.7817	0.5327	15.3144	2.3596	0.4900	2.8497	0.0000	1,608.6775	1,608.6775	0.3340	0.0000	1,615.6919
2018	1.2168	14.1192	8.6591	0.0172	14.7817	0.5078	15.2895	2.3596	0.4672	2.8268	0.0000	1,571.9635	1,571.9635	0.3320	0.0000	1,578.9352
2019	1.0944	12.8515	8.1067	0.0172	14.7817	0.4472	15.2289	2.3596	0.4114	2.7710	0.0000	1,534.9287	1,534.9287	0.3303	0.0000	1,541.8659
2020	1.0815	12.7920	7.9126	0.0172	14.7817	0.4467	15.2284	2.3596	0.4110	2.7706	0.0000	1,493.1871	1,493.1871	0.3291	0.0000	1,500.0988
2021	1.0745	12.7334	7.7633	0.0172	14.7817	0.4464	15.2281	2.3596	0.4107	2.7703	0.0000	1,485.5998	1,485.5998	0.3281	0.0000	1,492.4906
Total	**5.7538**	**67.5784**	**41.4625**	**0.0859**	**73.9086**	**2.3807**	**76.2893**	**11.7980**	**2.1903**	**13.9883**	**0.0000**	**7,694.3566**	**7,694.3566**	**1.6536**	**0.0000**	**7,729.0823**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.2867	15.0822	9.0209	0.0172	6.1315	0.5327	6.6641	1.0178	0.4900	1.5079	0.0000	1,608.6775	1,608.6775	0.3340	0.0000	1,615.6919
2018	1.2168	14.1192	8.6591	0.0172	6.1315	0.5078	6.6392	1.0178	0.4672	1.4850	0.0000	1,571.9635	1,571.9635	0.3320	0.0000	1,578.9352
2019	1.0944	12.8515	8.1067	0.0172	6.1315	0.4472	6.5786	1.0178	0.4114	1.4292	0.0000	1,534.9287	1,534.9287	0.3303	0.0000	1,541.8659
2020	1.0815	12.7920	7.9126	0.0172	6.1315	0.4467	6.5782	1.0178	0.4110	1.4288	0.0000	1,493.1871	1,493.1871	0.3291	0.0000	1,500.0988
2021	1.0745	12.7334	7.7633	0.0172	6.1315	0.4464	6.5778	1.0178	0.4107	1.4285	0.0000	1,485.5998	1,485.5998	0.3281	0.0000	1,492.4906
Total	**5.7538**	**67.5784**	**41.4625**	**0.0859**	**30.6574**	**2.3807**	**33.0380**	**5.0892**	**2.1903**	**7.2795**	**0.0000**	**7,694.3566**	**7,694.3566**	**1.6536**	**0.0000**	**7,729.0823**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.52**	**0.00**	**56.69**	**56.86**	**0.00**	**47.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 15500

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	4.00	570	0.40
Grading	Scrapers	2	14.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	14.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812		1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**14.1807**	**0.5230**	**14.7038**	**2.1996**	**0.4812**	**2.6808**		**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812	0.0000	1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**5.5305**	**0.5230**	**6.0535**	**0.8579**	**0.4812**	**1.3390**	**0.0000**	**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588		988.1626	988.1626	0.3076		994.6228

Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**14.1807**	**0.4987**	**14.6794**	**2.1996**	**0.4588**	**2.6584**		**988.1626**	**988.1626**	**0.3076**		**994.6228**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588	0.0000	988.1626	988.1626	0.3076		994.6228
Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**5.5305**	**0.4987**	**6.0292**	**0.8579**	**0.4588**	**1.3167**	**0.0000**	**988.1626**	**988.1626**	**0.3076**		**994.6228**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034		972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**14.1807**	**0.4385**	**14.6193**	**2.1996**	**0.4034**	**2.6031**		**972.2907**	**972.2907**	**0.3076**		**978.7508**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034	0.0000	972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**5.5305**	**0.4385**	**5.9690**	**0.8579**	**0.4034**	**1.2613**	**0.0000**	**972.2907**	**972.2907**	**0.3076**		**978.7508**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148

Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035		951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**14.1807**	**0.4386**	**14.6193**	**2.1996**	**0.4035**	**2.6031**		**951.1343**	**951.1343**	**0.3076**		**957.5943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035	0.0000	951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**5.5305**	**0.4386**	**5.9691**	**0.8579**	**0.4035**	**1.2614**	**0.0000**	**951.1343**	**951.1343**	**0.3076**		**957.5943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036		951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**14.1807**	**0.4387**	**14.6194**	**2.1996**	**0.4036**	**2.6032**		**951.1136**	**951.1136**	**0.3076**		**957.5734**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036	0.0000	951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**5.5305**	**0.4387**	**5.9692**	**0.8579**	**0.4036**	**1.2614**	**0.0000**	**951.1136**	**951.1136**	**0.3076**		**957.5734**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Conveyor Loading/Unloading Emissions

E (lb/ton) = k*(0.0032)*(U/5)^1.3/(M/2)^1.4

where
k = particle size multiplier (dimensionless)
U = mean wind speed (miles per hour [mph])
M = material moisture content (%)

Constants	
0.0032	2
5	1.4
1.3	

k		U (mph)	M (%)
PM_{10}	$PM_{2.5}$		
0.35	0.053	6	4.8

PM_{10} (lb/ton)	4.17E-04	Uncontrolled
$PM_{2.5}$ (lb/ton)	6.31E-05	
PM_{10} (lb/ton)	1.58E-04	Controlled
$PM_{2.5}$ (lb/ton)	2.40E-05	

		Uncontrolled		Controlled	
Material handled (tons/day)		**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum	21,000	8.8	1.3	3.3	0.5
Average	10,500	4.4	0.7	1.7	0.3

Source: AP-42, Chapter 13.2.4-4
Average annual wind speed at Mather Airport (http://www.wrcc.dri.edu/climatedata/climtables/westwind/)
Mining will generally proceed in a vertical plane on any given disturbed acre, continuously exposing new ground which typically has sufficient inherent moisture.
Assumed moisture content of 4.8% to be conservative considering soil moisture and site watering.
Controlled emission rates based on a 62% reduction from water sprays at conveyor transfer points
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Truck Loading/Unloading Emissions - Overburden

E (lb/ton) = k*(0.0032)*(U/5)^1.3/(M/2)^1.4

where
k = particle size multiplier (dimensionless)
U = mean wind speed (miles per hour [mph])
M = material moisture content (%)

Constants	
0.0032	2
5	1.4
1.3	

k		U (mph)	M (%)
PM_{10}	$PM_{2.5}$		
0.35	0.053	6	12

PM_{10} (lb/ton)	1.16E-04
$PM_{2.5}$ (lb/ton)	1.75E-05

Per applicant:

1	truck per	2	minutes
30	truckloads per	60	minutes
360	truckloads per	12	hours
300	truckloads per	10	hours

Maximum	7,200	cubic yards/day
Average	6,000	cubic yards/day

Material handled (tons/day)		PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Maximum	9,101	1.1	0.2
Average	7,584	0.9	0.1

Operational hours for off-road trucks

Maximum	12	hours/day
Average	10	hours/day

Truck capacity

20	cubic yards

1.264 tons per cubic yard
based on bulk density of 1.5 grams per cubic centimeter

Source: AP-42, Chapter 13.2.4-4
Average annual wind speed at Mather Airport (http://www.wrcc.dri.edu/climatedata/climtables/westwind/)
Mining will generally proceed in a vertical plane on any given disturbed acre, continuously exposing new ground which typically has sufficient inherent moisture.
Assumed moisture content of 12% considering soil moisture and site watering based on the WRAP Fugitive Dust Handbook.
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Truck Travel on Unpaved Roads - Overburden

E (lb/VMT) = k*(s/12)^a*(W/3)^b*((365-p)/365)*(1-CE)

where
E = size specific emission factor (lb/vehicle mile traveled)
s = surface material silt content (%)
W = mean vehicle weight (tons)
p = number of days in a year with at least 0.254 mm (0.01 in) of precipitation
CE = control efficiency

	k	a	b
PM_{10}	1.5	0.9	0.45
$PM_{2.5}$	0.15	0.9	0.45

		Units
s	4.8	%
W	30	tons
p	57	days
CE	84	%

PM_{10} (lb/VMT)	2.50E-01
$PM_{2.5}$ (lb/VMT)	2.50E-02

Per applicant:

1	truck per	2	minutes
30	truckloads per	60	minutes
360	truckloads per	12	hours
300	truckloads per	10	hours

Maximum	12	hours/day
Average	10	hours/day

Maximum	162	VMT/day
Average	135	VMT/day

0.5 mile per truck

	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Maximum	40.5	4.1
Average	33.8	3.4

Source: AP-42, Chapter 13.2.2
Average annual precipitation days from Mather Airport (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5400)
The off-road trucks used would be end or bottom dump trucks. Mean weight is average of full and empty trucks.
Average travel distance based on transfer from northwestern edge of the Aspen VIII/IX site to the eastern edge of Aspen V South which is the anticipated route.
As mining proceeds, a portion of the overburden is expected to be used onsite and the need for offroad trucks would decline.
Control efficiency from South Coast Air Quality Management District, Table XI-D Mitigation Measure Examples: Fugitive Dust from Unpaved Roads and WRAP Fugitive Dust Handbook.
Based on application of chemical dust suppressant.
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Aspen VIII IX Avg

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	2.8555	31.9948	15.5682	0.0436	0.0716	1.1870	1.2586	0.0190	1.0920	1.1111	0.0000	4,024.0935	4,024.0935	1.2174	0.0000	4,049.6586
2018	2.5296	27.0552	13.9470	0.0438	0.0719	0.9869	1.0588	0.0191	0.9080	0.9271	0.0000	3,974.3387	3,974.3387	1.2218	0.0000	3,999.9964
2019	2.3220	23.3668	13.2579	0.0437	0.0719	0.8492	0.9211	0.0191	0.7813	0.8004	0.0000	3,907.5112	3,907.5112	1.2211	0.0000	3,933.1540
2020	2.1772	20.6295	12.6806	0.0439	0.0721	0.7512	0.8233	0.0192	0.6911	0.7103	0.0000	3,834.1907	3,834.1907	1.2250	0.0000	3,859.9152
2021	1.9822	17.1101	11.9481	0.0437	0.0719	0.6272	0.6991	0.0191	0.5770	0.5961	0.0000	3,818.3499	3,818.3499	1.2201	0.0000	3,843.9718
Total	**11.8665**	**120.1564**	**67.4018**	**0.2187**	**0.3593**	**4.4015**	**4.7607**	**0.0955**	**4.0494**	**4.1449**	**0.0000**	**19,558.4839**	**19,558.4839**	**6.1054**	**0.0000**	**19,686.6960**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	2.8555	31.9948	15.5682	0.0436	0.0716	1.1870	1.2586	0.0190	1.0920	1.1111	0.0000	4,024.0887	4,024.0887	1.2174	0.0000	4,049.6538
2018	2.5296	27.0552	13.9470	0.0438	0.0719	0.9869	1.0588	0.0191	0.9080	0.9271	0.0000	3,974.3340	3,974.3340	1.2218	0.0000	3,999.9917
2019	2.3220	23.3667	13.2579	0.0437	0.0719	0.8492	0.9211	0.0191	0.7813	0.8004	0.0000	3,907.5066	3,907.5066	1.2211	0.0000	3,933.1494
2020	2.1772	20.6295	12.6805	0.0439	0.0721	0.7512	0.8233	0.0192	0.6911	0.7103	0.0000	3,834.1862	3,834.1862	1.2250	0.0000	3,859.9107
2021	1.9822	17.1101	11.9481	0.0437	0.0719	0.6272	0.6991	0.0191	0.5770	0.5961	0.0000	3,818.3454	3,818.3454	1.2201	0.0000	3,843.9673
Total	**11.8665**	**120.1563**	**67.4017**	**0.2187**	**0.3593**	**4.4015**	**4.7607**	**0.0955**	**4.0493**	**4.1449**	**0.0000**	**19,558.4610**	**19,558.4610**	**6.1053**	**0.0000**	**19,686.6730**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8340	31.9616	15.2274	0.0427		1.1865	1.1865		1.0916	1.0916	0.0000	3,963.3568	3,963.3568	1.2144	0.0000	3,988.8584
Total	**2.8340**	**31.9616**	**15.2274**	**0.0427**		**1.1865**	**1.1865**		**1.0916**	**1.0916**	**0.0000**	**3,963.3568**	**3,963.3568**	**1.2144**	**0.0000**	**3,988.8584**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0216**	**0.0332**	**0.3408**	**8.5000e-004**	**0.0716**	**5.0000e-004**	**0.0721**	**0.0190**	**4.6000e-004**	**0.0195**	**0.0000**	**60.7367**	**60.7367**	**3.0200e-003**	**0.0000**	**60.8001**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8340	31.9616	15.2274	0.0427		1.1865	1.1865		1.0916	1.0916	0.0000	3,963.3520	3,963.3520	1.2144	0.0000	3,988.8537
Total	**2.8340**	**31.9616**	**15.2274**	**0.0427**		**1.1865**	**1.1865**		**1.0916**	**1.0916**	**0.0000**	**3,963.3520**	**3,963.3520**	**1.2144**	**0.0000**	**3,988.8537**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0216**	**0.0332**	**0.3408**	**8.5000e-004**	**0.0716**	**5.0000e-004**	**0.0721**	**0.0190**	**4.6000e-004**	**0.0195**	**0.0000**	**60.7367**	**60.7367**	**3.0200e-003**	**0.0000**	**60.8001**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5104	27.0252	13.6397	0.0429		0.9864	0.9864		0.9075	0.9075	0.0000	3,915.6734	3,915.6734	1.2190	0.0000	3,941.2724
Total	**2.5104**	**27.0252**	**13.6397**	**0.0429**		**0.9864**	**0.9864**		**0.9075**	**0.9075**	**0.0000**	**3,915.6734**	**3,915.6734**	**1.2190**	**0.0000**	**3,941.2724**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240

Total	**0.0192**	**0.0300**	**0.3074**	**8.5000e-004**	**0.0719**	**4.9000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**58.6653**	**58.6653**	**2.7900e-003**	**0.0000**	**58.7240**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5104	27.0252	13.6397	0.0429		0.9864	0.9864		0.9075	0.9075	0.0000	3,915.6687	3,915.6687	1.2190	0.0000	3,941.2677
Total	**2.5104**	**27.0252**	**13.6397**	**0.0429**		**0.9864**	**0.9864**		**0.9075**	**0.9075**	**0.0000**	**3,915.6687**	**3,915.6687**	**1.2190**	**0.0000**	**3,941.2677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0192**	**0.0300**	**0.3074**	**8.5000e-004**	**0.0719**	**4.9000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**58.6653**	**58.6653**	**2.7900e-003**	**0.0000**	**58.7240**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3045	23.3393	12.9746	0.0429		0.8487	0.8487		0.7808	0.7808	0.0000	3,851.2241	3,851.2241	1.2185	0.0000	3,876.8123
Total	**2.3045**	**23.3393**	**12.9746**	**0.0429**		**0.8487**	**0.8487**		**0.7808**	**0.7808**	**0.0000**	**3,851.2241**	**3,851.2241**	**1.2185**	**0.0000**	**3,876.8123**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0175**	**0.0275**	**0.2833**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**56.2871**	**56.2871**	**2.6000e-003**	**0.0000**	**56.3417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	2.3045	23.3393	12.9746	0.0429		0.8487	0.8487		0.7808	0.7808	0.0000	3,851.2195	3,851.2195	1.2185	0.0000	3,876.8077
Total	**2.3045**	**23.3393**	**12.9746**	**0.0429**		**0.8487**	**0.8487**		**0.7808**	**0.7808**	**0.0000**	**3,851.2195**	**3,851.2195**	**1.2185**	**0.0000**	**3,876.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0175**	**0.0275**	**0.2833**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**56.2871**	**56.2871**	**2.6000e-003**	**0.0000**	**56.3417**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1609	20.6039	12.4160	0.0430		0.7507	0.7507		0.6906	0.6906	0.0000	3,779.9247	3,779.9247	1.2225	0.0000	3,805.5973
Total	**2.1609**	**20.6039**	**12.4160**	**0.0430**		**0.7507**	**0.7507**		**0.6906**	**0.6906**	**0.0000**	**3,779.9247**	**3,779.9247**	**1.2225**	**0.0000**	**3,805.5973**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0163**	**0.0256**	**0.2646**	**8.5000e-004**	**0.0721**	**4.9000e-004**	**0.0726**	**0.0192**	**4.5000e-004**	**0.0196**	**0.0000**	**54.2660**	**54.2660**	**2.4700e-003**	**0.0000**	**54.3179**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1609	20.6039	12.4160	0.0430		0.7507	0.7507		0.6906	0.6906	0.0000	3,779.9202	3,779.9202	1.2225	0.0000	3,805.5928
Total	**2.1609**	**20.6039**	**12.4160**	**0.0430**		**0.7507**	**0.7507**		**0.6906**	**0.6906**	**0.0000**	**3,779.9202**	**3,779.9202**	**1.2225**	**0.0000**	**3,805.5928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0163**	**0.0256**	**0.2646**	**8.5000e-004**	**0.0721**	**4.9000e-004**	**0.0726**	**0.0192**	**4.5000e-004**	**0.0196**	**0.0000**	**54.2660**	**54.2660**	**2.4700e-003**	**0.0000**	**54.3179**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9669	17.0863	11.7007	0.0429		0.6267	0.6267		0.5766	0.5766	0.0000	3,765.2060	3,765.2060	1.2177	0.0000	3,790.7786
Total	**1.9669**	**17.0863**	**11.7007**	**0.0429**		**0.6267**	**0.6267**		**0.5766**	**0.5766**	**0.0000**	**3,765.2060**	**3,765.2060**	**1.2177**	**0.0000**	**3,790.7786**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0153**	**0.0238**	**0.2474**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**53.1440**	**53.1440**	**2.3500e-003**	**0.0000**	**53.1932**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9669	17.0863	11.7007	0.0429		0.6267	0.6267		0.5766	0.5766	0.0000	3,765.2015	3,765.2015	1.2177	0.0000	3,790.7741
Total	**1.9669**	**17.0863**	**11.7007**	**0.0429**		**0.6267**	**0.6267**		**0.5766**	**0.5766**	**0.0000**	**3,765.2015**	**3,765.2015**	**1.2177**	**0.0000**	**3,790.7741**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0153**	**0.0238**	**0.2474**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**53.1440**	**53.1440**	**2.3500e-003**	**0.0000**	**53.1932**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Unmitigated	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0968	1.0185	0.7855	1.6200e-003	5.2189	0.0352	5.2542	1.0117	0.0324	1.0441	0.0000	132.3107	132.3107	0.0213	0.0000	132.7570
2018	0.0910	0.9557	0.7446	1.6300e-003	5.2192	0.0337	5.2530	1.0118	0.0310	1.0428	0.0000	129.3468	129.3468	0.0211	0.0000	129.7897

2019	0.0820	0.8699	0.6953	1.6200e-003	5.2192	0.0297	5.2490	1.0118	0.0274	1.0391	0.0000	125.8321	125.8321	0.0209	0.0000	126.2709
2020	0.0807	0.8658	0.6729	1.6300e-003	5.2195	0.0298	5.2493	1.0118	0.0274	1.0392	0.0000	122.5460	122.5460	0.0208	0.0000	122.9835
2021	0.0793	0.8551	0.6514	1.6200e-003	5.2192	0.0296	5.2489	1.0118	0.0273	1.0390	0.0000	121.1557	121.1557	0.0206	0.0000	121.5891
Total	**0.4298**	**4.5651**	**3.5497**	**8.1200e-003**	**26.0962**	**0.1581**	**26.2543**	**5.0588**	**0.1455**	**5.2042**	**0.0000**	**631.1912**	**631.1912**	**0.1047**	**0.0000**	**633.3901**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0968	1.0185	0.7855	1.6200e-003	2.0814	0.0352	2.1167	0.4068	0.0324	0.4393	0.0000	132.3106	132.3106	0.0213	0.0000	132.7569
2018	0.0910	0.9557	0.7446	1.6300e-003	2.0817	0.0337	2.1154	0.4069	0.0310	0.4379	0.0000	129.3467	129.3467	0.0211	0.0000	129.7897
2019	0.0820	0.8699	0.6953	1.6200e-003	2.0817	0.0297	2.1114	0.4069	0.0274	0.4343	0.0000	125.8320	125.8320	0.0209	0.0000	126.2708
2020	0.0807	0.8658	0.6729	1.6300e-003	2.0820	0.0298	2.1118	0.4070	0.0274	0.4344	0.0000	122.5459	122.5459	0.0208	0.0000	122.9834
2021	0.0793	0.8551	0.6514	1.6200e-003	2.0817	0.0296	2.1113	0.4069	0.0273	0.4342	0.0000	121.1557	121.1557	0.0206	0.0000	121.5891
Total	**0.4298**	**4.5651**	**3.5497**	**8.1200e-003**	**10.4085**	**0.1581**	**10.5666**	**2.0346**	**0.1455**	**2.1801**	**0.0000**	**631.1909**	**631.1909**	**0.1047**	**0.0000**	**633.3898**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.11**	**0.00**	**59.75**	**59.78**	**0.00**	**58.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	37.9550	37.9550	1.8600e-003	3.9000e-004	38.1137
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**37.9640**	**37.9640**	**1.8900e-003**	**3.9000e-004**	**38.1233**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	37.9550	37.9550	1.8600e-003	3.9000e-004	38.1137
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**37.9640**	**37.9640**	**1.8900e-003**	**3.9000e-004**	**38.1233**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**

Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0687	0.9373	0.3617	6.4000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	59.2049	59.2049	0.0181	0.0000	59.5858
Total	**0.0687**	**0.9373**	**0.3617**	**6.4000e-004**	**5.1435**	**0.0340**	**5.1775**	**0.9915**	**0.0313**	**1.0228**	**0.0000**	**59.2049**	**59.2049**	**0.0181**	**0.0000**	**59.5858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4600e-003	0.0480	0.0830	1.4000e-004	3.8800e-003	7.5000e-004	4.6200e-003	1.1100e-003	6.9000e-004	1.7900e-003	0.0000	12.3691	12.3691	9.0000e-005	0.0000	12.3710
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0280**	**0.0812**	**0.4238**	**9.9000e-004**	**0.0755**	**1.2500e-003**	**0.0767**	**0.0201**	**1.1500e-003**	**0.0213**	**0.0000**	**73.1058**	**73.1058**	**3.1100e-003**	**0.0000**	**73.1711**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0687	0.9373	0.3617	6.4000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	59.2048	59.2048	0.0181	0.0000	59.5858
Total	**0.0687**	**0.9373**	**0.3617**	**6.4000e-004**	**2.0060**	**0.0340**	**2.0400**	**0.3867**	**0.0313**	**0.4180**	**0.0000**	**59.2048**	**59.2048**	**0.0181**	**0.0000**	**59.5858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4600e-003	0.0480	0.0830	1.4000e-004	3.8800e-003	7.5000e-004	4.6200e-003	1.1100e-003	6.9000e-004	1.7900e-003	0.0000	12.3691	12.3691	9.0000e-005	0.0000	12.3710
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0280**	**0.0812**	**0.4238**	**9.9000e-004**	**0.0755**	**1.2500e-003**	**0.0767**	**0.0201**	**1.1500e-003**	**0.0213**	**0.0000**	**73.1058**	**73.1058**	**3.1100e-003**	**0.0000**	**73.1711**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0664	0.8825	0.3620	6.4000e-004		0.0325	0.0325		0.0299	0.0299	0.0000	58.4931	58.4931	0.0182	0.0000	58.8755
Total	**0.0664**	**0.8825**	**0.3620**	**6.4000e-004**	**5.1435**	**0.0325**	**5.1760**	**0.9915**	**0.0299**	**1.0215**	**0.0000**	**58.4931**	**58.4931**	**0.0182**	**0.0000**	**58.8755**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4200e-003	0.0433	0.0753	1.4000e-004	3.8900e-003	6.9000e-004	4.5800e-003	1.1100e-003	6.3000e-004	1.7500e-003	0.0000	12.1884	12.1884	9.0000e-005	0.0000	12.1902
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0246**	**0.0733**	**0.3826**	**9.9000e-004**	**0.0757**	**1.1800e-003**	**0.0769**	**0.0202**	**1.0800e-003**	**0.0213**	**0.0000**	**70.8537**	**70.8537**	**2.8800e-003**	**0.0000**	**70.9142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0664	0.8825	0.3620	6.4000e-004		0.0325	0.0325		0.0299	0.0299	0.0000	58.4930	58.4930	0.0182	0.0000	58.8754
Total	**0.0664**	**0.8825**	**0.3620**	**6.4000e-004**	**2.0060**	**0.0325**	**2.0385**	**0.3867**	**0.0299**	**0.4166**	**0.0000**	**58.4930**	**58.4930**	**0.0182**	**0.0000**	**58.8754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4200e-003	0.0433	0.0753	1.4000e-004	3.8900e-003	6.9000e-004	4.5800e-003	1.1100e-003	6.3000e-004	1.7500e-003	0.0000	12.1884	12.1884	9.0000e-005	0.0000	12.1902
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0246**	**0.0733**	**0.3826**	**9.9000e-004**	**0.0757**	**1.1800e-003**	**0.0769**	**0.0202**	**1.0800e-003**	**0.0213**	**0.0000**	**70.8537**	**70.8537**	**2.8800e-003**	**0.0000**	**70.9142**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0597	0.8032	0.3409	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	57.5536	57.5536	0.0182	0.0000	57.9360
Total	**0.0597**	**0.8032**	**0.3409**	**6.4000e-004**	**5.1435**	**0.0286**	**5.1721**	**0.9915**	**0.0263**	**1.0179**	**0.0000**	**57.5536**	**57.5536**	**0.0182**	**0.0000**	**57.9360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9200e-003	0.0392	0.0711	1.4000e-004	3.8900e-003	6.4000e-004	4.5300e-003	1.1100e-003	5.9000e-004	1.7000e-003	0.0000	11.9914	11.9914	9.0000e-005	0.0000	11.9932
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0224**	**0.0667**	**0.3544**	**9.9000e-004**	**0.0757**	**1.1200e-003**	**0.0769**	**0.0202**	**1.0400e-003**	**0.0213**	**0.0000**	**68.2785**	**68.2785**	**2.6900e-003**	**0.0000**	**68.3349**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0597	0.8032	0.3409	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	57.5535	57.5535	0.0182	0.0000	57.9359
Total	**0.0597**	**0.8032**	**0.3409**	**6.4000e-004**	**2.0060**	**0.0286**	**2.0346**	**0.3867**	**0.0263**	**0.4130**	**0.0000**	**57.5535**	**57.5535**	**0.0182**	**0.0000**	**57.9359**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	4.9200e-003	0.0392	0.0711	1.4000e-004	3.8900e-003	6.4000e-004	4.5300e-003	1.1100e-003	5.9000e-004	1.7000e-003	0.0000	11.9914	11.9914	9.0000e-005	0.0000	11.9932
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0224**	**0.0667**	**0.3544**	**9.9000e-004**	**0.0757**	**1.1200e-003**	**0.0769**	**0.0202**	**1.0400e-003**	**0.0213**	**0.0000**	**68.2785**	**68.2785**	**2.6900e-003**	**0.0000**	**68.3349**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8063	0.3426	6.4000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	56.5170	56.5170	0.0183	0.0000	56.9008
Total	**0.0601**	**0.8063**	**0.3426**	**6.4000e-004**	**5.1435**	**0.0287**	**5.1722**	**0.9915**	**0.0264**	**1.0180**	**0.0000**	**56.5170**	**56.5170**	**0.0183**	**0.0000**	**56.9008**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.0339	0.0658	1.4000e-004	3.9100e-003	5.7000e-004	4.4800e-003	1.1200e-003	5.3000e-004	1.6400e-003	0.0000	11.7630	11.7630	8.0000e-005	0.0000	11.7647
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0206**	**0.0595**	**0.3304**	**9.9000e-004**	**0.0760**	**1.0600e-003**	**0.0771**	**0.0203**	**9.8000e-004**	**0.0213**	**0.0000**	**66.0290**	**66.0290**	**2.5500e-003**	**0.0000**	**66.0826**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8063	0.3426	6.4000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	56.5169	56.5169	0.0183	0.0000	56.9008
Total	**0.0601**	**0.8063**	**0.3426**	**6.4000e-004**	**2.0060**	**0.0287**	**2.0347**	**0.3867**	**0.0264**	**0.4131**	**0.0000**	**56.5169**	**56.5169**	**0.0183**	**0.0000**	**56.9008**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.0339	0.0658	1.4000e-004	3.9100e-003	5.7000e-004	4.4800e-003	1.1200e-003	5.3000e-004	1.6400e-003	0.0000	11.7630	11.7630	8.0000e-005	0.0000	11.7647
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0206**	**0.0595**	**0.3304**	**9.9000e-004**	**0.0760**	**1.0600e-003**	**0.0771**	**0.0203**	**9.8000e-004**	**0.0213**	**0.0000**	**66.0290**	**66.0290**	**2.5500e-003**	**0.0000**	**66.0826**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8032	0.3416	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	56.3000	56.3000	0.0182	0.0000	56.6824
Total	**0.0601**	**0.8032**	**0.3416**	**6.4000e-004**	**5.1435**	**0.0286**	**5.1721**	**0.9915**	**0.0263**	**1.0179**	**0.0000**	**56.3000**	**56.3000**	**0.0182**	**0.0000**	**56.6824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8700e-003	0.0281	0.0624	1.4000e-004	3.8900e-003	5.1000e-004	4.4100e-003	1.1100e-003	4.7000e-004	1.5900e-003	0.0000	11.7118	11.7118	8.0000e-005	0.0000	11.7135
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0192**	**0.0519**	**0.3098**	**9.9000e-004**	**0.0757**	**9.9000e-004**	**0.0768**	**0.0202**	**9.2000e-004**	**0.0212**	**0.0000**	**64.8557**	**64.8557**	**2.4300e-003**	**0.0000**	**64.9067**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0601	0.8032	0.3416	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	56.3000	56.3000	0.0182	0.0000	56.6824
Total	**0.0601**	**0.8032**	**0.3416**	**6.4000e-004**	**2.0060**	**0.0286**	**2.0346**	**0.3867**	**0.0263**	**0.4130**	**0.0000**	**56.3000**	**56.3000**	**0.0182**	**0.0000**	**56.6824**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8700e-003	0.0281	0.0624	1.4000e-004	3.8900e-003	5.1000e-004	4.4100e-003	1.1100e-003	4.7000e-004	1.5900e-003	0.0000	11.7118	11.7118	8.0000e-005	0.0000	11.7135
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0192**	**0.0519**	**0.3098**	**9.9000e-004**	**0.0757**	**9.9000e-004**	**0.0768**	**0.0202**	**9.2000e-004**	**0.0212**	**0.0000**	**64.8557**	**64.8557**	**2.4300e-003**	**0.0000**	**64.9067**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003

Unmitigated	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	37.9550	1.8600e-003	3.9000e-004	38.1137
Unmitigated	37.9550	1.8600e-003	3.9000e-004	38.1137

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 40.5	37.9550	1.8600e-003	3.9000e-004	38.1137
Total		**37.9550**	**1.8600e-003**	**3.9000e-004**	**38.1137**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 40.5	37.9550	1.8600e-003	3.9000e-004	38.1137
Total		**37.9550**	**1.8600e-003**	**3.9000e-004**	**38.1137**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Conveyor Electricity Use Greenhouse Gas Emissions

		Emission Factors (lb/MWh)			Emissions (MT/year)			
kWh/year	**MWh/year**	**CO_2**	**CH_4**	**N_2O**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
2,790,000	2,790	590	0.029	0.00617	746.66	0.04	0.01	749.85

Global Warming Potential

CO_2	1
CH_4	21
N_2O	310

Conversion Factors

1 MT	2204.62	lb

Notes:
Electricity consumption provided by applicant
Emission factors from CalEEMod User Guide (Appendix D, Table 1.2)
kWh = kilowatt-hour; MWh = megawatt-hour; lb = pounds; MT = metric tons
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide

Water Consumption Greenhouse Gas Emissions

				Emission Factors (lb/MWh)			Emissions (MT/year)			
MG/year	**kWh/MG**	**kWh/year**	**MWh/year**	**CO_2**	**CH_4**	**N_2O**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
40.5	3500	141750	141.8	590	0.029	0.00617	37.94	0.05	0.01	41.94

Global Warming Potential

CO_2	1
CH_4	21
N_2O	310

Conversion Factors

1 MT	2204.62	lb

Notes:
Water consumption provided by applicant
Energy intensity for water use based on CEC's Report "Refining Estimates of Water-Related Energy Use in California (2006)" Publication Number: CEC-500-2006-118
Emission factors from CalEEMod User Guide (Appendix D, Table 1.2)
MG = million gallons; kWh = kilowatt-hour; MWh = megawatt-hour; lb = pounds; MT = metric tons
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide

Environmental Noise Analysis

Teichert Aspen VIII & IX

Sacramento County, California

BAC Job # 2014-166

Prepared For:

Teichert Materials

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Introduction

This report describes fundamentals of noise, quantifies the general ambient noise environment in the proposed Teichert Aspen VIII and IX Project (Project) site vicinity, describes the noise standards which would be applied to the Project by Sacramento County in addition to applicable California Environmental Quality Act (CEQA) requirements, and provides an assessment of potential noise impacts associated with aggregate extraction at the project sites. Figure 1 shows the project location. Figure 2 shows the mining boundaries and nearest residences.

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Table 1 shows common noise levels associated with various sources. Appendix “A” contains definitions of Acoustical Terminology.

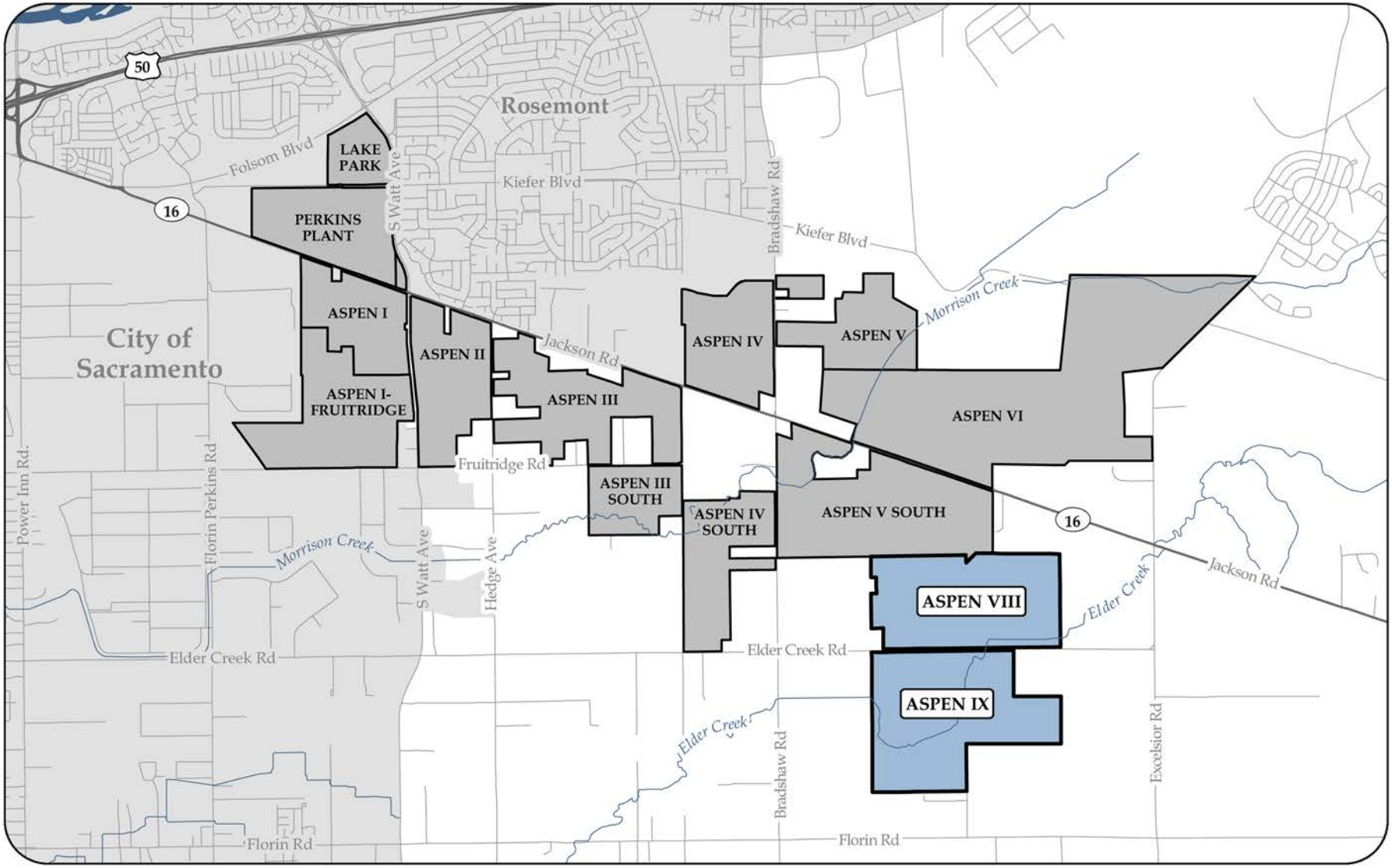
The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq) over a given time period (usually one hour). The Leq is the foundation of the Day-Night Average Level noise descriptor, Ldn, and shows very good correlation with community response to noise.

Figure 1

Teichert Aspen VIII & IX - Sacramento County, California

Site Vicinity



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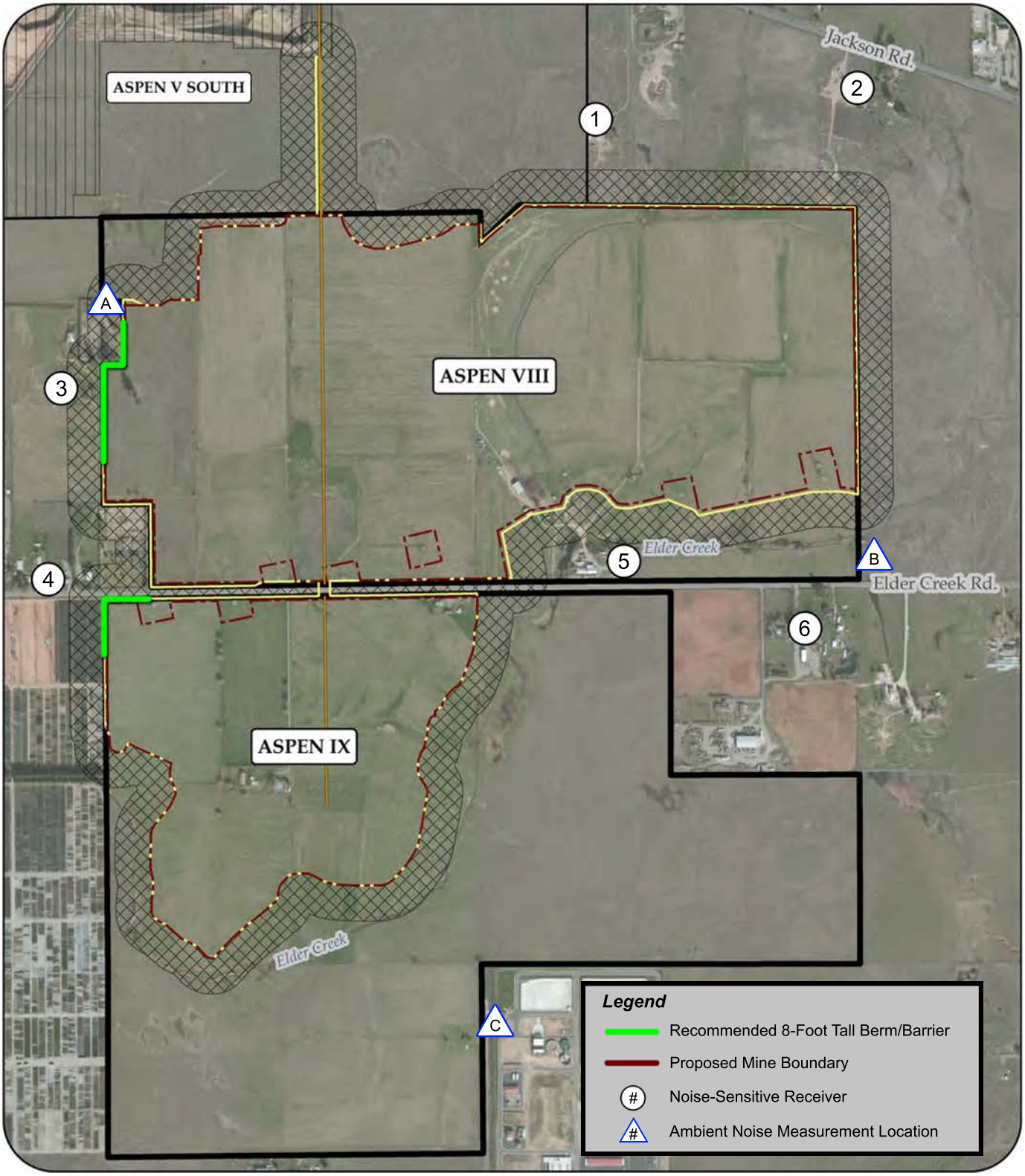
Scale (feet)

0 2,000 4,000

Figure 2

Teichert Aspen VIII & IX - Sacramento County, California

Project Area, Nearest Noise-Sensitive Receivers, and Ambient Monitoring Locations



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Scale (feet)

0 500 1,000

The Day-night Average Level (Ldn) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Ldn-based noise standards are commonly used to assess noise impacts associated with traffic, railroad and aircraft noise sources.

The Sacramento County noise standards, which are discussed in detail later in this section, are expressed in terms of hourly maximum and median noise level standards for on-site activities, such as those aggregate extraction activities associated with the proposed project.

In addition to the County's noise standards, the California Environmental Quality Act (CEQA) also requires that noise impacts be assessed relative to ambient noise levels which are present without the project. As a result, ambient noise surveys were conducted as part of this analysis for subsequent comparison against project-generated noise levels.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered to have a significant effect according to CEQA. Because every physical process creates noise, whether it's the addition of a single vehicle on a roadway, or a tractor in an agricultural field, the use of audibility as a significance criterion would be unworkable. CEQA requires a significant increase in noise levels before noise impacts must be identified, not simply an audible change. The discussion of what constitutes a significant change is discussed later in this report.

Existing Ambient Noise Environment

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Elder Creek Road and Jackson Highway, and by intermittent aircraft overflights associated with Mather Airport.

To quantify the existing ambient noise environment near the project site boundaries, continuous noise level measurements were conducted at three (3) locations in August and October, 2013. The noise measurement sites are identified on Figure 1. Weather conditions present during the monitoring program were typical for the measurement periods.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute. The results of the ambient noise level measurements are provided in Appendix B. A summary of the ambient noise level measurements is provided in Table 1.

Table 1
Summary of Ambient Noise Measurement Results
Teichert Aspen VIII and IX Excavation Site Property Lines

Site	Description	Date	L_{dn}	L_{50}[1]	L_{max}[1]
A	Near Northwest Corner Aspen VIII	10/22/13 – 10/24/13	56-58	45-46	69-76
B	Southeast Corner Aspen VIII	8/30/13 – 9/2/13	53-59	39-43	69-73
C	Southern Portion of Aspen IX	8/30/13 – 9/2/13	48-53	42-43	60-63

1. See Appendix A for an explanation of acoustical terminology
2. Because excavation activities would reportedly not occur during nighttime periods, the hourly maximum and median noise levels shown in this Table are provided for daytime hours only.

The Table 1 data indicate that the existing ambient noise environment at the perimeter of the project site during the survey period consisted of fairly typical noise levels for rural areas affected mainly by local and distant traffic. Average Ldn values along the site perimeter ranged from 48-59 dB. Average daytime median noise levels typically ranged from the mid to upper 30's to mid 40's, with average maximum values ranging from 60-76 dB Lmax.

Criteria for Acceptable Noise Exposure

Sacramento County General Plan

The Noise Element of the Sacramento County General Plan contains policies pertaining to acceptable noise generation and exposure levels within the County. Policy NO-6, reproduced below, is specifically pertinent to the evaluation of noise impacts due to Aspen VIII & IX excavation operations.

NO-6 Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not to exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

Table 2
Non-Transportation Noise Standards
Median (L50) / Maximum (Lmax)[a]
Sacramento County Noise Element

	Outdoor Area[b]		Interior[c]
Land Use	**Daytime**	**Nighttime**	**Day & Night**
All Residential	55 / 75	50 / 70	35 / 55
Transient lodging[d]	55 / 75	--	35 / 55
Hospitals, nursing homes[e,f]	55 / 75	--	35 / 55
Theaters, auditoriums, music halls[f]	--	--	30 / 50
Churches, meeting halls[f]	55 / 75	--	35 / 60
Office buildings[f]	60 / 75	--	45 / 65
Commercial Buildings[f]	--	--	45 / 65
Playgrounds, neighborhood parks[f]	65 / 75	--	--
Industry[f]	60 / 80	--	50 / 70

Source: Sacramento County General Plan (2011)

Notes:

[a] The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

[b] Sensitive areas are defined in the acoustic terminology section of the Noise Element.

[c] Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.

[d] Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

[e] Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

[f] The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.

[g] Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Sacramento County Zoning Code

Article 4 of the Sacramento County Zoning Code specifically pertains to surface mining operations within Sacramento County. Section 235-53 requires that hours of operation for mining activities shall be 6 am 10 pm Monday through Friday, 6 am - 3 pm on Saturday, and no mining allowed on Sundays or labor union holidays.

Section 235-60 of the Zoning Code states that the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:

a. The noise limit for a cumulative period of more than 30 minutes in any hour, or;

b. The noise limit plus 5 dBA for a cumulative period of more than one minute per hour, or the noise limit plus 20 dBA for any period of time.

Essentially the County Zoning Code applies a 70 dB L50 standard, a 75 dB L02, and a 90 dB Lmax standard to the property line of the mine site.

Criteria for Determining Significance of Project-Related Noise Increases

Criteria for determining the significance of project-related noise level increases are developed based on information contained in the California Environmental Quality Act Guidelines (State CEQA Guidelines). According to those guidelines, a project may have a significant effect on the environment if it will satisfy the following conditions:

(b) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

It is generally recognized that an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. A common practice is to assume that a clearly noticeable increase of 5 dB is required for a finding of significance.

Evaluation of Project-Noise Generation

Project Description

The project applicant proposes to excavate aggregate resources from the two project areas (Aspen VIII and IX). The material will be excavated primarily using front-loaders, but self-elevating scrapers, excavators, motor graders, and water trucks will likely also be used at the sites periodically. The material will be transported to the main Teichert Perkins plant via conveyor.

Project-Related Noise Generation

Table 3 shows the types of equipment which may be used at the project site and the reference maximum noise levels corresponding to the operation of that equipment. These noise levels were obtained from Bollard Acoustical Consultants noise level measurements conducted at various locations in recent years.

Table 3
Major Noise-Producing Equipment and Anticipated Noise Emission Levels
Teichert Aspen VIII and IX Project - Sacramento County

	Approximate Noise Level, dBA @ 100 ft. Reference Dist.		
Equipment Type	**Maximum (Lmax)**	**Average (Leq)**	**Median (L50)**
Excavating Equipment: (Combinations of loaders, scrapers, dozers, graders, and water trucks)	80	70	65

Notes: Average noise levels represent any one-hour period and assume continuous operation of the excavation equipment.

Project Noise Levels at Mine Site Boundaries

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the Teichert Aspen VIII and IX sites would be approximately 50 feet. At that distance excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. These levels would satisfy the Sacramento County Zoning Code requirements of 90 dB L_{max} and 70 dB L_{50} at the mine site boundaries. Therefore, no noise mitigation measures would be required of this project relative to the County's Zoning Code standards.

Project Noise Levels at Nearest Residences

The nearest residences to the proposed project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site property lines varies. Table 4 shows the predicted noise levels during initial mining activities at the closest positions to the receivers identified in Figure 2. Initial mining activities are considered to be worst-case since mining noise levels will decrease as the equipment descends deeper into the excavation area and the pit walls begin to serve as noise barriers.

Table 4
Predicted Noise Levels at Nearest Sensitive Receivers
Teichert Aspen VIII and IX Excavation Areas - Sacramento County

Residence[1]	Distance (ft)	Maximum (Lmax)	Median (L50)
1	490	65	50
2	750	61	46
3	250	72	57
4	300	70	55
5	320	69	54
6	830	60	45
Sacramento County Daytime Noise Limits		75	55

1 – The locations of the nearest residences are indicated on Figure 2.

Assessment of Impacts at Nearest Residences Relative to County Noise Standards

The Table 4 data indicate that the County's General Plan standard of 75 dB L_{max} applicable at residential uses during daytime hours would be satisfied at each of the nearest residences. In addition, the Table 4 data indicate that the County's General Plan standard of 55 dB L_{50} would be satisfied at each of the nearest residences with the exception of Residence #3. At that residence, which is 250 feet from the proposed excavation operations, the predicted median hourly noise level of 57 dB would exceed the County's exterior noise standard by 2 dB. Although this is considered a fairly small exceedance, noise mitigation measures should be incorporated into the proposed operations to achieve compliance with the County noise standards. Such measures are provided in the Conclusions section of this report.

Assessment of Impacts at Nearest Residences Relative to Ambient Conditions

Measurement Sites A & B (See Figure 1) generally represent ambient conditions at the nearest residences to the proposed Aspen 8 & 9 mining areas. According to Table 1, measured daytime maximum noise levels at Sites A & B averaged 69-76 dB. Assuming a 5 dB increase over ambient would result in a finding of significant impact, the threshold for maximum noise levels at the nearest residences would range from 74 to 81 dBA. As indicated in Table 4, predicted maximum noise levels due to the project would range from 60 to 71 dB Lmax at the nearest residences. As a result, the project is not predicted to result in a significant increase in existing maximum (L_{max}) noise levels at the nearest existing residences.

With respect to average (L_{eq}) noise levels, Appendix B indicates that measured average noise levels during daytime periods generally ranged from 50 to 60 dB at measurement Sites A & B. Given that range of measured average ambient noise levels, satisfaction with the County's 55 dB noise standard would be adequate to ensure that the project did not result in a significant increase in ambient noise levels during daytime hours.

Although the project would not result in a significant increase in average (L_{eq}), or maximum (L_{max}) noise levels, it is possible that the project could result in a substantial increase in median (L_{50}) noise levels. Table 1 shows that measured median noise levels ranged from 39 to 46 dB at Sites A & B. However, there was considerable variability in measured median noise levels from hour to hour, depending primarily on the degree of local traffic present during the hour. For example, at measurement Site A, the average of the median noise levels for daytime hours (7 am to 10 pm) was 46 dBA. However, between 6 am and 9 am, measured median noise levels on that same day exceeded 50 dBA. Measured median noise levels at Site B were lower than Site A, but there was variability in the measured ambient noise levels at that location as well.

Just as measured median ambient noise levels varied, so too would median noise levels generated by the proposed project. More specifically, median noise levels at the project will be variable as the location of heavy earthmoving equipment operations are constantly changing. Nonetheless, this analysis concludes that the project could result in short-term substantial increases in median noise levels at receptors 3 & 4 (See Figure 2). A similar finding occurs at Receptor 5, but that residence is located within the project site boundaries and owned by the applicant. As a result, it is not considered a sensitive receptor for the purposes of this evaluation.

Due to the potential for short-term significant increases (in excess of 5 dB) in median noise levels at Receptors 3 and 4, this analysis recommends additional noise mitigation measures for those two receptors. Such measures are provided in the Conclusions section of this report.

Conclusions and Recommendations

Aggregate excavation operations at the Teichert Aspen VIII and IX sites are predicted to generate noise levels in compliance with the Sacramento County Zoning Code at the nearest property boundaries. In addition, maximum noise levels are predicted to satisfy the County General Plan noise standards at each of the nearest residences to the project site. Furthermore, the project noise generation is not predicted to substantially exceed existing average (L_{eq}) and maximum (L_{max}) noise levels measured in the immediate project vicinity. However, because median noise levels could temporarily exceed County General Plan noise standards, and substantially exceed measured existing median noise levels at Receptors 3 and 4 during daytime hours (see Figure 2), the following specific noise mitigation measures are recommended for this project:

1. Excavation activities occurring within 600 feet of any existing residence shall be limited to daytime hours (7 am to 10 pm) until such time as excavation equipment has recessed deep enough into the pit so as to be shielded from view of the nearest residences by intervening topography (i.e. the pit edge). Once the excavation equipment is sufficiently depressed in the pit such that the excavation equipment is completely shielded from view of the nearest residences, excavation-generated noise levels would be reduced, and it may be possible to operate during nighttime hours. Field noise measurements should be conducted to ensure nighttime operations could occur without exceeding County noise standards or significantly exceeding existing ambient conditions.

2. Noise generated during initial excavation activities within 600 feet of receptors R3 and R4 should be reduced through utilization of fewer scrapers during excavation activities near this residence, though the installation of temporary noise barriers, or a combination of the two. For the relatively brief period in which scrapers would be in operation within 600 feet of Residence #3 or #4, a halving of the number of scrapers operating in that area would result in a 3 dB reduction in excavation noise. A temporary noise barrier, such as a plywood fence, chain like fence with sound curtain attached, or earthen berm, all constructed to a minimum height of 8 feet, would provide the degree of noise reduction required to achieve compliance with the County's 55 dB L_{50} noise standard and ensure that the project did not result in a substantial increase in ambient noise levels at those two potentially impacted residences. The locations of the recommended noise barriers are shown on Figure 2.

3. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

This concludes our environmental noise assessment for Aspen VIII & IX in Sacramento County, California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions or requests for additional information.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

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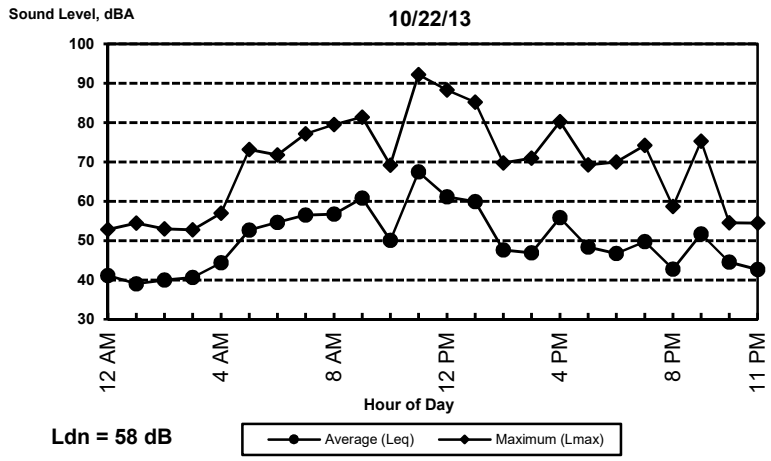
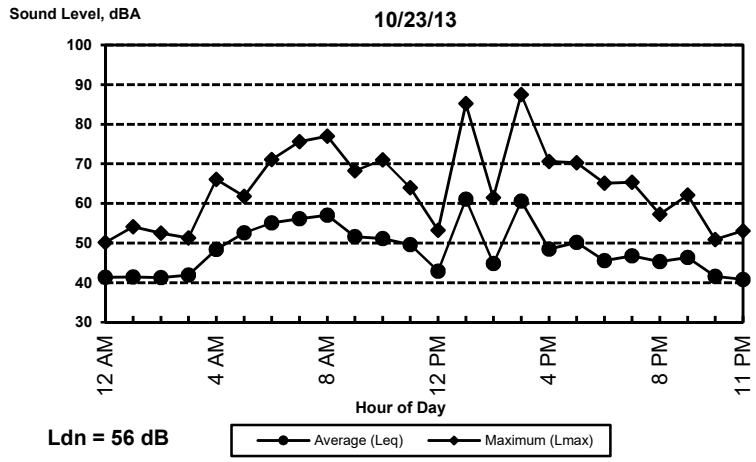
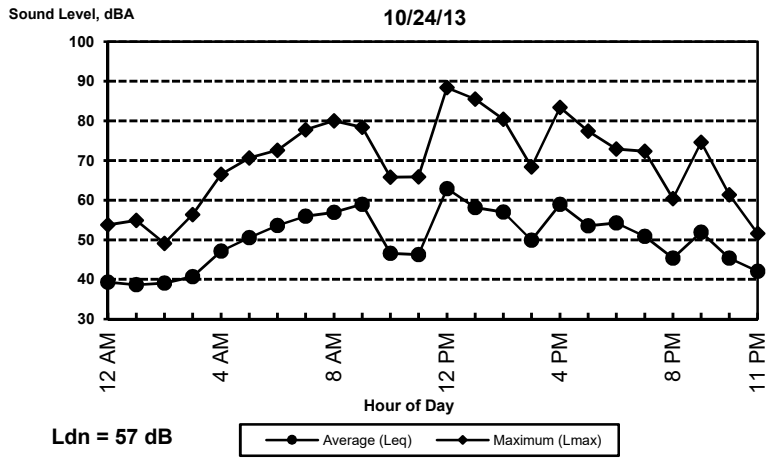
Appendix B-1
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site A



Ldn = 58 dB



Ldn = 56 dB



Ldn = 57 dB

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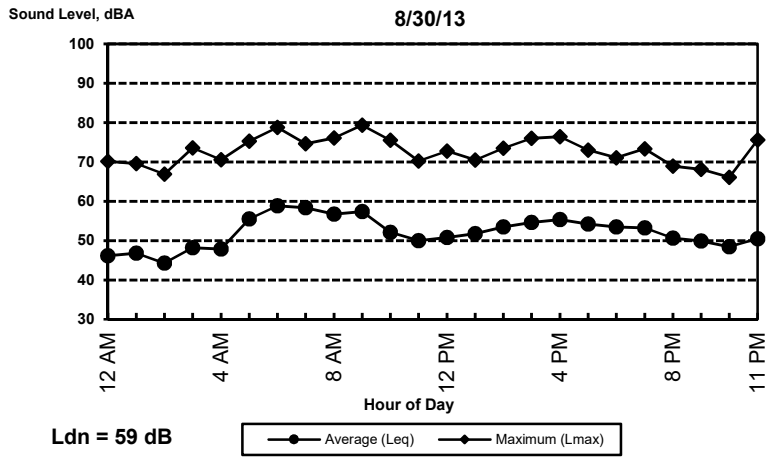
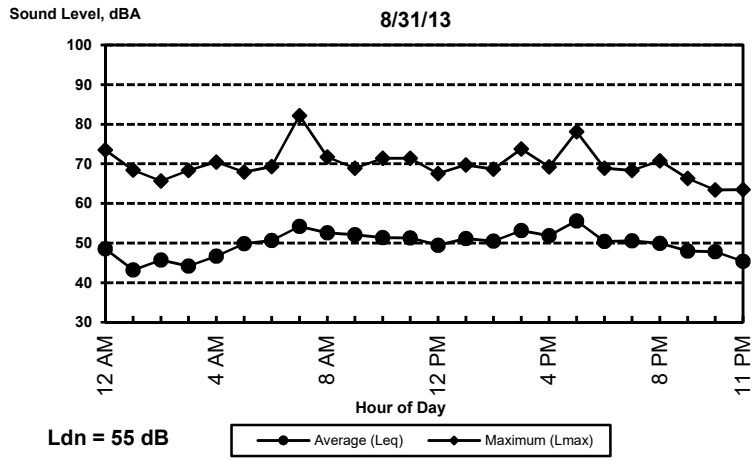
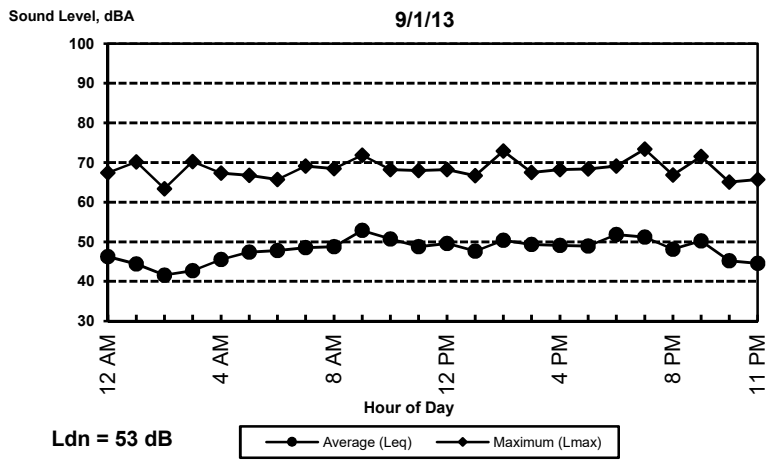
Appendix B-2
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site B



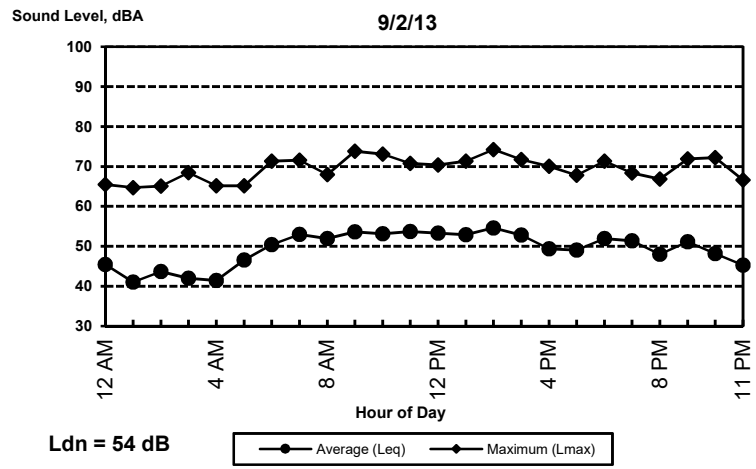
Ldn = 59 dB



Ldn = 55 dB



Ldn = 53 dB



Ldn = 54 dB

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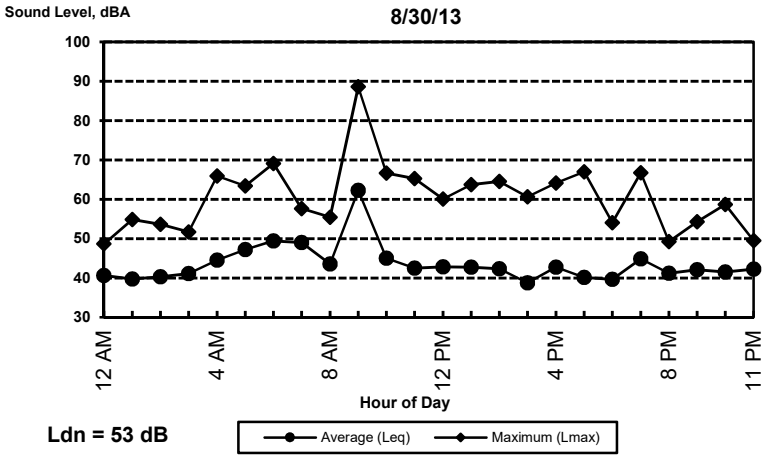
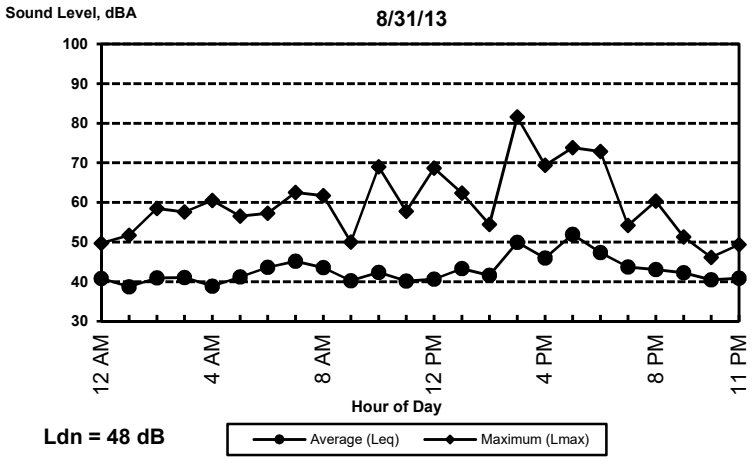
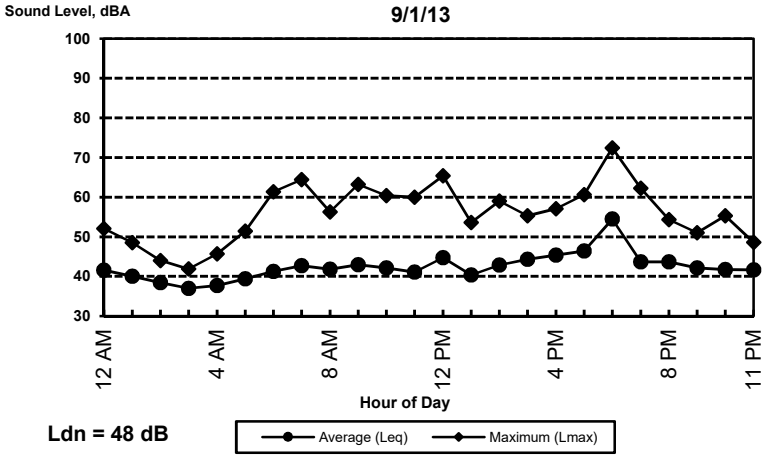
Appendix B-3
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site C



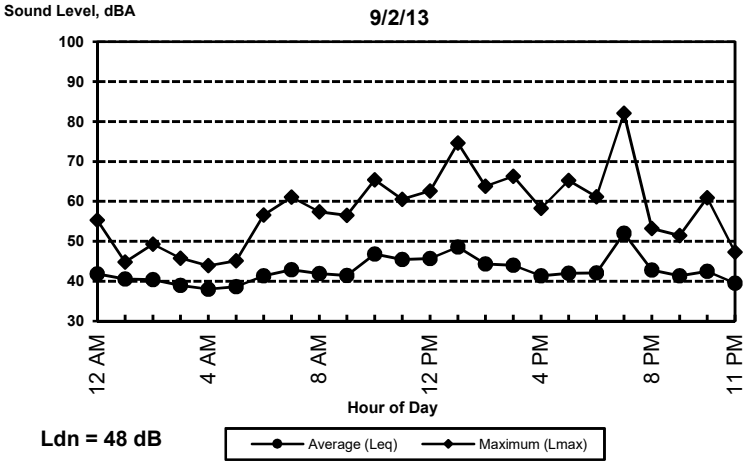
Ldn = 53 dB



Ldn = 48 dB



Ldn = 48 dB



Ldn = 48 dB

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Aspen VIII and IX
Hydraulic Analysis of Elder Creek

To: Mr. John Lane, Teichert Aggregates

From: Martin Lewis

Date: January 13, 2016

Subject: Updated Hydraulics of Elder Creek
Proposed Aspen VIII and IX Mining Sites, Sacramento County.

Introduction

This document serves as a follow-up to Cunningham Engineering's (CEC's) technical memoranda of December 4, 2014 and September 28, 2015, which summarized our HEC-RAS hydraulic analysis of the reach of Elder Creek that traverses the proposed Aspen VIII and IX mining sites (the 'project'). This memorandum is intended as a finalization of the September 28 document, incorporating comments received in a memo from Sacramento County DWR dated December 29, 2015, together with supplemental/clarifying DWR comments received via email correspondence during the week of January 4, 2016.

As noted in the above-referenced memoranda, Teichert proposes to develop the mining plans so as to remain outside the main creek's computed 200-year flood limits, but plans to mine into the small FEMA-mapped Zone X and Zone AO areas that lie onsite. The existing (2012) FEMA 100-year floodplain limits are indicated on Exhibit A, attached.

The post-project 100-year/200-year flood limits, as computed herein, are plotted on the attached Exhibit B, together with the proposed mining limits. Also re-plotted thereon is the current effective FEMA 100-year floodplain, for visual comparison with the post-project 100-year flood limits. It is noted that while the mining boundary will at all locations lie outside the 200-year flood limit, the final boundary location may also be influenced by pit design considerations.

Preliminary Analysis – December 2014

CEC's initial hydraulic analysis, described in our December 2014 memo, was based on our updating Sacramento County DWR's 2007 HEC-RAS analysis of Elder Creek (herein referred to as the 'DWR 2007 model'). Based on our initial analysis, we concluded that a new 4-8'w by

■ Davis: 2940 Spafford Street, Suite 200 ▪ Davis, California 95618 ▪ (530)758-2026 ▪ fax (530)758-2066 ▪ cecwest.com
■ Sacramento: 2120 20th Street, Suite Three ▪ Sacramento, California 95818 ▪ (916)455-2026 ▪ fax (916)451-2066

4.5'h concrete box culvert (CBC) under Elder Creek Road would provide sufficient conveyance capacity to pass the 200-year peak flow, eliminating roadway overtopping and existing right-bank spillage on approach to Elder Creek Road. At the time of conducting our preliminary analysis in late 2014, DWR was concurrently working on updating its system-wide hydrology and hydraulics (H&H) models for Elder Creek. Accordingly, our December 2014 memo acknowledged that DWR's ongoing update to the system-wide H&H models could yield new information that might in turn require an update to our local analysis of the creek. This is indeed the case, and CEC's updated hydraulic analysis – as described below - takes into account DWR's model updates as of August 2015.

Updated Analysis – September 2015

In August 2015, Sacramento County DWR provided Cunningham Engineering (CEC) with a copy of its updated Elder Creek system-wide existing-conditions hydraulic model (HEC-RAS project file 'ASPEN_ALTEG_Comp_Model.prj', dated 8/26/15, and herein referred to as the 'DWR 2015 model'). Compared with the 2007 DWR model, the 2015 DWR model uses updated hydrologic input, and the newer model's stream geometry is based on more detailed and current topographic information (sourced in part from Sacramento County lidar and CVFED lidar data). In particular, the 2015 DWR model uses CVFED lidar topo data on Aspen VIII and on at least a portion of Aspen IX.

For the 100-year event, the 2015 DWR existing-conditions HEC-RAS model yields results that are broadly similar to the 2007 DWR model. In particular, both models indicate a right-bank westbound spill between river station (RS) 10.65 and RS 10.619 – on the Aspen VIII site immediately upstream of Elder Creek Road. The models indicate this spilled floodwater generally flowing west along the Elder Creek Road corridor. In both models, most of this spilled water continues overland in the northwest part of the Aspen IX site, returning to Elder Creek on the Aspen IX site near its western boundary. On Exhibit A, this is manifested as the FEMA Zone AO areas along Elder Creek Road and on the northwest portion of Aspen IX.

However, one notable difference between the 2007 and 2015 DWR models' 100-year analyses is the latter model's prediction of a second spill on Aspen VIII. This additional spill is also from the creek's right bank, located between river RS 10.720 and RS 10.65 – roughly 300 to 400 feet upstream of Elder Creek Road. During high flows, the 2015 DWR model indicates water from this second spill flowing northward along an existing south-to-north irrigation ditch corridor that bisects the Aspen XIII site, eventually discharging north from the Aspen XIII site at its northerly boundary.

For the 100-year event, the 2015 DWR model estimates a peak northbound spill rate of 62 cfs. In the model, the spill is represented via a lateral weir element, whose crest profile is based on CVFED topo mapping in the vicinity of the spill. CEC also reviewed the CVFED lidar mapping in the vicinity of the northbound spill, and our interpretation of the CVFED topo results in a slightly different lateral weir definition. This in turn produced a lower peak spill rate (18 cfs) than that predicted by the 2015 DWR model.

For CEC's updated hydraulic analysis, we also made some modifications to the 2015 DWR model's overbank elevations within cross-sections RS 9.974 to RS 9.524 on the westerly portion of Aspen IX. The purpose of these revisions was to reflect our interpretation of the CVFED lidar topography in that subreach, which suggests to us lower overbank elevations than shown in the 2015 DWR model. Our revised (lowered) overbank elevations result in slightly lower computed peak water surface elevations (WSEs) within that ± ½-mile subreach of Aspen IX - approximately 0.5' lower on average.

A revised existing-conditions geometric model (the 'CEC 2015 pre-project model'), incorporating the CEC edits to the above-referenced Aspen VIII lateral weir and to the Aspen XI westerly cross-sections, was subsequently used herein as the baseline to which our post-project hydraulic analysis has been compared. (For the purposes of this document, the term *pre-project* means existing conditions prior to mining on Aspen VIII/IX; and *post-project* means during and after mining).

Vertical Datum

The DWR 2007 hydraulic model and DWR 2015 model are both referenced to NGVD 29 vertical datum. The 2015 model uses a composite topo base, including topographic data acquired from CVFED Lidar mapping (converted from NAVD 88 to NGVD 29 by subtracting 2.4'). The CEC 2015 model of the creek is also referenced to NGVD 29.

Post-Project Conditions

As noted in December 2014 memo, it is proposed that the Aspen VIII/IX mining plan eliminate the spillage from the creek's right bank just upstream of the Elder Creek Road culvert. This will be accomplished by upsizing the Elder Creek Road culvert to increase its conveyance capacity.

The proposed increment in culvert capacity will also include the existing Elder Creek Road overtopping flow component, with the intent of preventing pit capture due to roadway overtopping. The hydraulic model representing the culvert upgrade (the "CEC 2015 post-project model'') replaces the existing CMP culvert with a 4-8'w by 4.5'h CBC. While the existing culvert length is approximately 45', it is recognized that future widening of Elder Creek Road may occur. As such, the proposed CBC's length was set at 100' for modeling purposes, in order to provide for adequate sizing relative to a future widened Elder Creek Road.

In the CEC 2015 post-project model, the entrance invert of the proposed 4.5'-high CBC was set to match the existing CMP entrance invert of EL 71.5 (NGVD 29). At the point where the centerline of Elder Creek Road intersects the proposed CBC centerline, the existing roadway crown elevation is at EL 78.1, providing approximately 2.1' of cover from CBC soffit to the roadway centerline.

During final design of the CBC, additional cover could be provided - if desired - by matching pre/post culvert exit inverts (rather than entrance inverts). The existing CMP exit invert is at EL

71.0, so matching the CBC exit invert to that elevation would provide approximately 0.5' of additional cover for the proposed CBC. It is not anticipated that the proposed CBC will require local raising of Elder Creek Road.

The CEC 2015 post-project model confirms that the proposed CBC would provide sufficient capacity to pass the 200-year peak flow (956 cfs) under Elder Creek Road. The new culvert's corresponding maximum headwater elevation is computed at EL 77.1 at the model cross-section immediately upstream of the CBC barrel's entrance. For the 100-year peak flow (893 cfs), the corresponding headwater elevation is EL 76.8.

The proposed Mining & Reclamation Plans for Aspen VIII and IX call for the construction a low, compacted-earth berm located near the top of the proposed mining slope. The berm will lie generally outside the 200-year flood limit, will have a 12-foot minimum top-width and 2H:1V side-slopes, and is intended to provide the proposed mining pit with 3 feet freeboard in the 200-year event. The proposed pit-side berm will run the full length of the creek on both the Aspen VIII and IX sites. At the proposed CBC crossing of Elder Creek Road, the Aspen VIII and IX berms will each tie to the west wingwalls of the new culvert structure, maintaining 3' of freeboard on the pit-side of the creek. While the berms are expected to provide reliable flood protection for the proposed mining operations, it is currently not intended that the berms be certified with FEMA accreditation. Absent such FEMA accreditation, all mining pit areas that will lie below the base flood elevation would need to be mapped into a 'Zone A' Special Flood Hazard Area.

On the non pit-side of Elder Creek, the peak 100-year WSEs will continue to be naturally contained within the limits of the Aspen VIII and IX properties. As such, abutting properties are not impacted by the local increases in peak WSE within Aspen VIII and IX.

The elimination of the right-bank northbound spill on Aspen VIII will result in that flow component now being conveyed downstream in Elder Creek. Accordingly, the increase in downstream peak flow is accompanied by a small increase in the creek's computed peak water levels. The post-project 100-year/200-year water surface profiles (WSPs) are tabulated in Attachment C, together with the pre-project WSPs as computed by the 2015 CEC pre-project model.

Also indicated in Attachment C is the pre-project to post-project increment in computed peak WSE for each model cross-section, together with reach-averaged changes in peak WSE: Downstream of Aspen IX, the computed average increment in Elder Creek's peak WSE is 0.01' (100-year) and 0.04' (200-year) for the reach extending from Aspen IX to Bradshaw Road. Between Bradshaw Road and Florin Road, the average increase is 0.00' (100-year); 0.01' (200-year).

[Using DWR's higher estimate of Aspen VIII's northbound spill (Q_{100}=62 cfs) in the pre-project model, the reach-averaged pre-project to post-project peak WSE differences would be slightly larger. Between Aspen IX and Bradshaw, the average increase would be 0.03' (100-year); 0.05' (200-year). Between Bradshaw and Florin, the increase would be 0.01' (100-year); 0.02' (200-year).]

Based on the above, it is our view that eliminating an Aspen VIII northbound spill in the approximate 20-60 cfs range will result in computed increments in offsite downstream WSEs that are minor enough to be considered negligible in material terms.

In addition, the 2104 Sacramento County Floodplain Management Ordinance (CFMO) defines maximum allowable increments in post-project WSEs resulting from the implementation of projects. CFMO Section 906-06 (H) requires that a project not have an *adverse impact*, as defined in CFMO Section 902-01. The definition of adverse impact includes (but is not limited to) an increase in the base flood elevation equal or greater than 0.1 foot. For the Aspen VIII/IX project, the computed downstream increments in peak WSEs are less than the 0.1-foot threshold. Therefore it appears that the project does not produce an adverse impact as defined in the CFMO.

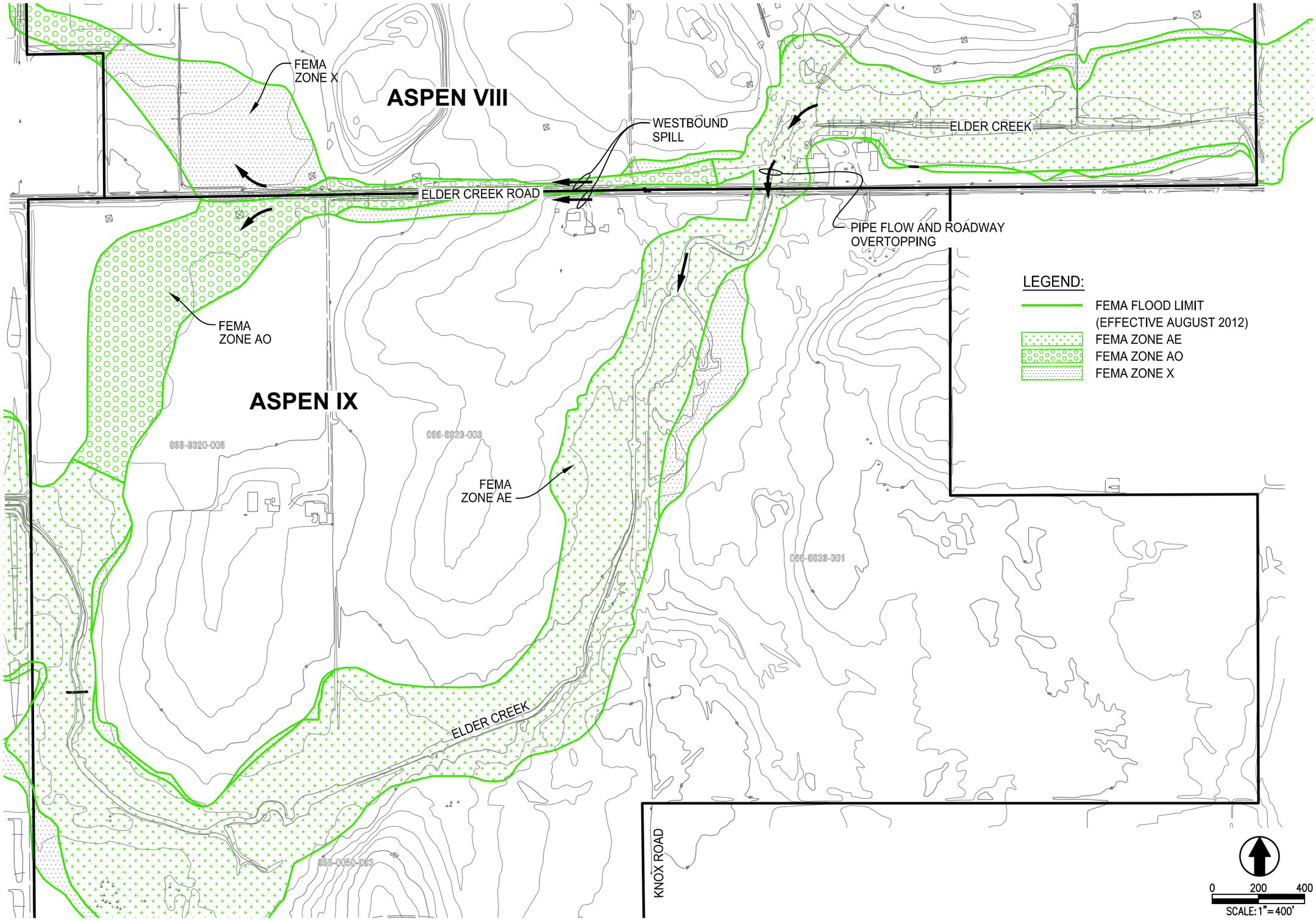
Summary and Conclusions

CEC has utilized DWR's most current (August 2015) system-wide hydraulic model of Elder Creek, with minor local adjustments, to compute 100-year/200-year flood limits within the proposed Aspen VIII and IX mining sites. The post-project 200-year flood limits, as computed herein, differ from those depicted in our 2014 memo, and the proposed mining limits have been adjusted accordingly. The existing roadway overtopping at Elder Creek Road, together with the two existing creek spills on Aspen VIII, will be eliminated for events up to the 200-year storm. This will be accomplished by replacing the existing under-capacity Elder Creek Road pipe culverts with a 4-8'w by 4.5'h CBC sized for the 200-year peak discharge. Pit-side freeboard of 3' will be provided by a proposed earthen berm.

The elimination of Aspen VIII's northbound spill will result in a minor increase in Elder Creek's peak flow downstream of Elder Creek Road. However, downstream of the project site the corresponding increase in peak water levels is small enough so as not to constitute an adverse impact based as defined by the Sacramento County Floodplain Management Ordinance.

Attachments

A. Aspen VIII & IX Existing FEMA 100-year Flood Limits.
B. Aspen VIII & IX Proposed Flood Limits and Mining Boundary.
C. Elder Creek Pre-project and Post-project WSP Tabulations.



SCALE 1"=400'

SHEET 1 OF 2

CECWEST.COM

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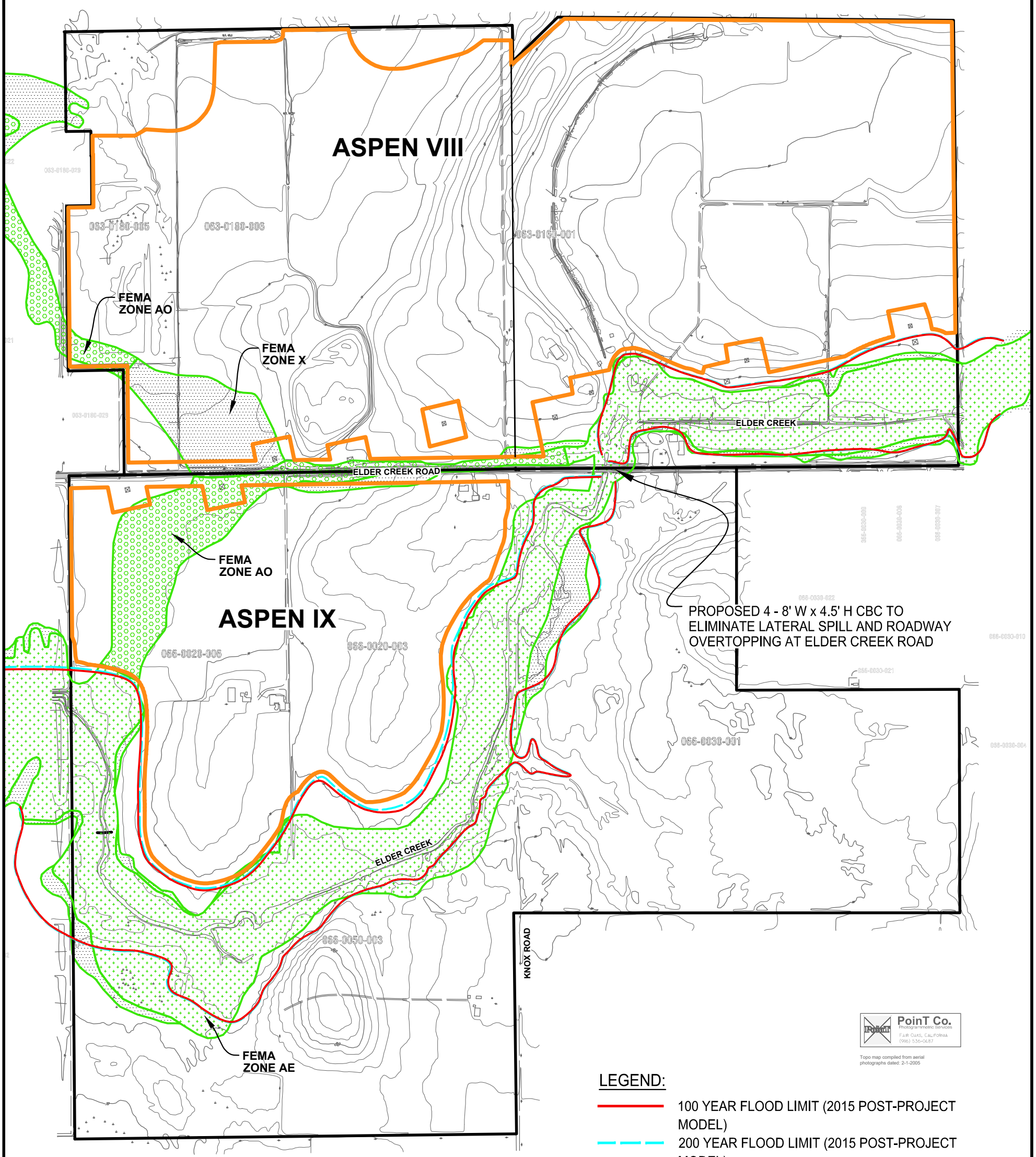
CUNNINGHAM ENGINEERING

EXHIBIT A
ASPEN VIII & IX
EXISTING FEMA FLOOD LIMITS

SACRAMENTO COUNTY CALIFORNIA

DESIGNED ML
DRAWN LE
CHECKED ML
DATE: 01/13/16
JOB No: 1390.03

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-03 HYDRAULIC EVALUATION\EXHIBITS\FLOODPLAIN EVALUATION\1390-03-C1-FLOODPLAIN.dwg – XBT 1/13/2016 – 11:53AM Plotted by: Liz



PoinT Co.
Photogrammetric Services
Fair Oaks, California
(916) 536-0487

Topo map compiled from aerial photographs dated: 2-1-2005

LEGEND:

- 100 YEAR FLOOD LIMIT (2015 POST-PROJECT MODEL)
- 200 YEAR FLOOD LIMIT (2015 POST-PROJECT MODEL)
- FEMA FLOOD LIMIT (EFFECTIVE AUGUST 2012)
- PROPOSED MINING BOUNDARY
- FEMA ZONE AE
- FEMA ZONE AO
- FEMA ZONE X

0 300 600
SCALE: 1"=600'

DESIGNED ML
DRAWN LE
CHECKED ML
DATE: 01/13/16
JOB No: 1390.03

EXHIBIT B

ASPEN VIII & IX PROPOSED FLOOD LIMITS AND MINING BOUNDARY

SACRAMENTO COUNTY CALIFORNIA

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SCALE 1"=600'
SHEET 2 OF 2

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-03 HYDRAULIC EVALUATION\EXHIBITS\FLOODPLAIN EVALUATION\1390-03-C2-FLOODPLAIN.dwg – XBT 1/13/2016 – 11:54AM Plotted by: Liz

Aspen VIII/IX Mining Sites
Comparison of Elder Creek pre- to post-project peak water surface elevations **9/28/2015**

Plan:	**Description:**
"Aspen2-100/200"	Pre-project (100yr/200yr): Based on DWR 8/26/15 model, with CEC def'n of north spill structure on A8 (=> Q_{100}=18 cfs), and with westerly A9 x-secs updated by CEC to match CVFED lidar
"R1AE-100/200"	Post-project (100yr/200yr): As above , but with with proposed CBC at Elder Creek Road and both A8 spills eliminated

Note: Mining site extends from RS 11.063 (east edge of A8) to RS 9.486 (west edge of A9)

100-year

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	ΔWSE
REACH1	12.205	Max WS	R1AE-100	436	89.4	92.31	
REACH1	12.205	Max WS	Aspen2-100	436	89.4	92.31	0.00
REACH1	12.144	Max WS	R1AE-100	435	88.36	91.4	
REACH1	12.144	Max WS	Aspen2-100	435	88.36	91.4	0.00
REACH1	12.072	Max WS	R1AE-100	434	87.5	90.67	
REACH1	12.072	Max WS	Aspen2-100	434	87.5	90.67	0.00
REACH1	12.02	Max WS	R1AE-100	391	86.52	89.91	
REACH1	12.02	Max WS	Aspen2-100	392	86.52	89.91	0.00
REACH1	11.944	Max WS	R1AE-100	385	85.5	89.6	
REACH1	11.944	Max WS	Aspen2-100	385	85.5	89.6	0.00
REACH1	11.883	Max WS	R1AE-100	404	84.5	89.56	
REACH1	11.883	Max WS	Aspen2-100	404	84.5	89.56	0.00
REACH1	11.849	Max WS	R1AE-100	424	82.5	89.47	
REACH1	11.849	Max WS	Aspen2-100	424	82.5	89.47	0.00
REACH1	11.848	Max WS	R1AE-100	425	82.5	89.46	
REACH1	11.848	Max WS	Aspen2-100	425	82.5	89.46	0.00
REACH1	11.835			Culvert			
REACH1	11.822	Max WS	R1AE-100	425	82.5	87.19	
REACH1	11.822	Max WS	Aspen2-100	425	82.5	87.19	0.00
REACH1	11.724	Max WS	R1AE-100	461	83.19	86.27	
REACH1	11.724	Max WS	Aspen2-100	461	83.19	86.27	0.00
REACH1	11.659	Max WS	R1AE-100	485	82.38	85.8	
REACH1	11.659	Max WS	Aspen2-100	485	82.38	85.8	0.00
REACH1	11.593	Max WS	R1AE-100	508	81.3	85.08	
REACH1	11.593	Max WS	Aspen2-100	508	81.3	85.08	0.00
REACH1	11.538	Max WS	R1AE-100	528	80.77	84.6	
REACH1	11.538	Max WS	Aspen2-100	528	80.77	84.6	0.00
REACH1	11.482	Max WS	R1AE-100	550	80.23	84.11	
REACH1	11.482	Max WS	Aspen2-100	550	80.23	84.11	0.00
REACH1	11.433	Max WS	R1AE-100	569	79.88	83.55	
REACH1	11.433	Max WS	Aspen2-100	569	79.88	83.55	0.00
REACH1	11.376	Max WS	R1AE-100	592	79.2	83.07	
REACH1	11.376	Max WS	Aspen2-100	592	79.2	83.07	0.00
REACH1	11.313	Max WS	R1AE-100	616	78.7	82.82	
REACH1	11.313	Max WS	Aspen2-100	616	78.7	82.82	0.00
REACH1	11.252	Max WS	R1AE-100	639	78.41	82.55	
REACH1	11.252	Max WS	Aspen2-100	639	78.41	82.55	0.00
REACH1	11.175	Max WS	R1AE-100	664	77.7	81.84	
REACH1	11.175	Max WS	Aspen2-100	664	77.7	81.84	0.00
REACH1	11.125	Max WS	R1AE-100	683	77.27	81.32	
REACH1	11.125	Max WS	Aspen2-100	684	77.27	81.32	0.00
REACH1	11.063	Max WS	R1AE-100	684	76.84	80.61	
REACH1	11.063	Max WS	Aspen2-100	684	76.84	80.61	0.00
REACH1	10.995	Max WS	R1AE-100	758	76.21	79.98	
REACH1	10.995	Max WS	Aspen2-100	765	76.21	79.97	0.01
REACH1	10.936	Max WS	R1AE-100	744	74.53	79.28	
REACH1	10.936	Max WS	Aspen2-100	763	74.53	79.18	0.10
REACH1	10.884	Max WS	R1AE-100	742	74.56	78.91	
REACH1	10.884	Max WS	Aspen2-100	762	74.56	78.67	0.24
REACH1	10.834	Max WS	R1AE-100	742	74.04	78.84	
REACH1	10.834	Max WS	Aspen2-100	761	74.04	78.57	0.27
REACH1	10.775	Max WS	R1AE-100	741	73.83	78.76	
REACH1	10.775	Max WS	Aspen2-100	761	73.83	78.43	0.33
REACH1	10.72	Max WS	R1AE-100	736	72.77	78.62	
REACH1	10.72	Max WS	Aspen2-100	761	72.77	78.17	0.45
REACH1	10.705	Max WS	R1AE-100	733	72.79	78.6	

200-year

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	ΔWSE
REACH1	12.205	Max WS	R1AE-200	492	89.4	92.45	
REACH1	12.205	Max WS	Aspen2-200	492	89.4	92.45	0.00
REACH1	12.144	Max WS	R1AE-200	492	88.36	91.52	
REACH1	12.144	Max WS	Aspen2-200	492	88.36	91.52	0.00
REACH1	12.072	Max WS	R1AE-200	491	87.5	90.77	
REACH1	12.072	Max WS	Aspen2-200	491	87.5	90.77	0.00
REACH1	12.02	Max WS	R1AE-200	408	86.52	90.25	
REACH1	12.02	Max WS	Aspen2-200	409	86.52	90.25	0.00
REACH1	11.944	Max WS	R1AE-200	415	85.5	90.08	
REACH1	11.944	Max WS	Aspen2-200	415	85.5	90.08	0.00
REACH1	11.883	Max WS	R1AE-200	436	84.5	90.06	
REACH1	11.883	Max WS	Aspen2-200	436	84.5	90.06	0.00
REACH1	11.849	Max WS	R1AE-200	458	82.5	89.98	
REACH1	11.849	Max WS	Aspen2-200	458	82.5	89.98	0.00
REACH1	11.848	Max WS	R1AE-200	459	82.5	89.97	
REACH1	11.848	Max WS	Aspen2-200	459	82.5	89.98	-0.01
REACH1	11.835			Culvert			
REACH1	11.822	Max WS	R1AE-200	459	82.5	87.31	
REACH1	11.822	Max WS	Aspen2-200	459	82.5	87.31	0.00
REACH1	11.724	Max WS	R1AE-200	498	83.19	86.36	
REACH1	11.724	Max WS	Aspen2-200	498	83.19	86.36	0.00
REACH1	11.659	Max WS	R1AE-200	525	82.38	85.87	
REACH1	11.659	Max WS	Aspen2-200	525	82.38	85.87	0.00
REACH1	11.593	Max WS	R1AE-200	550	81.3	85.17	
REACH1	11.593	Max WS	Aspen2-200	551	81.3	85.17	0.00
REACH1	11.538	Max WS	R1AE-200	572	80.77	84.7	
REACH1	11.538	Max WS	Aspen2-200	572	80.77	84.7	0.00
REACH1	11.482	Max WS	R1AE-200	597	80.23	84.21	
REACH1	11.482	Max WS	Aspen2-200	597	80.23	84.21	0.00
REACH1	11.433	Max WS	R1AE-200	619	79.88	83.64	
REACH1	11.433	Max WS	Aspen2-200	619	79.88	83.64	0.00
REACH1	11.376	Max WS	R1AE-200	645	79.2	83.17	
REACH1	11.376	Max WS	Aspen2-200	646	79.2	83.17	0.00
REACH1	11.313	Max WS	R1AE-200	672	78.7	82.93	
REACH1	11.313	Max WS	Aspen2-200	673	78.7	82.93	0.00
REACH1	11.252	Max WS	R1AE-200	699	78.41	82.66	
REACH1	11.252	Max WS	Aspen2-200	699	78.41	82.66	0.00
REACH1	11.175	Max WS	R1AE-200	728	77.7	81.94	
REACH1	11.175	Max WS	Aspen2-200	728	77.7	81.94	0.00
REACH1	11.125	Max WS	R1AE-200	749	77.27	81.41	
REACH1	11.125	Max WS	Aspen2-200	751	77.27	81.41	0.00
REACH1	11.063	Max WS	R1AE-200	750	76.84	80.68	
REACH1	11.063	Max WS	Aspen2-200	751	76.84	80.68	0.00
REACH1	10.995	Max WS	R1AE-200	828	76.21	80.04	
REACH1	10.995	Max WS	Aspen2-200	831	76.21	80.03	0.01
REACH1	10.936	Max WS	R1AE-200	822	74.53	79.36	
REACH1	10.936	Max WS	Aspen2-200	829	74.53	79.25	0.11
REACH1	10.884	Max WS	R1AE-200	821	74.56	78.99	
REACH1	10.884	Max WS	Aspen2-200	827	74.56	78.76	0.23
REACH1	10.834	Max WS	R1AE-200	817	74.04	78.91	
REACH1	10.834	Max WS	Aspen2-200	827	74.04	78.65	0.26
REACH1	10.775	Max WS	R1AE-200	805	73.83	78.82	
REACH1	10.775	Max WS	Aspen2-200	827	73.83	78.52	0.30
REACH1	10.72	Max WS	R1AE-200	786	72.77	78.67	
REACH1	10.72	Max WS	Aspen2-200	827	72.77	78.24	0.43
REACH1	10.705	Max WS	R1AE-200	776	72.79	78.65	

REACH1	10.705	Max WS	Aspen2-100	761	72.79	78.12	0.48		REACH1	10.705	Max WS	Aspen2-200	827	72.79	78.19	0.46		
REACH1	10.704	Max WS	R1AE-100	732	72.8	78.6			REACH1	10.704	Max WS	R1AE-200	775	72.8	78.65			
REACH1	10.704	Max WS	Aspen2-100	761	72.8	78.07	0.53		REACH1	10.704	Max WS	Aspen2-200	826	72.8	78.14	0.51		
REACH1	10.689			Culvert					REACH1	10.689			Culvert					
REACH1	10.686	Max WS	R1AE-100	1029	72.84	77.96			REACH1	10.686	Max WS	R1AE-200	1131	72.84	78.04			
REACH1	10.686	Max WS	Aspen2-100	761	72.84	78.06	-0.10		REACH1	10.686	Max WS	Aspen2-200	826	72.84	78.12	-0.08		
REACH1	10.684			Lat Struct					REACH1	10.684			Lat Struct					
REACH1	10.681	Max WS	R1AE-100	1028	72.54	77.97			REACH1	10.681	Max WS	R1AE-200	1128	72.54	78.06			
REACH1	10.681	Max WS	Aspen2-100	760	72.54	78.06	-0.09		REACH1	10.681	Max WS	Aspen2-200	825	72.54	78.13	-0.07		
REACH1	10.65	Max WS	R1AE-100	905	72.54	77.2			REACH1	10.65	Max WS	R1AE-200	972	72.54	77.39			
REACH1	10.65	Max WS	Aspen2-100	744	72.54	77.54	-0.34		REACH1	10.65	Max WS	Aspen2-200	800	72.54	77.59	-0.20		
REACH1	10.63			Lat Struct					REACH1	10.63			Lat Struct					
REACH1	10.623	Max WS	R1AE-100	900	71.5	76.84			REACH1	10.623	Max WS	R1AE-200	968	71.5	77.11			
REACH1	10.619	Max WS	Aspen2-100	638	73.44	77.15			REACH1	10.619	Max WS	Aspen2-200	686	73.44	77.19			
REACH1	10.613			Culvert					REACH1	10.613			Culvert					
REACH1	10.607	Max WS	Aspen2-100	638	72.62	75.94			REACH1	10.607	Max WS	Aspen2-200	686	72.62	75.95			
REACH1	10.601	Max WS	R1AE-100	893	71.4	75.72			REACH1	10.601	Max WS	R1AE-200	956	71.4	75.78			
REACH1	10.562	Max WS	R1AE-100	889	72.38	75.56			REACH1	10.562	Max WS	R1AE-200	955	72.38	75.62			
REACH1	10.562	Max WS	Aspen2-100	638	72.38	75.29	0.27		REACH1	10.562	Max WS	Aspen2-200	686	72.38	75.35	0.27		
REACH1	10.507	Max WS	R1AE-100	884	72.21	74.82			REACH1	10.507	Max WS	R1AE-200	952	72.21	74.88			
REACH1	10.507	Max WS	Aspen2-100	638	72.21	74.57	0.25		REACH1	10.507	Max WS	Aspen2-200	686	72.21	74.63	0.25		
REACH1	10.442	Max WS	R1AE-100	875	71.96	73.73			REACH1	10.442	Max WS	R1AE-200	941	71.96	73.79			
REACH1	10.442	Max WS	Aspen2-100	644	71.96	73.51	0.22		REACH1	10.442	Max WS	Aspen2-200	692	71.96	73.57	0.22		
REACH1	10.361	Max WS	R1AE-100	857	70.48	72.95			REACH1	10.361	Max WS	R1AE-200	925	70.48	73.03			
REACH1	10.361	Max WS	Aspen2-100	651	70.48	72.74	0.21		REACH1	10.361	Max WS	Aspen2-200	700	70.48	72.8	0.23		
REACH1	10.312	Max WS	R1AE-100	851	69.38	72.62			REACH1	10.312	Max WS	R1AE-200	921	69.38	72.7			
REACH1	10.312	Max WS	Aspen2-100	655	69.38	72.4	0.22		REACH1	10.312	Max WS	Aspen2-200	704	69.38	72.46	0.24		
REACH1	10.272	Max WS	R1AE-100	850	68.63	72.13			REACH1	10.272	Max WS	R1AE-200	920	68.63	72.24			
REACH1	10.272	Max WS	Aspen2-100	657	68.63	71.91	0.22		REACH1	10.272	Max WS	Aspen2-200	708	68.63	72	0.24		
REACH1	10.214	Max WS	R1AE-100	1022	67.41	71.44			REACH1	10.214	Max WS	R1AE-200	1126	67.41	71.56			
REACH1	10.214	Max WS	Aspen2-100	834	67.41	71.23	0.21		REACH1	10.214	Max WS	Aspen2-200	918	67.41	71.33	0.23		
REACH1	10.141	Max WS	R1AE-100	1021	66.11	70.69			REACH1	10.141	Max WS	R1AE-200	1127	66.11	70.81			
REACH1	10.141	Max WS	Aspen2-100	840	66.11	70.48	0.21		REACH1	10.141	Max WS	Aspen2-200	924	66.11	70.58	0.23		
REACH1	10.09	Max WS	R1AE-100	1020	66.19	70.09			REACH1	10.09	Max WS	R1AE-200	1126	66.19	70.2			
REACH1	10.09	Max WS	Aspen2-100	844	66.19	69.91	0.18		REACH1	10.09	Max WS	Aspen2-200	928	66.19	70	0.20		
REACH1	10.034	Max WS	R1AE-100	1016	66.32	69.56			REACH1	10.034	Max WS	R1AE-200	1124	66.32	69.66			
REACH1	10.034	Max WS	Aspen2-100	848	66.32	69.41	0.15		REACH1	10.034	Max WS	Aspen2-200	933	66.32	69.49	0.17		
REACH1	9.974	Max WS	R1AE-100	1016	66.02	69.16			REACH1	9.974	Max WS	R1AE-200	1125	66.02	69.26			
REACH1	9.974	Max WS	Aspen2-100	853	66.02	69.02	0.14		REACH1	9.974	Max WS	Aspen2-200	938	66.02	69.1	0.16		
REACH1	9.919	Max WS	R1AE-100	1010	65.5	68.6			REACH1	9.919	Max WS	R1AE-200	1117	65.5	68.71			
REACH1	9.919	Max WS	Aspen2-100	856	65.5	68.45	0.15		REACH1	9.919	Max WS	Aspen2-200	941	65.5	68.55	0.16		
REACH1	9.878	Max WS	R1AE-100	1004	65.13	68.32			REACH1	9.878	Max WS	R1AE-200	1112	65.13	68.43			
REACH1	9.878	Max WS	Aspen2-100	857	65.13	68.15	0.17		REACH1	9.878	Max WS	Aspen2-200	943	65.13	68.26	0.17		
REACH1	9.813	Max WS	R1AE-100	1003	64.02	68.07			REACH1	9.813	Max WS	R1AE-200	1112	64.02	68.18			
REACH1	9.813	Max WS	Aspen2-100	862	64.02	67.92	0.15		REACH1	9.813	Max WS	Aspen2-200	948	64.02	68.02	0.16		
REACH1	9.749	Max WS	R1AE-100	1000	63.84	67.63			REACH1	9.749	Max WS	R1AE-200	1109	63.84	67.75			
REACH1	9.749	Max WS	Aspen2-100	865	63.84	67.48	0.15		REACH1	9.749	Max WS	Aspen2-200	952	63.84	67.58	0.17		
REACH1	9.701	Max WS	R1AE-100	997	63.1	67.33			REACH1	9.701	Max WS	R1AE-200	1107	63.1	67.45			
REACH1	9.701	Max WS	Aspen2-100	867	63.1	67.18	0.15		REACH1	9.701	Max WS	Aspen2-200	955	63.1	67.28	0.17		
REACH1	9.633	Max WS	R1AE-100	998	62.68	67.12			REACH1	9.633	Max WS	R1AE-200	1110	62.68	67.25			
REACH1	9.633	Max WS	Aspen2-100	872	62.68	66.98	0.14		REACH1	9.633	Max WS	Aspen2-200	960	62.68	67.08	0.17		
REACH1	9.566	Max WS	R1AE-100	999	62.13	66.6			REACH1	9.566	Max WS	R1AE-200	1113	62.13	66.73			
REACH1	9.566	Max WS	Aspen2-100	876	62.13	66.45	0.15		REACH1	9.566	Max WS	Aspen2-200	964	62.13	66.55	0.18		
REACH1	9.524	Max WS	R1AE-100	1001	61.85	66.18			REACH1	9.524	Max WS	R1AE-200	1116	61.85	66.31			
REACH1	9.524	Max WS	Aspen2-100	879	61.85	66.02	0.16		REACH1	9.524	Max WS	Aspen2-200	967	61.85	66.13	0.18		
REACH1	9.49			Lat Struct					REACH1	9.49			Lat Struct					
								Aspen 9										Aspen 9
REACH1	9.486	Max WS	R1AE-100	1000	61.3	65.29		Avg ΔWSE	REACH1	9.486	Max WS	R1AE-200	1114	61.3	65.42			Avg ΔWSE
REACH1	9.486	Max WS	Aspen2-100	880	61.3	65.23	0.06	0.18	REACH1	9.486	Max WS	Aspen2-200	969	61.3	65.34	0.08		0.19
REACH1	9.438	Max WS	R1AE-100	997	59.8	64.66			REACH1	9.438	Max WS	R1AE-200	1113	59.8	64.81			
REACH1	9.438	Max WS	Aspen2-100	977	59.8	64.64	0.02		REACH1	9.438	Max WS	Aspen2-200	1074	59.8	64.76	0.05		
REACH1	9.387	Max WS	R1AE-100	997	59.4	64.16			REACH1	9.387	Max WS	R1AE-200	1113	59.4	64.31			

REACH1	9.387	Max WS	Aspen2-100	979	59.4	64.14	0.02		REACH1	9.387	Max WS	Aspen2-200	1076	59.4	64.27	0.04	
REACH1	9.329	Max WS	R1AE-100	997	58.3	63.58			REACH1	9.329	Max WS	R1AE-200	1113	58.3	63.72		
REACH1	9.329	Max WS	Aspen2-100	981	58.3	63.56	0.02		REACH1	9.329	Max WS	Aspen2-200	1079	58.3	63.68	0.04	
REACH1	9.282	Max WS	R1AE-100	997	57.4	63.27			REACH1	9.282	Max WS	R1AE-200	1113	57.4	63.41		
REACH1	9.282	Max WS	Aspen2-100	983	57.4	63.25	0.02		REACH1	9.282	Max WS	Aspen2-200	1081	57.4	63.37	0.04	
REACH1	9.228	Max WS	R1AE-100	996	56.4	62.7			REACH1	9.228	Max WS	R1AE-200	1112	56.4	62.91		
REACH1	9.228	Max WS	Aspen2-100	984	56.4	62.68	0.02		REACH1	9.228	Max WS	Aspen2-200	1082	56.4	62.86	0.05	
REACH1	9.185	Max WS	R1AE-100	996	55.6	61.88			REACH1	9.185	Max WS	R1AE-200	1112	55.6	62.05		
REACH1	9.185	Max WS	Aspen2-100	986	55.6	61.87	0.01		REACH1	9.185	Max WS	Aspen2-200	1084	55.6	62.01	0.04	
REACH1	9.143	Max WS	R1AE-100	997	55.51	61.59			REACH1	9.143	Max WS	R1AE-200	1113	55.51	61.75		
REACH1	9.143	Max WS	Aspen2-100	988	55.51	61.58	0.01		REACH1	9.143	Max WS	Aspen2-200	1086	55.51	61.71	0.04	
REACH1	9.091	Max WS	R1AE-100	999	55.37	61.36			REACH1	9.091	Max WS	R1AE-200	1115	55.37	61.52		
REACH1	9.091	Max WS	Aspen2-100	990	55.37	61.35	0.01		REACH1	9.091	Max WS	Aspen2-200	1089	55.37	61.48	0.04	
REACH1	9.039	Max WS	R1AE-100	1001	55.28	61.11			REACH1	9.039	Max WS	R1AE-200	1117	55.28	61.26		
REACH1	9.039	Max WS	Aspen2-100	993	55.28	61.1	0.01		REACH1	9.039	Max WS	Aspen2-200	1092	55.28	61.22	0.04	
REACH1	8.975	Max WS	R1AE-100	1004	55.14	60.5			REACH1	8.975	Max WS	R1AE-200	1121	55.14	60.66		
REACH1	8.975	Max WS	Aspen2-100	996	55.14	60.49	0.01	Aspen 9 to B'shaw Avg ΔWSE	REACH1	8.975	Max WS	Aspen2-200	1096	55.14	60.61	0.05	Aspen 9 to B'shaw Avg ΔWSE
REACH1	8.969	Max WS	R1AE-100	1004	54.9	60.48			REACH1	8.969	Max WS	R1AE-200	1121	54.9	60.63		
REACH1	8.969	Max WS	Aspen2-100	997	54.9	60.47	0.01	0.01	REACH1	8.969	Max WS	Aspen2-200	1096	54.9	60.59	0.04	0.04
REACH1	8.961			Bridge	(Bradshaw Road)				REACH1	8.961			Bridge	(Bradshaw Road)			
REACH1	8.954	Max WS	R1AE-100	1004	54.9	60.35			REACH1	8.954	Max WS	R1AE-200	1121	54.9	60.5		
REACH1	8.954	Max WS	Aspen2-100	997	54.9	60.35	0.00		REACH1	8.954	Max WS	Aspen2-200	1096	54.9	60.47	0.03	
REACH1	8.89	Max WS	R1AE-100	1006	54.05	60.08			REACH1	8.89	Max WS	R1AE-200	1124	54.05	60.2		
REACH1	8.89	Max WS	Aspen2-100	999	54.05	60.07	0.01		REACH1	8.89	Max WS	Aspen2-200	1099	54.05	60.18	0.02	
REACH1	8.811	Max WS	R1AE-100	1004	53	59.23			REACH1	8.811	Max WS	R1AE-200	1119	53	59.36		
REACH1	8.811	Max WS	Aspen2-100	997	53	59.22	0.01		REACH1	8.811	Max WS	Aspen2-200	1095	53	59.34	0.02	
REACH1	8.752	Max WS	R1AE-100	994	52.8	58.77			REACH1	8.752	Max WS	R1AE-200	1105	52.8	58.89		
REACH1	8.752	Max WS	Aspen2-100	988	52.8	58.76	0.01		REACH1	8.752	Max WS	Aspen2-200	1084	52.8	58.87	0.02	
REACH1	8.697	Max WS	R1AE-100	984	52.6	58.55			REACH1	8.697	Max WS	R1AE-200	1094	52.6	58.66		
REACH1	8.697	Max WS	Aspen2-100	979	52.6	58.55	0.00		REACH1	8.697	Max WS	Aspen2-200	1078	52.6	58.65	0.01	
REACH1	8.598	Max WS	R1AE-100	977	52.2	58.26			REACH1	8.598	Max WS	R1AE-200	1088	52.2	58.36		
REACH1	8.598	Max WS	Aspen2-100	975	52.2	58.25	0.01		REACH1	8.598	Max WS	Aspen2-200	1074	52.2	58.35	0.01	
REACH1	8.565	Max WS	R1AE-100	975	52.15	58.08			REACH1	8.565	Max WS	R1AE-200	1086	52.15	58.18		
REACH1	8.565	Max WS	Aspen2-100	973	52.15	58.07	0.01		REACH1	8.565	Max WS	Aspen2-200	1072	52.15	58.17	0.01	
REACH1	8.466	Max WS	R1AE-100	974	52.04	57.74			REACH1	8.466	Max WS	R1AE-200	1085	52.04	57.83		
REACH1	8.466	Max WS	Aspen2-100	973	52.04	57.74	0.00		REACH1	8.466	Max WS	Aspen2-200	1071	52.04	57.82	0.01	
REACH1	8.258	Max WS	R1AE-100	975	51.6	56.83			REACH1	8.258	Max WS	R1AE-200	1088	51.6	56.9		
REACH1	8.258	Max WS	Aspen2-100	975	51.6	56.83	0.00		REACH1	8.258	Max WS	Aspen2-200	1076	51.6	56.9	0.00	
REACH1	8.195	Max WS	R1AE-100	977	51.33	56.38			REACH1	8.195	Max WS	R1AE-200	1092	51.33	56.41		
REACH1	8.195	Max WS	Aspen2-100	978	51.33	56.38	0.00		REACH1	8.195	Max WS	Aspen2-200	1080	51.33	56.41	0.00	
REACH1	8.105	Max WS	R1AE-100	980	51	55.95			REACH1	8.105	Max WS	R1AE-200	1094	51	56		
REACH1	8.105	Max WS	Aspen2-100	980	51	55.96	-0.01		REACH1	8.105	Max WS	Aspen2-200	1082	51	55.99	0.01	
REACH1	7.93	Max WS	R1AE-100	1044	50.36	55.16			REACH1	7.93	Max WS	R1AE-200	1167	50.36	55.24		
REACH1	7.93	Max WS	Aspen2-100	1049	50.36	55.17	-0.01		REACH1	7.93	Max WS	Aspen2-200	1157	50.36	55.23	0.01	
REACH1	7.863	Max WS	R1AE-100	1051	50.16	54.67			REACH1	7.863	Max WS	R1AE-200	1168	50.16	54.82		
REACH1	7.863	Max WS	Aspen2-100	1056	50.16	54.67	0.00		REACH1	7.863	Max WS	Aspen2-200	1161	50.16	54.81	0.01	
REACH1	7.784			Lat Struct					REACH1	7.784			Lat Struct				
REACH1	7.783	Max WS	R1AE-100	1060	49.88	53.93			REACH1	7.783	Max WS	R1AE-200	1175	49.88	54.04		
REACH1	7.783	Max WS	Aspen2-100	1064	49.88	53.93	0.00		REACH1	7.783	Max WS	Aspen2-200	1168	49.88	54.04	0.00	
REACH1	7.74	Max WS	R1AE-100	1055	49.72	53.66			REACH1	7.74	Max WS	R1AE-200	1158	49.72	53.71		
REACH1	7.74	Max WS	Aspen2-100	1059	49.72	53.66	0.00		REACH1	7.74	Max WS	Aspen2-200	1152	49.72	53.71	0.00	
REACH1	7.689	Max WS	R1AE-100	867	49.61	53.57			REACH1	7.689	Max WS	R1AE-200	953	49.61	53.61		
REACH1	7.689	Max WS	Aspen2-100	871	49.61	53.57	0.00		REACH1	7.689	Max WS	Aspen2-200	948	49.61	53.61	0.00	
REACH1	7.625	Max WS	R1AE-100	868	49	53.56			REACH1	7.625	Max WS	R1AE-200	954	49	53.6		
REACH1	7.625	Max WS	Aspen2-100	872	49	53.56	0.00		REACH1	7.625	Max WS	Aspen2-200	950	49	53.6	0.00	
REACH1	7.6225			Bridge					REACH1	7.6225			Bridge				
REACH1	7.62	Max WS	R1AE-100	868	49	53.55			REACH1	7.62	Max WS	R1AE-200	954	49	53.59		
REACH1	7.62	Max WS	Aspen2-100	872	49	53.56	-0.01		REACH1	7.62	Max WS	Aspen2-200	950	49	53.59	0.00	
REACH1	7.619			Lat Struct					REACH1	7.619			Lat Struct				
REACH1	7.543	Max WS	R1AE-100	755	48.46	52.99			REACH1	7.543	Max WS	R1AE-200	833	48.46	53.05		
REACH1	7.543	Max WS	Aspen2-100	759	48.46	53	-0.01		REACH1	7.543	Max WS	Aspen2-200	829	48.46	53.05	0.00	
REACH1	7.516	Max WS	R1AE-100	633	48.3	52.5			REACH1	7.516	Max WS	R1AE-200	687	48.3	52.57		
REACH1	7.516	Max WS	Aspen2-100	636	48.3	52.5	0.00		REACH1	7.516	Max WS	Aspen2-200	684	48.3	52.57	0.00	

REACH1	7.318			Lat Struct					REACH1	7.318			Lat Struct					
REACH1	7.317	Max WS	R1AE-100	728	47.3	52.15			REACH1	7.317	Max WS	R1AE-200	794	47.3	52.25			
REACH1	7.317	Max WS	Aspen2-100	728	47.3	52.15	0.00		REACH1	7.317	Max WS	Aspen2-200	791	47.3	52.25	0.00		
REACH1	7.258	Max WS	R1AE-100	677	47.28	52			REACH1	7.258	Max WS	R1AE-200	716	47.28	52.13			
REACH1	7.258	Max WS	Aspen2-100	677	47.28	52	0.00		REACH1	7.258	Max WS	Aspen2-200	714	47.28	52.12	0.01		
REACH1	7.17	Max WS	R1AE-100	697	47.04	51.89			REACH1	7.17	Max WS	R1AE-200	766	47.04	52.03			
REACH1	7.17	Max WS	Aspen2-100	697	47.04	51.89	0.00		REACH1	7.17	Max WS	Aspen2-200	762	47.04	52.02	0.01		
REACH1	7.16			Lat Struct					REACH1	7.16			Lat Struct					
REACH1	7.0905	Max WS	R1AE-100	616	46.96	51.82			REACH1	7.0905	Max WS	R1AE-200	661	46.96	51.96			
REACH1	7.0905	Max WS	Aspen2-100	617	46.96	51.82	0.00		REACH1	7.0905	Max WS	Aspen2-200	659	46.96	51.95	0.01		
REACH1	7.012	Max WS	R1AE-100	672	46	51.64			REACH1	7.012	Max WS	R1AE-200	721	46	51.79			
REACH1	7.012	Max WS	Aspen2-100	673	46	51.65	-0.01	B'shaw to Florin	REACH1	7.012	Max WS	Aspen2-200	718	46	51.78	0.01	B'shaw to Florin	
REACH1	7.011	Max WS	R1AE-100	673	46	51.64		Avg ΔWSE	REACH1	7.011	Max WS	R1AE-200	721	46	51.78		Avg ΔWSE	
REACH1	7.011	Max WS	Aspen2-100	673	46	51.64	0.00	0.00	REACH1	7.011	Max WS	Aspen2-200	719	46	51.77	0.01	0.01	
REACH1	7.001			Bridge	(Florin Road)				REACH1	7.001			Bridge	(Florin Road)				
REACH1	6.992	Max WS	R1AE-100	672	46	51.54			REACH1	6.992	Max WS	R1AE-200	721	46	51.68			
REACH1	6.992	Max WS	Aspen2-100	673	46	51.54	0.00		REACH1	6.992	Max WS	Aspen2-200	718	46	51.68	0.00		
REACH1	6.9911			Lat Struct					REACH1	6.9911			Lat Struct					
REACH1	6.991			Lat Struct					REACH1	6.991			Lat Struct					
REACH1	6.99			Lat Struct					REACH1	6.99			Lat Struct					
REACH1	6.981	Max WS	R1AE-100	684	46.86	51.49			REACH1	6.981	Max WS	R1AE-200	731	46.86	51.63			
REACH1	6.981	Max WS	Aspen2-100	685	46.86	51.49	0.00		REACH1	6.981	Max WS	Aspen2-200	729	46.86	51.63	0.00		
REACH1	6.928	Max WS	R1AE-100	926	46.8	51.27			REACH1	6.928	Max WS	R1AE-200	969	46.8	51.45			
REACH1	6.928	Max WS	Aspen2-100	927	46.8	51.27	0.00		REACH1	6.928	Max WS	Aspen2-200	968	46.8	51.44	0.01		
REACH1	6.879			Lat Struct					REACH1	6.879			Lat Struct					
REACH1	6.877	Max WS	R1AE-100	843	46.16	51.19			REACH1	6.877	Max WS	R1AE-200	928	46.16	51.37			
REACH1	6.877	Max WS	Aspen2-100	844	46.16	51.19	0.00		REACH1	6.877	Max WS	Aspen2-200	925	46.16	51.36	0.01		
REACH1	6.83	Max WS	R1AE-100	1017	46.04	50.76			REACH1	6.83	Max WS	R1AE-200	1148	46.04	50.92			
REACH1	6.83	Max WS	Aspen2-100	1018	46.04	50.77	-0.01		REACH1	6.83	Max WS	Aspen2-200	1142	46.04	50.92	0.00		
REACH1	6.8295			Lat Struct					REACH1	6.8295			Lat Struct					
REACH1	6.829	Max WS	R1AE-100	1076	46.12	50.76			REACH1	6.829	Max WS	R1AE-200	1213	46.12	50.92			
REACH1	6.829	Max WS	Aspen2-100	1078	46.12	50.76	0.00		REACH1	6.829	Max WS	Aspen2-200	1207	46.12	50.91	0.01		
REACH1	6.821			Bridge					REACH1	6.821			Bridge					
REACH1	6.813	Max WS	R1AE-100	1076	45.83	50.44			REACH1	6.813	Max WS	R1AE-200	1213	45.83	50.54			
REACH1	6.813	Max WS	Aspen2-100	1078	45.83	50.44	0.00		REACH1	6.813	Max WS	Aspen2-200	1207	45.83	50.54	0.00		
REACH1	6.782	Max WS	R1AE-100	1076	45.58	50.13			REACH1	6.782	Max WS	R1AE-200	1213	45.58	50.22			
REACH1	6.782	Max WS	Aspen2-100	1078	45.58	50.13	0.00		REACH1	6.782	Max WS	Aspen2-200	1207	45.58	50.22	0.00		
REACH1	6.751	Max WS	R1AE-100	1076	45.28	49.57			REACH1	6.751	Max WS	R1AE-200	1213	45.28	49.67			
REACH1	6.751	Max WS	Aspen2-100	1078	45.28	49.57	0.00		REACH1	6.751	Max WS	Aspen2-200	1207	45.28	49.67	0.00		
REACH1	6.682	Max WS	R1AE-100	1083	45.22	48.87			REACH1	6.682	Max WS	R1AE-200	1221	45.22	48.98			
REACH1	6.682	Max WS	Aspen2-100	1085	45.22	48.87	0.00		REACH1	6.682	Max WS	Aspen2-200	1215	45.22	48.97	0.01		
REACH1	6.633	Max WS	R1AE-100	1083	44.66	48.63			REACH1	6.633	Max WS	R1AE-200	1220	44.66	48.73			
REACH1	6.633	Max WS	Aspen2-100	1085	44.66	48.64	-0.01		REACH1	6.633	Max WS	Aspen2-200	1215	44.66	48.73	0.00		
REACH1	6.509			Lat Struct					REACH1	6.509			Lat Struct					
REACH1	6.482	Max WS	R1AE-100	946	43.65	48.26			REACH1	6.482	Max WS	R1AE-200	1222	43.65	48.3			
REACH1	6.482	Max WS	Aspen2-100	957	43.65	48.27	-0.01		REACH1	6.482	Max WS	Aspen2-200	1216	43.65	48.3	0.00		
REACH1	6.436	Max WS	R1AE-100	924	44.01	48.17			REACH1	6.436	Max WS	R1AE-200	900	44.01	48.16			
REACH1	6.436	Max WS	Aspen2-100	931	44.01	48.17	0.00		REACH1	6.436	Max WS	Aspen2-200	917	44.01	48.16	0.00		
REACH1	6.378	Max WS	R1AE-100	893	42.47	48.1			REACH1	6.378	Max WS	R1AE-200	877	42.47	48.09			
REACH1	6.378	Max WS	Aspen2-100	891	42.47	48.1	0.00		REACH1	6.378	Max WS	Aspen2-200	896	42.47	48.09	0.00		
REACH1	6.297	Max WS	R1AE-100	852	42.23	47.98			REACH1	6.297	Max WS	R1AE-200	846	42.23	47.97			
REACH1	6.297	Max WS	Aspen2-100	854	42.23	47.97	0.01		REACH1	6.297	Max WS	Aspen2-200	848	42.23	47.97	0.00		
REACH1	6.243	Max WS	R1AE-100	1183	41.74	47.18			REACH1	6.243	Max WS	R1AE-200	1226	41.74	47.21			
REACH1	6.243	Max WS	Aspen2-100	1207	41.74	47.18	0.00		REACH1	6.243	Max WS	Aspen2-200	1220	41.74	47.21	0.00		
REACH1	6.158	Max WS	R1AE-100	1075	40.82	46.38			REACH1	6.158	Max WS	R1AE-200	1202	40.82	46.58			
REACH1	6.158	Max WS	Aspen2-100	1076	40.82	46.38	0.00		REACH1	6.158	Max WS	Aspen2-200	1197	40.82	46.57	0.01		
REACH1	6.014	Max WS	R1AE-100	1054	39.88	46.12			REACH1	6.014	Max WS	R1AE-200	1181	39.88	46.34			
REACH1	6.014	Max WS	Aspen2-100	1054	39.88	46.12	0.00		REACH1	6.014	Max WS	Aspen2-200	1175	39.88	46.34	0.00		
REACH1	6.007	Max WS	R1AE-100	1051	39.36	46.09			REACH1	6.007	Max WS	R1AE-200	1179	39.36	46.31			
REACH1	6.007	Max WS	Aspen2-100	1051	39.36	46.09	0.00		REACH1	6.007	Max WS	Aspen2-200	1172	39.36	46.31	0.00		

REACH1	6.004			Culvert				
REACH1	6.001	Max WS	R1AE-100	1051	39.87	46.09		
REACH1	6.001	Max WS	Aspen2-100	1051	39.87	46.09	0.00	
REACH1	5.864	Max WS	R1AE-100	1024	39.06	45.79		
REACH1	5.864	Max WS	Aspen2-100	1024	39.06	45.79	0.00	D/S of Florin Rd
REACH1	5.816	Max WS	R1AE-100	1009	39.02	45.66		Avg ΔWSE
REACH1	5.816	Max WS	Aspen2-100	1008	39.02	45.66	0.00	0.00

REACH1	6.004			Culvert				
REACH1	6.001	Max WS	R1AE-200	1179	39.87	46.31		
REACH1	6.001	Max WS	Aspen2-200	1172	39.87	46.3	0.01	
REACH1	5.864	Max WS	R1AE-200	1162	39.06	46.04		
REACH1	5.864	Max WS	Aspen2-200	1156	39.06	46.03	0.01	D/S of Florin Rd
REACH1	5.816	Max WS	R1AE-200	1147	39.02	45.93		Avg ΔWSE
REACH1	5.816	Max WS	Aspen2-200	1141	39.02	45.92	0.01	0.00

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
December 11, 2014

VIA U.S. AND ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

References:
1. *Geotechnical Investigation for Slope Evaluation, Aspen VIII and IX Mining Projects, Elder Creek Road, Sacramento County, California*, Geocon Consultants, Inc., December 7, 2007.

Dear Mr. Lane:

In accordance with your request, we have prepared this correspondence summarizing the geotechnical aspects of the proposed change in conditions for future aggregate mining and reclamation at the Teichert Aspen VIII and IX sites located on Elder Creek Road between Bradshaw and Excelsior Roads in Sacramento County, California. The approximate site location is shown on the Vicinity Map, Figure 1.

PURPOSE AND SCOPE

The purpose of our services was to use existing project data to perform seepage and slope stability analyses, and provide associated geotechnical recommendations pertaining to site mining and reclamation as presently planned.

To prepare this report, we performed the following scope of services:

- Performed a review of existing/available geotechnical reports, geologic data, aerial photographs, and other literature pertaining to the site to aid in evaluating geologic and geotechnical conditions at the sites;
- Reviewed available reclamation plans for the sites;
- Used existing project geotechnical and laboratory testing data to perform seepage and slope stability analyses, and to provide associated geotechnical recommendations pertaining to site mining and reclamation as presently planned; and
- Prepared this geotechnical memorandum with our conclusions and recommendations regarding embankment and slope geometry, location, and construction.

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SITE AND PROJECT INFORMATION

The site includes Aspen VIII (Assessor's Parcel Number [APN] 063-0180-005, -006, and 063-0160-001) and Aspen IX (APNs 066-0020-006, 066-0030-001, and 066-0050-003) which are approximately 319 acres and 363 acres, respectively. Aspen VIII and IX are located north and south of Elder Creek Road, respectively, between Bradshaw and Excelsior Roads in Sacramento County, California. The site currently consists of fields for cattle grazing, three residences, buildings associated with grazing and agriculture, and high-voltage power line towers. Elder Creek traverses through the site from a northeasterly to southwesterly direction. Site conditions are depicted on the Site Plan, Figure 2.

Site topography generally slopes gently downward from east to west with surface elevations ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet along the west side of the site.

Teichert previously planned to mine the entire Aspen VIII and IX sites for gravel resources and construct an elevated earthen "structure" to contain a newly constructed, realigned Elder Creek. Geocon previously performed a geotechnical investigation and evaluated the seepage and slope stability conditions for the project (Geocon, 2007).

We understand that Teichert now plans to preserve the current natural alignment of Elder Creek on the Aspen VIII and IX sites. Current plans call for mining no closer than 150 feet from the edge of Elder Creek and no closer than 30 feet from the Federal Emergency Management Agency (FEMA) 200-year flood zone. The proposed inclination of the mining slopes is ¾H:1V and the proposed inclination of the reclamation slopes is no steeper than 2H:1V.

Teichert also plans to construct a raised embankment approximately 3 feet high and no closer than 3 feet from the 200-year flood zone which will serve as a safety feature adjacent to the final, reclaimed mine slope. The proposed mining area is depicted on Figure 2.

We understand that the post-reclamation end-use of the site may include agricultural and/or residential land use.

SOIL AND GEOLOGIC CONDITIONS

The site is underlain predominantly by consolidated Pliocene-Age alluvium of the Laguna Formation (CGS, 2011). The onsite soil consists of two characteristic layers: clayey overburden and underlying clayey gravel with cobbles. The upper layer (overburden) consists primarily of firm to very stiff sandy lean clay (CL) and variable occurrences of medium dense clayey sand (SC). During our prior investigation, we observed that overburden thickness ranged from 1 to 11 feet in our exploratory trenches (Geocon, 2007).

Soil below the overburden generally consists of medium dense to very dense clayey gravel (GC) with cobbles up to 8 inches. The gravel and cobble includes weathered to fresh metavolcanics and cemented sandstones and will be the aggregate source for these mining projects. The strata proposed for mining overlays variably weathered, fine-clastic deposits of sandstone, siltstone, mudstone, and claystone.

GROUNDWATER

Review of the most recent (Spring 2007) *Sacramento County Groundwater Elevation Map* (Sacramento County, 2009) indicates the average springtime groundwater elevation at the site was approximately 30 feet below MSL. Based on site elevation, the current depth to groundwater at the site predicted by this data is approximately 85 to 105 feet.

It should be noted that fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors. Depth to groundwater can also vary significantly due to localized pumping, irrigation practices, and seasonal fluctuations.

SEISMICITY

In order to determine the distance of closest known active faults to the site, we used the computer program *EQFAULT*, (Version 3, Blake, 2000). Principal references used within *EQFAULT* are Jennings (1975), Anderson (1984) and Wesnousky (1986). The results of the *EQFAULT* query indicate the Foothills Fault System, located 17½ miles to the east, is the closest source of potential ground motion at the site. The Great Valley Fault is the next closest, located 34½ miles to the west.

We used the USGS computer program *2008 Interactive Deaggregations* to estimate the PGA and modal (most probable) distance and magnitude associated with a 2% chance of exceedance in 50 years (2,475-year event). For an alluvial soil type, the USGS estimated PGA is 0.25g, the modal distance is 62.5 km and the modal magnitude is 6.8.

We used the online USGS application *Seismic Design Maps* to evaluate the site class modified, design-level Peak Ground Acceleration (PGA_M) for the site, for use in seismic slope stability analysis. The PGA_M for the site is 0.231g.

SEEPAGE AND SLOPE STABILITY ANALYSIS

The proposed mining/reclamation slopes will be separated (set back) from Elder Creek by a minimum of 150 feet. The proposed raised embankment (approximately 3 feet high) will be constructed at existing grade over the in-situ overburden materials. The subsequent mining and reclamation slopes will descend at slopes of ¾H:1V and no steeper than 2H:1V, respectively, from the "land side" toe of the embankment to the planned mining depth of approximately Elevation +10 feet MSL. We assumed 2H:1V side slopes for the embankment and an embankment top width of 12 feet. This configuration is shown on Figure 3, Typical Cross-Section.

We understand that the embankments and reclamation slope will be constructed with engineered fill derived from onsite overburden. The overburden consists of predominantly fine-grained soils (CL and ML). Below the overburden, dense gravel deposits are present above weathered sandstone, siltstone, mudstone, and claystone. Static groundwater is at approximately elevation -30 feet MSL, which is below the planned depth of mining.

Material Parameters

To select appropriate material parameters for our seepage and slope stability analyses, we used the information derived from our previous geotechnical investigation (Geocon, 2007) and drill hole and laboratory grain size distribution information obtained from Teichert, published correlations (e.g., Alyamani and Sen, 1993), engineering judgment, and experience with similar soils in the local area. The material parameters used in our analyses are summarized in Table 1.

TABLE 1
SOIL PARAMETERS FOR SEEPAGE AND SLOPE STABILITY ANALYSES

Material Type	Total Unit Weight (pcf)	Cohesion, C (psf)		Friction Angle, ϕ (degrees)		Permeability (ft/sec)	
		Total	Effective	Total	Effective	Vertical	Horizontal
Embankment/ Reclamation Fill	120	800	100	20	34	3.28×10^{-7}	3.28×10^{-6}
Overburden	120	200	150	28	30	3.28×10^{-6}	3.28×10^{-5}
Gravels	135	50	50	32	40	3.6×10^{-3}	3.6×10^{-2}

Notes: pcf = pounds per cubic foot psf = pounds per square foot

We assumed a generally flat soil layer stratigraphy consistent with the depositional and erosional geology of the site.

Seismic Forces for Dynamic (Seismic) Stability Analysis

We analyzed dynamic (seismic) slope stability using a pseudo-static approach in which the earthquake load is simulated by an "equivalent" static horizontal acceleration acting on the mass of the slope. This methodology is generally considered to be conservative and is most often used in current practice.

We calculated the seismic coefficient using the procedures presented in *Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CGS 2008). In this procedure, the seismic coefficient is equal to a portion of the design-level PGA_M for a soft rock site condition without the risk coefficient ($PGA_M/1.5$). Assuming a 15-cm displacement threshold, a $PGA_M/1.5$ of 0.23g, a modal distance of 62.5 km, and a modal magnitude of 6.8, the calculated seismic coefficient is 0.06.

Seepage Analysis and Results

The proposed mining/reclamation slopes will be separated (set back) from Elder Creek by a minimum of 150 feet, as depicted on Figure 3. To model seepage conditions, we used the computer program *SEEP/W, Version 7* (Geo-Slope International). In our analyses, we considered the initial condition for the site to be the average low-flow condition in the creek assuming constant head conditions year-round. We used a low-flow water elevation of 64 feet MSL. We modeled the seepage front over a 100-year time period to mimic steady-state conditions. We then modeled a transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. Our seepage analysis results are presented graphically on Figures 4 and 5.

The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).

Slope Stability Analysis and Results

We analyzed stability of the proposed final reclamation slopes using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for both the steady-state (low-flow) and 200-year flood conditions.

SLOPE/W uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety (FOS) against deep-seated failure. For our analyses, Spencer's Method with a circular failure mechanism was used. Spencer's Method satisfies both moment and force equilibrium. The computer program searches for the critical failure surface based on user-provided input parameters. The critical failure surface for each analysis is shown on computer-generated output. The FOS is shown on each figure directly above the failure surface. For a circular failure search, a grid of search midpoints and radii are specified, and the computer searches for the critical failure surface. The critical failure surface is shown as the hatched area on each figure.

The results of our slope stability analysis (FOS) under the different conditions of analysis (e.g. low-flow, 200-year flood, static and seismic) are summarized in Table 2. Graphical representations of the potential critical failure surfaces and parameters used for each stability analysis are presented on Figures 6 through 9.

TABLE 2
SLOPE STABILITY ANALYSIS RESULTS

Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Steady-State Low-Flow Conditions	1.7	1.5
200-Year Flood Event (30-day duration)	1.7	1.5

CONCLUSIONS AND RECOMMENDATIONS

From a geotechnical viewpoint, in our opinion, the currently proposed mining and reclamation plan is not expected to adversely impact seepage and/or slope stability conditions for the following reasons:

- The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).
- The results of our slope stability analyses for a 2:1 reclamation slope indicate FOS that are above the commonly required minimum FOS of 1.5 for long-term static stability and FOS of 1.1 for pseudo-static (seismic) stability. Therefore, the proposed reclamation slopes for the project appear to be appropriate for the proposed end use of the site from a static and seismic viewpoint provided the recommendations contained in this report are incorporated into the design and construction of the project. Our slope stability analysis results are presented in Figures 6 through 9.

Embankment and Reclamation Slope Recommendations

- Based on the soils encountered during prior investigations and the results of our slope stability analyses, properly constructed and compacted reclamation slopes should be constructed at an inclination of 2H:1V or flatter.
- To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment, the full length of the embankment should be provided with an embankment-width keyway. The keyway should have a minimum embedment depth of 3 feet into firm, competent, undisturbed soil. The actual depth of the keyway should be evaluated by a Geocon representative during construction. Keyway backslopes should be no flatter than 1:1.

- For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, then we recommend that a keyway be cut into the quarry pit bottom at the toe of the reclamation fill slope. In general, the keyway should be at least 20 feet wide and extend at least 3 feet into competent, undisturbed soil. The reclamation fill should be benched into the adjacent native materials as the fill is placed. Benches should roughly parallel the slope contours and extend at least 3 feet into competent, undisturbed material. Although not anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered in the field.
- To reduce potential for seepage along pipe penetrations (if present), we recommend providing concrete cut-off collars at pipe penetrations through the embankment. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized such that they are 12 to 18 inches larger than the nominal outside diameter of the pipe. Thickness should be at least 6 inches. Water-tight filler should be used between collars and pipes.
- Due to the fine-grained composition of the onsite soil to be used in embankment and reclamation slope construction, surficial erosion, rutting, and localized sloughing should be expected. These occurrences should be considered on-going maintenance issues and should be diligently addressed. Erosion control measures should be evaluated and determined by the project civil engineer.

FURTHER GEOTECHNICAL SERVICES

Plan Review

We should review the reclamation plans prior to final submittal to confirm that our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

Testing and Observation Services

The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for other's interpretation of our recommendations or the future performance of the projects.

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8. Jennings, C.W. and W.A. Bryant, 2010, *Fault Activity Map of California*, California Geological Survey, Geologic Data Map No. 6.

9. Sacramento County, 2009, *Sacramento County, Groundwater Elevations, Spring 2007*, prepared by County Department of Water Resources, dated March 2009.

10. United States Geological Survey, *2008 Interactive Deaggregations*, http://geohazards.usgs.gov/deaggint/2008/.

11. Unpublished reports, aerial photographs, and maps on file with Geocon.

LIMITATIONS

The recommendations of this report pertain only to the site investigated, are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation, and assume that the post-mining use of the site will be for agriculture and/or residential development. If any variations or undesirable conditions are encountered during construction, or if the proposed construction or post-reclamation end-use will differ from that anticipated herein, we should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the projects and incorporated into the plans and specifications and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The recommendations contained in this report are preliminary until verified during construction by representatives of our firm. Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

PROFESSIONAL GEOLOGIST
JOHN C. PFEIFFER
No. 2372
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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Senior Geotechnical Engineer

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Jeremy Jacob Zorne
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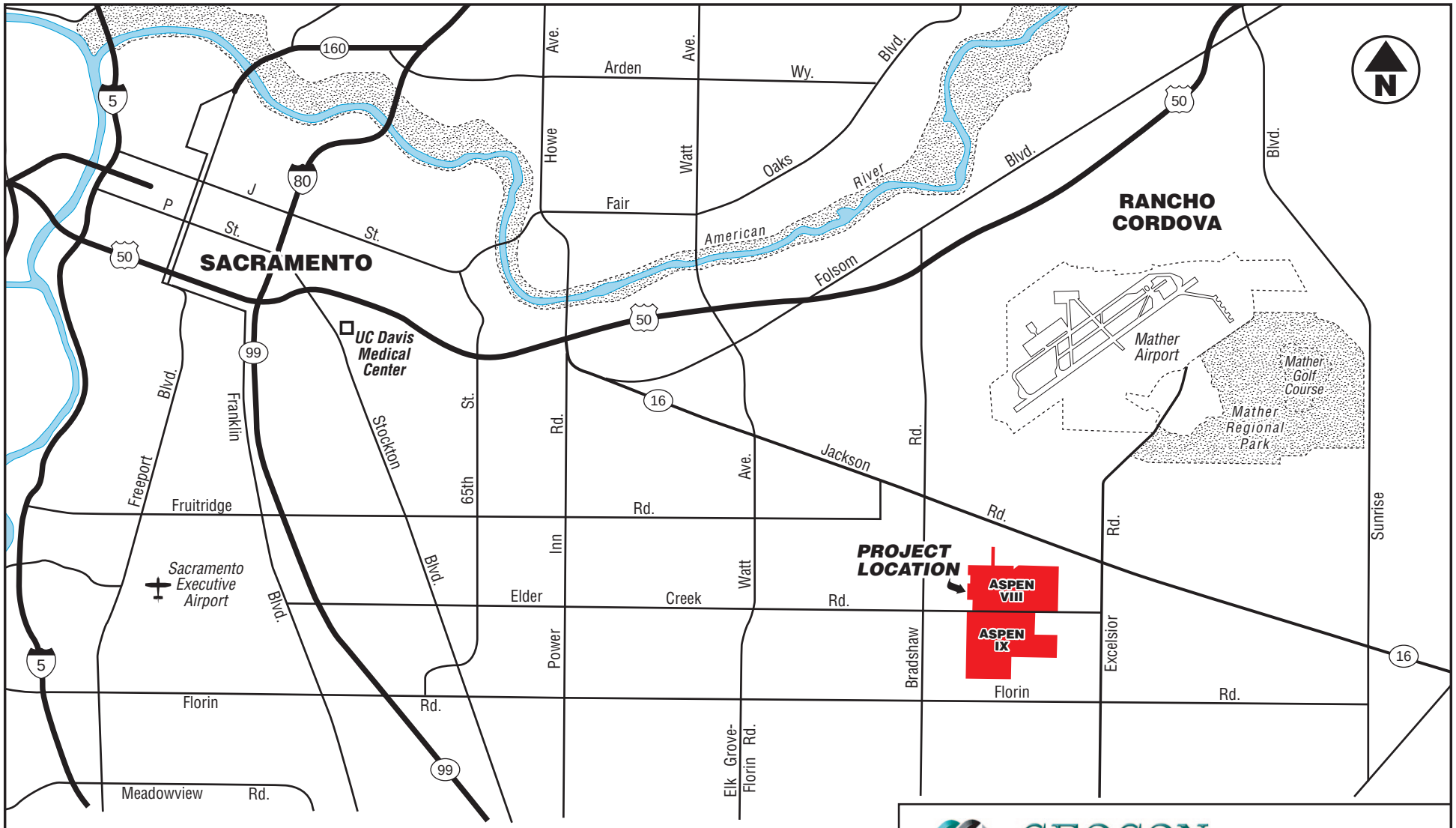
CIVIL
STATE OF CALIFORNIA

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan
Figure 3, Typical Cross-Section
Figure 4, Seepage at Low Flow
Figure 5, Seepage at 200-Year Flood
Figure 6, Static Slope Stability at Low-Flow
Figure 7, Seismic Slope Stability at Low-Flow
Figure 8, Static Slope Stability at 200-Year Flood
Figure 9, Seismic Slope Stability at 200-Year Flood



0 1 2
Scale in Miles

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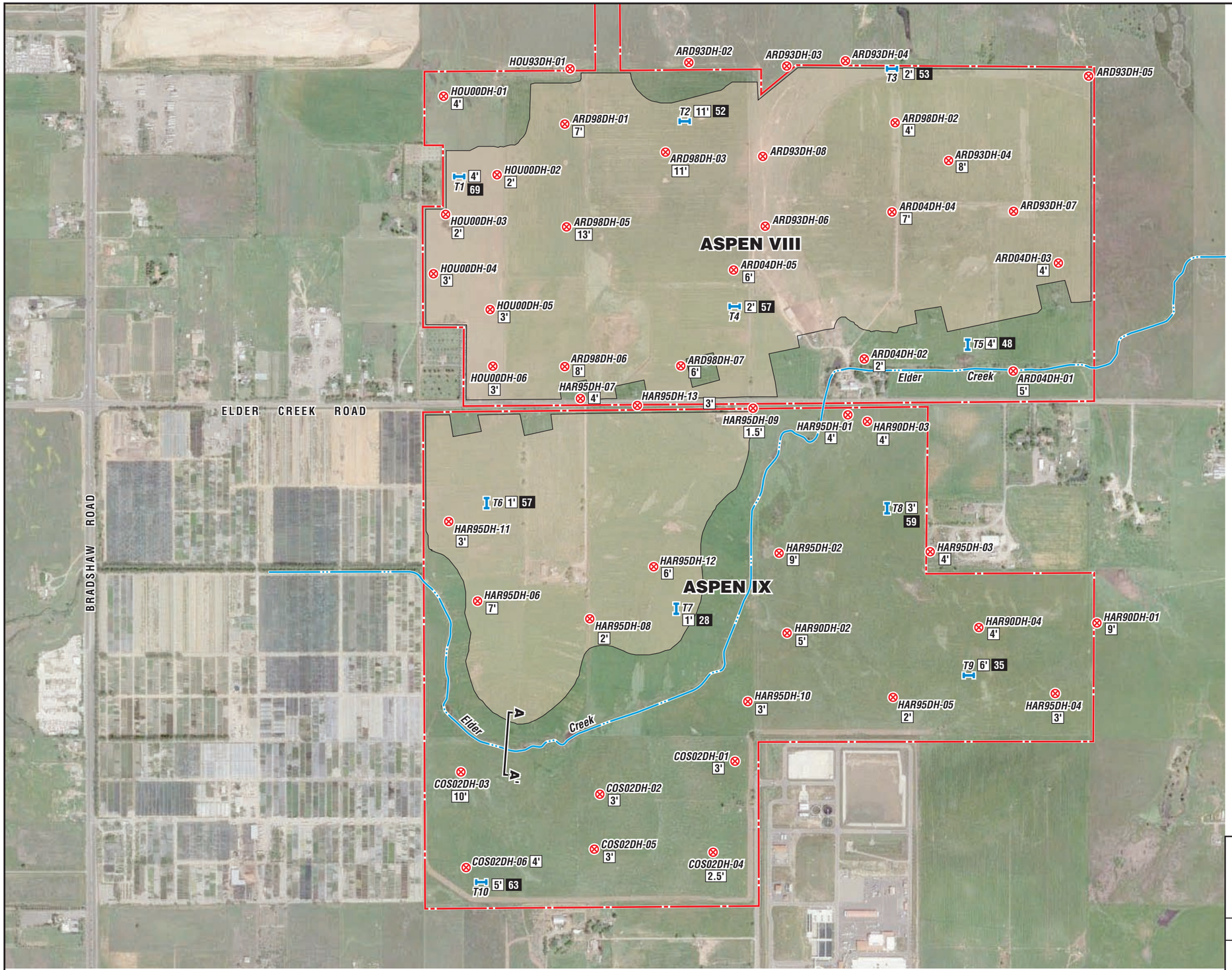
Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

VICINITY MAP

S9304-05-02	December 2014	Figure 1



Aerial Photo: Google Earth, 2014

LEGEND:

- Approximate Project Boundary
- Proposed Mining Area
- T1 — Approximate Exploratory Trench Location (Geocon, 2007)
- HAR95-DH-03 — Approximate Exploratory Boring Location (Others)
- 5' — Overburden Thickness
- 63 — % Fines (Silt & Clay) in Overburden
- A — A' — Approximate Cross-Section Location (See Figure 3)

0 800
Scale in Feet

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Aspen VIII & IX

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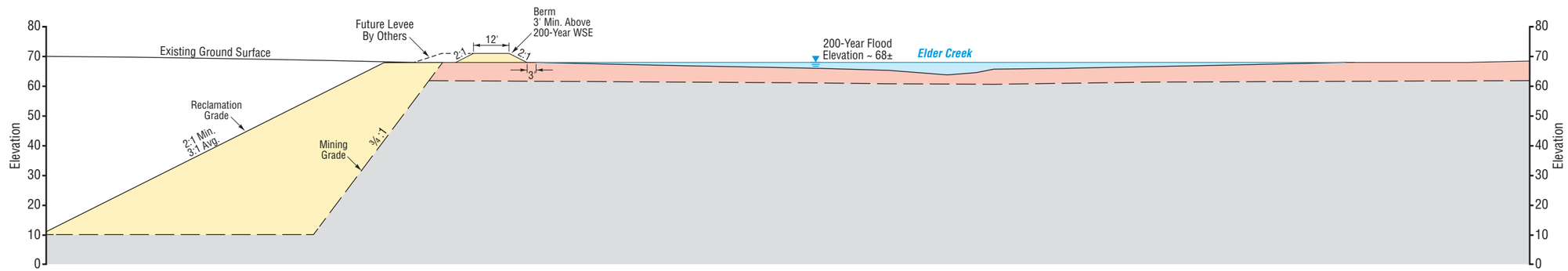
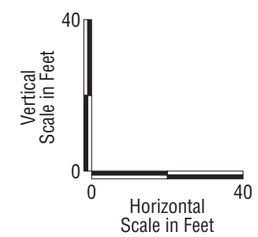
SITE PLAN

S9304-05-02	December 2014	Figure 2



LEGEND:

- EMBANKMENT/RECLAMATION FILL (Reclaimed Overburden)
- LAGUNA FORMATION: OVERBURDEN – Interbedded Sandy SILT, lean CLAY, Silty/Clayey SAND
- LAGUNA FORMATION: GRAVEL DEPOSITS – Clayey GRAVEL, Silty GRAVEL
- WSE Water Surface Elevation



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

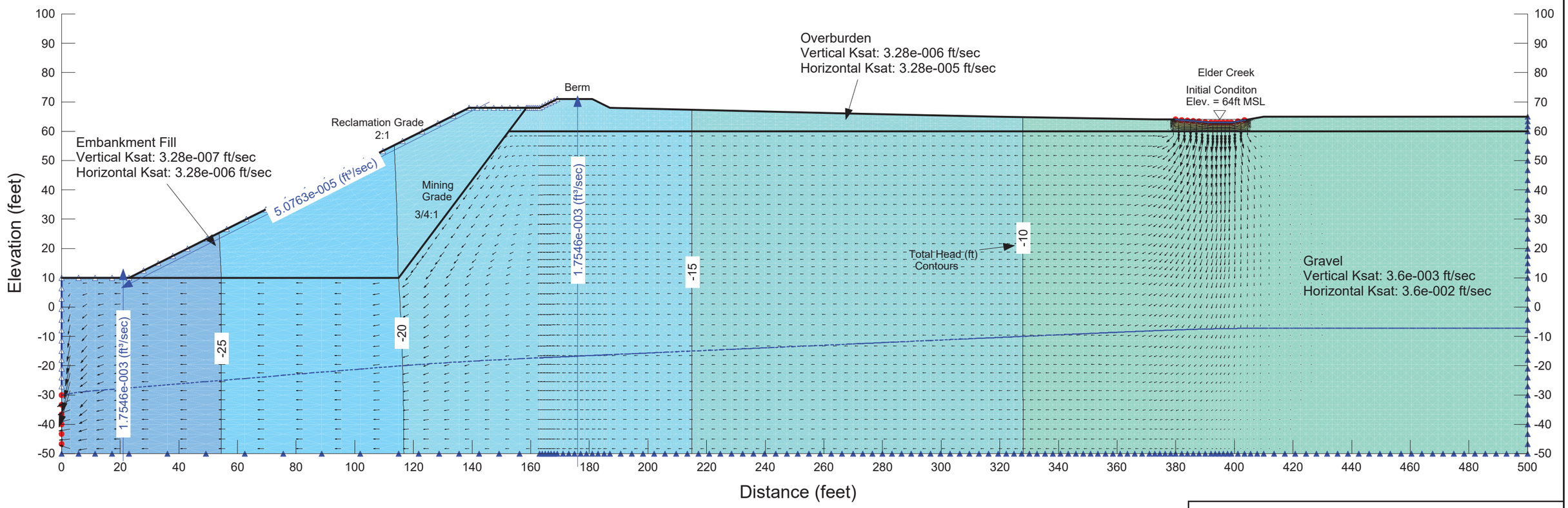
TYPICAL CROSS-SECTION

S9304-05-02	December 2014	Figure 3

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:53:36 AM

Analysis: Low-Flow Channel
Method: Transient
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

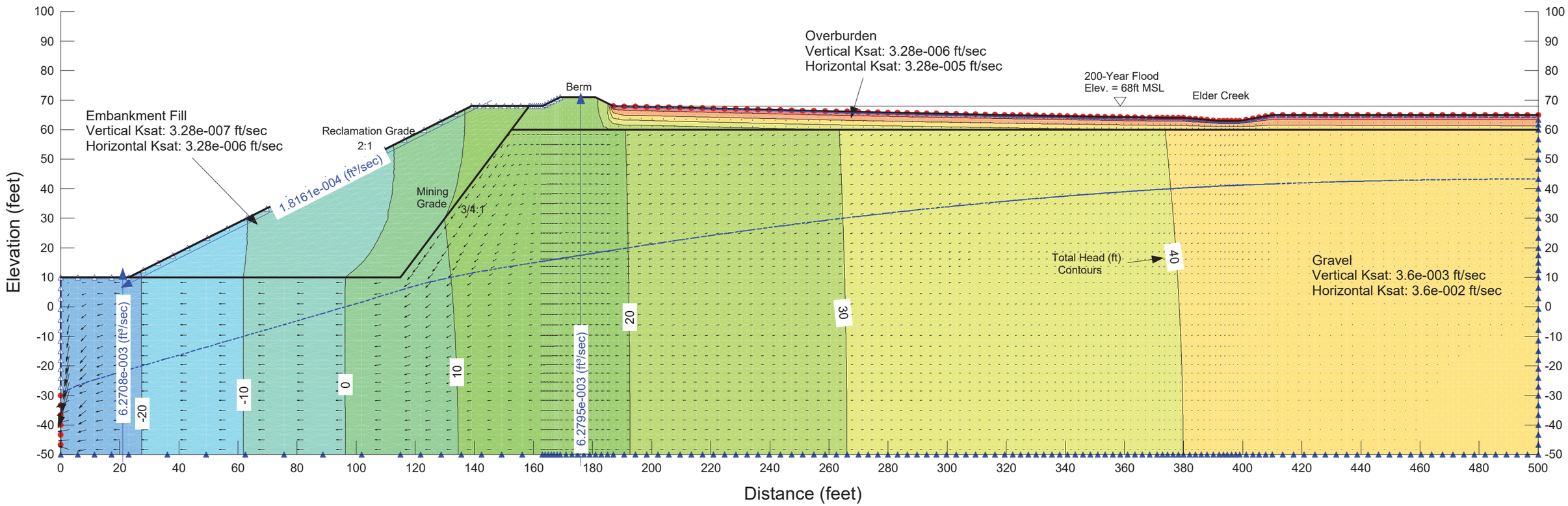
Seepage at Low Flow

S9304-05-02	December 2014	Figure 4

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:56:10 AM

Analysis: 200-Year Flood
Method: Transient
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

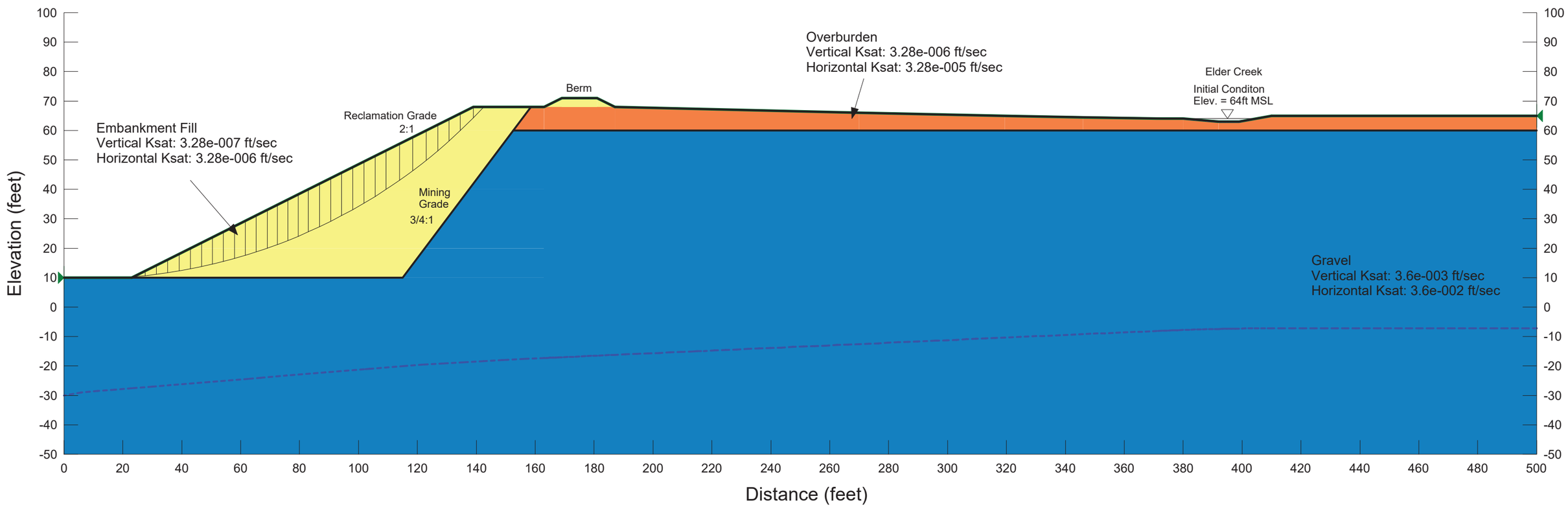
Seepage at 200-Year Flood

S9304-05-02	December 2014	Figure 5

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:20:32 AM

Analysis: Low-Flow Channel
Method: Spencer
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

Static Slope Stability at Low-Flow

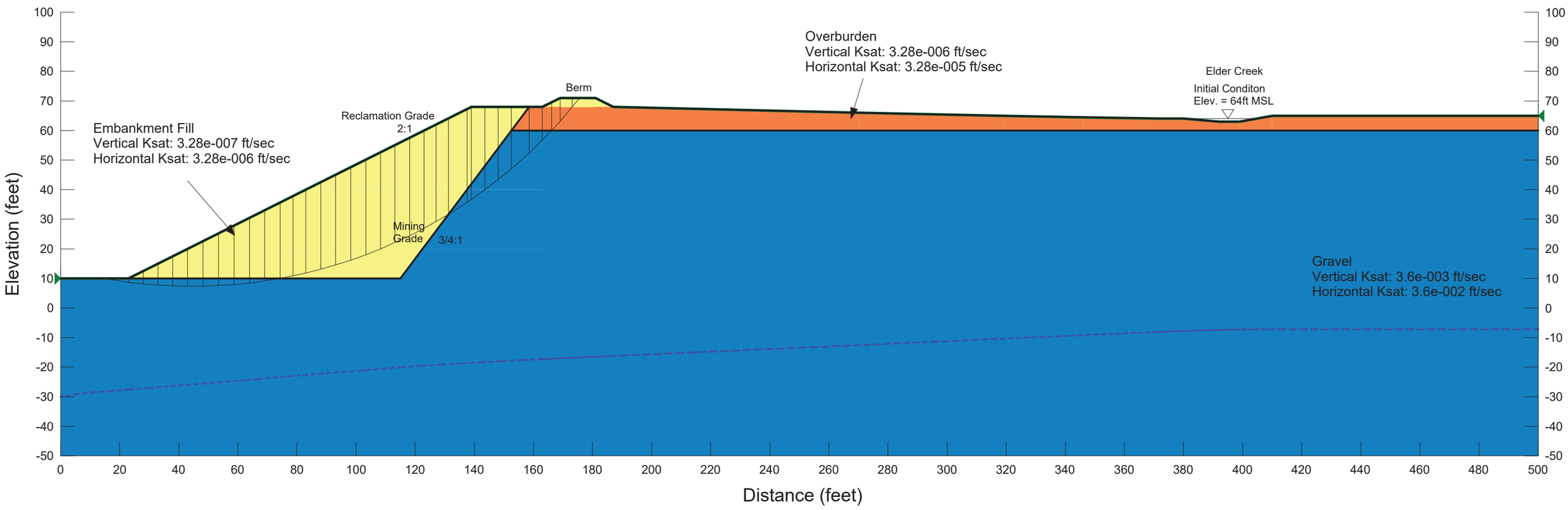
S9304-05-02	December 2014	Figure 6

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:30:35 AM

1.50

Analysis: Low-Flow Channel
Method: Spencer
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 200 Phi: 28
Description: Embankment Fill: Wt: 120 Cohesion: 800 Phi: 20
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 32



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

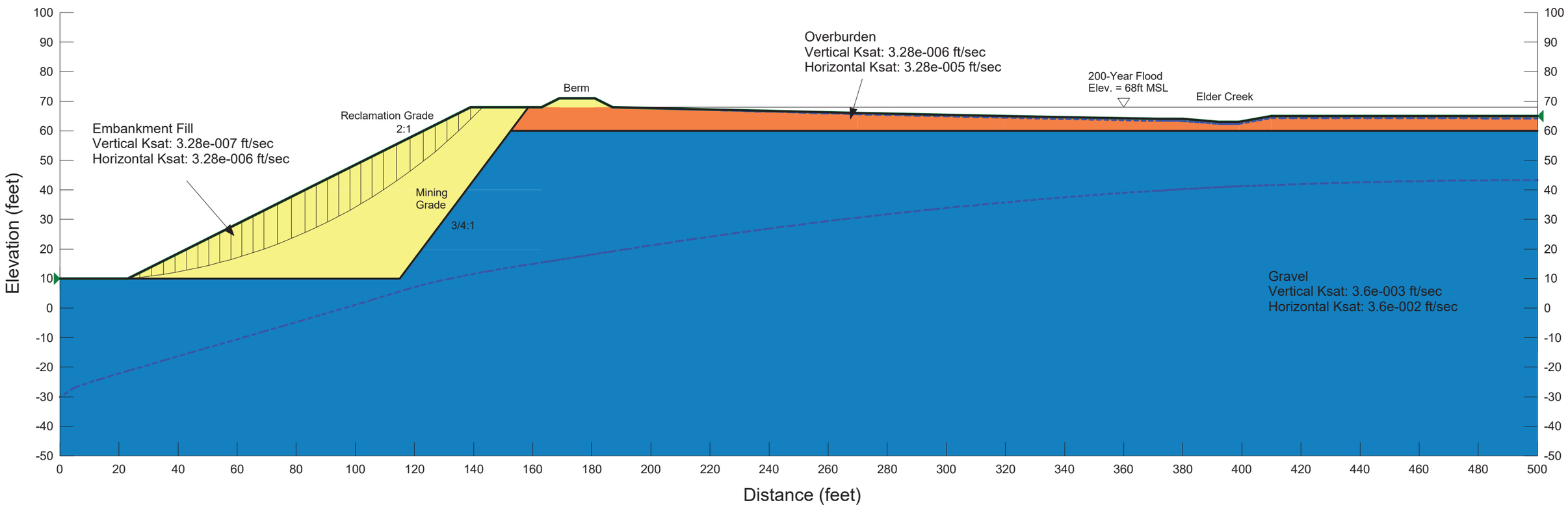
Seismic Slope Stability at Low-Flow

S9304-05-02	December 2014	Figure 7

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:33:27 AM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

Static Slope Stability at 200-Year Flood

S9304-05-02	December 2014	Figure 8

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:49:20 AM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
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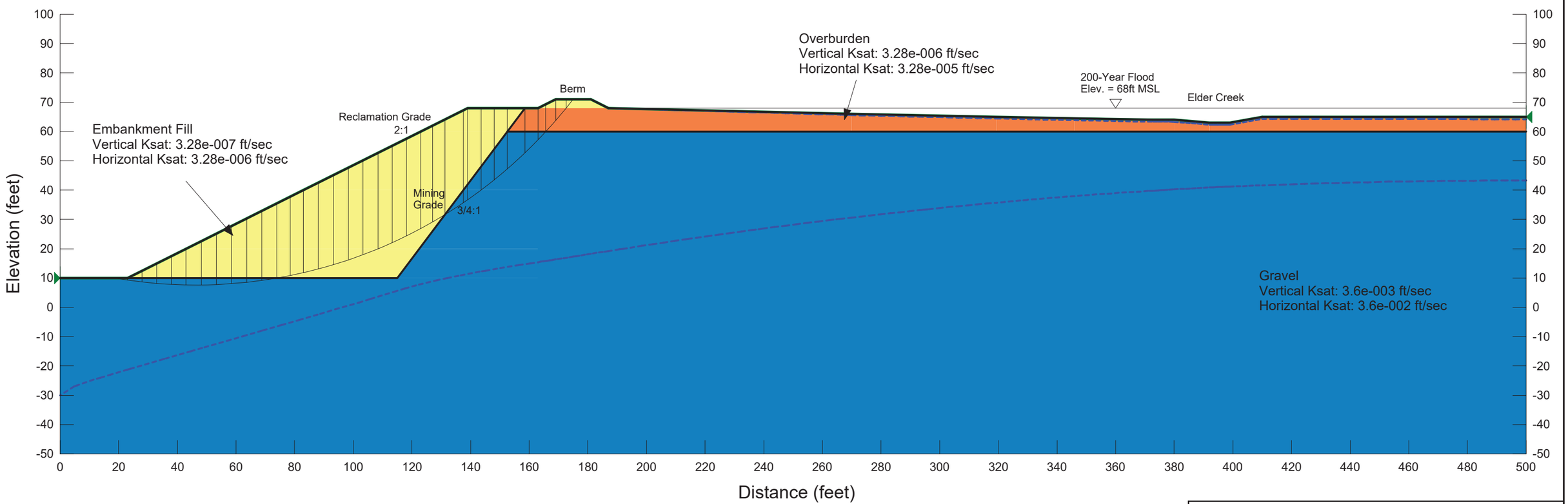
Description: Embankment Fill: Wt: 120 Cohesion: 800 Phi: 20
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 32



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

Seismic Slope Stability at 200-Year Flood

S9304-05-02	December 2014	Figure 9

Biological Resources Assessment

Aspen VIII & IX Project
Sacramento County, California

Prepared for:

County of Sacramento
Planning and Environmental Review
827 7th Street
Sacramento, CA 95814

By:

Teichert Materials
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~~December 2014~~
Revised: June 2015

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Attachment B Aspen VIII & IX Rare Plant Survey Report
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1.0 INTRODUCTION

Teichert Materials (Teichert) conducted a biological resources assessment on approximately 682 acres of its Aspen VIII and IX Property (Property). Teichert proposes to mine approximately 357acres of the Property for aggregate (sand and gravel) resources (Project). Upon the completion of mining operations, the site will be reclaimed to open space annual grassland and/or irrigated pasture suitable for grazing. This report discusses the biological resources present on and potentially affected by the proposed Project. In addition, this report includes a summary of the applicable laws and regulations related to biological resources and the resource agencies responsible for their implementation.

Field surveys were conducted to identify existing biological resources present on the site and to determine if habitats present could support any special-status species. In addition, sensitive habitat areas (i.e., wetlands, riparian vegetation, trees, etc.) have been mapped and quantified using global positioning system (GPS) technology and aerial interpretation. Potential significant impacts that may occur to these resources as a result of the proposed Project are identified and mitigation measures are suggested to reduce impacts to less than significant.

1.1 PROJECT SITE LOCATION AND SETTING

The Property is located approximately 2 miles south of Mather Field and one-half mile east of Bradshaw Road in unincorporated Sacramento County (Figure 1). The site is located within a portion of the *Rio de Los Americanos Land Grant*, in Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series *Carmichael, California* quadrangle. Aspen VIII (Sacramento Co. Assessor's Parcel Numbers [APNs] 063-0180-005,-006 and 063-0160-001) consist of approximately 319 acres and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) includes approximately 363 acres (Figure 2). The approximate center of the study area is located near Elder Creek Road at 38° 30' 39" North and 121° 19' 03" West within the Elder Creek Watershed. Elder Creek Road bisects the Property, with Aspen VIII to the north and Aspen IX to the south (Figures 2 and 3).

Existing habitat includes annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek (Figure 3). The majority of the site is used as rangeland for livestock and irrigated pasture for forage production, interspersed with three separate rural residential homes. Current surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries (a.k.a. Quiet Haven Memorial Park), a nursery facility (Village Nurseries), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

1.2 PROJECT DESCRIPTION

Teichert is proposing to mine existing aggregate material (sand and gravel) on approximately 357 acres of the Property (Figure 4). The proposed Project will consist of aggregate removal and conveyance, as well as reclamation for agricultural (i.e., grazing and forage production) purposes (Teichert 2015a). The

Project is an extension of mining on Teichert's 'Aspen' properties, which have continuously supplied aggregate resources to Teichert's materials processing operations since the 1950s.

A timetable of 10 to 25 years is proposed to complete the Project, including all reclamation requirements. In general, mining will begin at the northern border of Aspen VIII and progress in a southerly direction toward Aspen IX. Two separate mine pits are proposed as part of the Project (Areas A and B) (Figure 4). The two areas are separated from Aspen IX by Elder Creek Road. Sequential activities in each area of operations include: removal of topsoil; removal of overburden; removal of aggregate material by scrapers, loaders, dozers and excavators; transport of material to Teichert's processing plant using an electrical conveyor system; and reclamation concurrent with mining.

Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will extend into the neighboring Aspen V-South Property to the north, before eventually tying into an existing conveyor system on a permitted mining area on Aspen V-South. As mining progresses southward, a conveyor tunnel will be constructed underneath Elder Creek Road to transport aggregate material mined from Area B (Aspen IX) (Figure 4). Once mining operations are completed, the conveyor line will be removed and its footprint reclaimed in accordance with the proposed reclamation plan for the Project. In addition to mining activities, Teichert proposes to improve an existing culvert that connects Elder Creek between the Aspen VIII and IX Properties from underneath Elder Creek Road (Figure 4). All ancillary elements and construction activities, including conveyor between Aspen VIII and Aspen V-South, tunnel under Elder Creek Road, and culvert replacement in Elder Creek, have been included as part of the Project (Figure 4).

1.3 PRESERVATION

The proposed Project would preserve approximately 90.63 acres, including 5.313 acres (or 8,368 linear feet) of Elder Creek (Figure 4). This preserve is intended to protect the entire stretch of Elder Creek on the Project Site. Much of Elder Creek is presently lacking riparian vegetation due to historic grazing pressures. Native trees have been proposed to be planted along a portion of the Preserve to mitigate for impacts to oaks and other trees as part of the Project (Teichert 2015c). Fencing of the preserve to restrict grazing, combined with additional planting of riparian vegetation, is intended to further protect and enhance existing conditions along Elder Creek.

1.4 RECLAMATION

The proposed end use for the Project Site after reclamation is open space annual grassland and/or irrigated pasture suitable for grazing (2015a). To achieve this end, overburden and topsoil will be placed and graded to provide an appropriate growing medium for the establishment of a protective vegetative cover and future forage use. Slopes will be reclaimed to no steeper than two feet horizontal to one foot vertical (2:1), with rounded edges in order to mimic surrounding landforms, and then seeded to prevent erosion. After reclamation slopes have been constructed, the pit floor will be completed and seeded

with an appropriate grassland or pasture seed mix selected for forage value. Reclamation of all mined areas will feature a total of approximately 66.3 acres of grassland slopes surrounding approximately 260.8 acres of annual grassland and/or irrigated pasture habitat within the reclaimed floor (Figure 5). Other areas, totaling approximately 32.7 acres, will also be restored back to grasslands (i.e., former stockpile areas, berms, future pads for road right-of-ways, etc.). In addition, approximately 14.2 acres of stormwater retention pond areas will be created on the pit floor to collect surface runoff, provide supplementary water sources for cattle, and protect surrounding land.

A Reclamation Plan (Plan) has been prepared for the Project pursuant to the California State Surface Mining and Reclamation Act (SMARA) of 1975 and associated regulations (updated January 2012) and the Sacramento County Code (Teichert 2015a). Included in the Plan are detailed descriptions of existing site conditions (including soils and hydrology), site-specific plans for soils removal/handling and erosion-control, protocols for vegetation establishment and protection (including noxious/invasive weed management), and specific monitoring and performance standards for revegetation success. The revegetation methods outlined in the Plan are intended to optimize the grazing quality of the Project Site and the aesthetic value of the area, while also providing foraging habitat for raptors and other species. In order to ensure long-term beneficial use of the site as proposed, a grazing management plan is also included in the Plan.

2.0 REGULATORY OVERVIEW

This section provides a brief summary of the federal, state, and local policies and regulations that are relevant to addressing the biological resources identified at the Project Site. Regulated or sensitive resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, and locally protected resources, such as native oak trees.

2.1 FEDERAL REGULATIONS

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS). In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction. Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.2 Federal Clean Water Act, Section 404

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into Waters of the United States (Waters of the U.S.) under Section 404 of the CWA. The definition of "Waters of the U.S." includes all navigable waters; interstate waters and wetlands; all intrastate waters and wetlands that could affect interstate or foreign commerce; impoundments of the above-listed waters; tributaries of the above-listed waters; territorial seas; and wetlands adjacent to the above-listed waters. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.37b).

As part of the wetland delineation and verification process, the USACE will determine whether wetlands and other features in a Project Site are considered Waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters, the proponent must seek a permit from the USACE. The USACE can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). The EPA also has authority over wetlands and may override a USACE permit.

2.1.2.1 Federal Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any person applying for a Section 404 permit for activities resulting in a discharge into Waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board (RWQCB). The goal of this program is to protect Waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the Clean Water Act, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by the Corps under Section 404 (above).

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds. The MBTA makes it unlawful to take any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit (i.e., rehabilitation, scientific collecting, etc.).

The list of migratory birds (50 CFR 10.13) includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species.

2.2 STATE REGULATIONS

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA pertains to state-listed endangered and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in

Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. CESA allows CDFW to authorize exceptions to the state's prohibition against “take” of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish and Game Code Section 2081).

2.2.1.2 Fully Protected Species

California Fish and Game Code Sections 4700 (mammals), Section 3511 (birds), Section 5050 (reptiles and amphibians), and Section 5515 (fish) designate certain species as “fully protected.” The State of California first began to designate species as “fully protected” prior to the creation of the CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Fully protected species, or parts thereof (e.g., feathers, wings, talons), may not be taken or possessed by any individual at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW may issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.1.3 Migratory Bird Species and Birds of Prey (Raptors)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. These stipulations are similar to the federal MBTA and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.1.4 Native Plant Protection Act

The Native Plant Protection Act (NPPA) prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the CDFW. The NPPA is administered by the CDFW and set forth in California Fish and Game Code Sections 1900-1913. The CESA (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

2.2.1.5 California Streambed Alteration Notification/Agreement

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement (SAA) be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or

substantially change the bed, channel, or bank of any river, stream, or lake." CDFW must be notified prior to any such activities and will review the proposed action(s). If necessary, the CDFW will propose measures to protect affected fish and wildlife resources. The SAA is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the CDFW and the Applicant. Often, projects that require a SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

2.2.2 Porter-Cologne Water Quality Act

The State Water Resources Control Board (SWRCB) and the local RWQCB have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)).

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the RWQCB. (Water Code 13260(a)). The RWQCB will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the WDR program, the RWQCB also regulates discharges to "isolated" water features which are not considered Waters of the U.S. under the Federal CWA. Porter-Cologne also requires compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

2.2.3 Species of Special Concern

Species of Special Concern (SSC) is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. SSC are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under FESA, CESA, or the Fish and Game Code, but may be considered under CEQA Guidelines Section 15380.

2.2.4 California Rare Plant Ranks

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2014), which provides a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks (CRPRs). The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The California Rare Plant

Ranks are currently recognized in the California Natural Diversity Database (CNDDB). The following definitions of the CNPS California Rare Plant Ranks include:

- CRPR 1A – presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B – rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – presumed extirpated in California, but more common elsewhere;
- CRPR 2B – rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 – a review list of plants about which more information is needed; and
- CRPR 4 – a watch list of plants of limited distribution.

CRPR List 1A and 2A are presumed extirpated in California. In general, CRPR List 3 and 4 plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA Section 15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.5 California Natural Diversity Data Base

The CDFW administers the California Natural Diversity Data Base (CNDDB), which maintains a list of special-interest plants, animals, and natural communities that occur within California. These particular species, natural communities, or habitat types are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat (e.g., development, off-road vehicles) to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these species or communities afforded by these CNDDB listings. However, these species or communities may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources, including species not protected on a federal or state list but may be considered rare or endangered if the species meets certain specified criteria (CEQA Guidelines Section 15380). These criteria follow the definitions in FESA, CESA, and Sections 1900-1913 of the Fish and Game Code, which deal with rare or endangered plants and animals. Section 15380 allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., SSC) would occur. The public agency that takes the lead on a project (having review and approval authority over the project) is known as the Lead Agency. Other agencies involved in subsequent approvals or responsible for implementing mitigation identified in the environmental documents are called Responsible Agencies.

2.2.6.1 CEQA Significance Criteria

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local content. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Other impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 LOCAL REGULATIONS

2.3.1 Sacramento County Tree Preservation and Protection Ordinance

Sacramento County outlines requirements for the protection of oak trees in County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any “tree,” as defined, within the urban area of the unincorporated area of Sacramento County, or any property,

public or private. The ordinance defines "trees" as follows:

> "Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground (dbh)."

2.3.2 Sacramento County General Plan

The County's Conservation Element of the General Plan contains goals and policies that provide direction regarding the conservation, maintenance, development, and utilization of natural resources. The Conservation Element addresses water resources, mineral resources, material recycling, soil resources, vegetation and wildlife, aquatic resources, terrestrial resources, and cultural resources. Most of these resources are protected and addressed in various federal, state, and local regulations and policies.

The General Plan does expand on the protection of other resources, including other native trees and riparian habitats. Specifically, Sacramento General Plan Policies CO-138 and CO-139 build on Sacramento County's Tree Preservation and Protection Ordinance by requiring that other native trees (e.g., California sycamore and California black walnut) also be protected or otherwise mitigated for in accordance with existing tree replacement policies and standards for native oaks. Sacramento General Plan Policy CO-140 further expands on tree protections by addressing tree canopy and other mitigation requirements for native oak woodlands, oak savannah and mixed riparian areas. Impacts to non-native tree canopy are addressed in the Urban Forest Management section of the General Plan under policies CO-145 and CO-146, which require mitigation for loss of non-native tree canopy as a result of development. Onsite mitigation for losses to tree canopy shall be carried out through the creation of mitigation areas equivalent to the acreage of canopy removed, with new tree canopy calculated using the 15-year shade values for tree species. If new tree canopy cannot be created onsite, a contribution may be made to the Greenprint fund in an amount proportional to the impacted tree canopy.

2.3.3 South Sacramento Habitat Conservation Plan

The South Sacramento Habitat Conservation Plan (SSHCP) is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region, including the cities of Galt and Rancho Cordova. The specific geographic scope of the SSHCP includes U.S. Highway 50 to the north, Interstate-5 to the west, the Sacramento county line with El Dorado and Amador counties to the east, and San Joaquin County to the south. The SSHCP Study Area excludes the City of Sacramento, the City of Folsom and the Folsom Sphere of Influence, the City of Elk Grove, the Sacramento-San Joaquin Delta, and the Sacramento community of Rancho Murieta.

The SSHCP is currently in preparation and is undergoing environmental review (a working draft was released in 2010). The SSHCP will consolidate and enhance wetlands (primarily vernal pools) and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory

hurdles and facilitate the permitting process for development projects. The SSHCP will cover 30 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP. Sacramento County is partnering with the incorporated cities of Rancho Cordova, Galt, and Elk Grove, as well as the Sacramento Regional Sanitation District, Sacramento County Connector JPA (Joint Powers Authority), and Sacramento Water Agency to further advance the regional planning goals of the SSHCP.

2.3.4 Swainson's Hawk Mitigation Fee Program

During the environmental review process, the County Department of Planning and Environmental Review (PER) will determine whether a project impacts Swainson's hawk foraging habitat. If impact is determined, several options for mitigation will be suggested in the final environmental document. The Swainson's Hawk Mitigation program, administered by the Sacramento County Department of Planning and Community Development, is one of those options. The Ordinance (Chapter 16.130) was adopted by the Board of Supervisors in 1997. It allows projects which impact less than 40 acres of foraging habitat to pay a per-acre fee for those impacts. Projects impacting 40 acres or more of foraging habitat must provide land acceptable to the CDFW and the County. Land can be provided via fee title or conservation easement.

3.0 METHODS

The analysis presented in this document utilizes previously conducted wetland delineations, biological assessments, various published documents, personal communication with expert biologists, and recent on-site field surveys of the Project Site. The distribution of special-status species were primarily derived from the CNDDB records and various field survey efforts. The following provides a summary of existing documents related to the Project and describes the methodology for describing habitat communities and ascertaining likelihood of species occurrence.

3.1 WETLAND DELINEATION

A delineation of wetlands and other Waters on the Property was originally prepared by Foothill Associates in 2006. Following a site visit with the USACE in March 2009, ECORP Consulting, Inc. (ECORP) revised the delineation in November 2009 and March 2010. The USACE issued a preliminary jurisdictional determination (PJD) for the site on 28 June 2010. In April 2014, ECORP re-delineated portions of the site and submitted an updated delineation. Based on this recent delineation, the USACE issued a PJD on 03 June 2014. Areas outside the Property and within 250 feet were assessed by aerial determinations.

3.2 PRE-FIELD SURVEY INVESTIGATIONS AND LITERATURE REVIEW

A comprehensive literature review, based on the professional experience of contributing biologists within the region and elsewhere in California, has been conducted for the Project Site in order to develop the most accurate list of potentially-occurring special-status plant and animal species. In addition, using the Rarefind 5.0 (CDFW 2014) software program, a standard nine-quadrangle California Natural Diversity Data Base (CNDDB) report was generated for the study area (i.e., query of the U.S. Department of the Interior, Geological Survey 7.5-minute topographic quadrangle in which the study area is found as well as the immediate eight surrounding topographic quadrangles). The CNDDB contains extensive records for special-status species, as well as sensitive natural communities, which have been reported to the CDFW by a variety of sources, including researchers, landowners, field biologists and the public. Furthermore, because the CNDDB does not provide a comprehensive inventory of all sensitive species statewide, other sources of information on special-status species in California were also reviewed to determine if any special-status species not identified in the Rarefind 5.0 report have the potential to occur on the study area. These additional resources include:

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered species having the potential to occur in the study area; generated on 15 March 2013 (USFWS 2013) and 07 April 2014 (USFWS 2014);

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status species that may occur in the study area; generated on various dates between March 2013 (CNPS 2013) and August 2014 (CNPS 2014); and

eBird Data Base (http://ebird.org) (eBird 2014).

3.3 SPECIAL-STATUS SPECIES OCCURRENCE POTENTIAL

The potential for special-status plants and animals depends largely on the presence of specific habitat types on the Project Site. Habitat types identified in previous documents and recent field assessments were evaluated with known habitat requirements for each special-status species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- Known to Occur – Taxon was observed at the Project Site during recent surveys.
- Likely to Occur – Taxon previously reported within or immediately adjacent to the site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project Site.
- Could Occur – Suitable habitat is available at the site; however, there is little to no other indicators that the taxon might be present.
- Unlikely to Occur – Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the Project area.

A list of all special-status plant and animal species known or potentially known to occur within the Project vicinity is shown in Attachment A (Table A-1). For each species identified to have reasonable potential to occur (i.e., 'could occur') on the Project Site, additional biological data were provided to assist in field surveys and potential impact analyses. Information gathered included specific habitat requirements, known distribution, and regional occurrence(s).

3.4 FIELD SURVEY METHODS

Field surveys were conducted to document existing conditions of the site and assess the potential for habitats on-site to support special-status species (as listed in Table A-1). Surveys focused on rare plants (Teichert 2015b), but also included incidental observations of wildlife use and nesting species. Field surveys for special-status plants were conducted over a two-year period from March 2013 through August 2014 in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001), the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996), and the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009). The survey study area was also extended outside the Project Site boundary to ensure all areas within 250-feet of the proposed mining footprint (i.e., proposed limits of disturbance) were examined to address potential indirect impacts to biological resources.

Specific survey dates were 25 March, 22 April, 06 and 27 May, and 20 June of 2013; and 14 March, 14, 23 and 24 April, 01 and 23 May, 19 June, and 14 July of 2014. The survey dates were established to focus on the range of flowering and identification periods for rare plants. Over the course of the 2-year survey period, Teichert's biologist B. Baba walked meandering transects across the entire Project Site.

Teichert's biologist J. Greer also accompanied B. Baba on some of the 2014 surveys. Survey transects were spaced at 15- to 50-foot intervals, depending upon the existing terrain, habitat types, vegetation cover, and structural complexity. Special attention was given where the habitat type was determined to be suitable and most likely to support special-status species (e.g., wetlands). Many areas consisted of irrigated pastures dominated by various pasture species and thus provided limited or no suitable habitat for most special-status plants.

3.5 ACCOMPANYING DOCUMENTS

3.5.1 *Special-Status Plant Species Survey Report, Teichert – Aspen VIII & IX (2014)*

A rare plant survey report was prepared for the Project Site, including a 250-foot setback area, by Teichert's biologist B. Baba (Teichert 2015b). The survey consisted of identifying all habitat types and vegetation communities, conducting protocol-level rare plant surveys, and compiling and inventory of all plant species observed at the site. Rare plants identified at the site were mapped using a GPS unit with sub-meter accuracy. Details of the rare survey methodology and data can be found in Attachment B of this document.

3.5.2 *Arborist Report, Teichert – Aspen VIII & IX (2014)*

An arborist survey of the Project Site was conducted by Teichert's biologist B. Baba and J. Greer (ISA Cert. #WE-10104A) on 23 April, 01 May, and 07 October 2014 (Teichert 2015c). The tree survey consisted of identifying, measuring, and mapping all trees 4 inches dbh or larger within and adjacent to (i.e., 150 feet) of the Project Site boundaries. Each tree was then assigned a unique identification number and evaluated for potential impacts as a result of the proposed Project. Details of the tree survey methodology and data can be found in Attachment C of this document.

4.0 EXISTING CONDITIONS

The Project Site consists of approximately 683 acres of land, including the conveyor alignment proposed in Aspen V-South. The majority of the site is utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Three separate rural residential houses and associated farm buildings also occur on the Project Site. Surrounding land uses include additional rangeland and rural residential homes, agricultural cropland, a nursery facility (Village Nurseries), two cemeteries (Arlington Memorial Cemetery and Bellevue Cemetery), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

4.1 CLIMATE, TOPOGRAPHY, AND WATERSHED

Sacramento, as with the rest of California's Central Valley, is typical of a Mediterranean-type climate with hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 38°F in December to a high of 92°F in July (usclimatedata.com). Average annual precipitation is approximately 18.51 inches, with January usually the wettest month (usclimatedata.com).

The majority of the Project Site consists of historically leveled fields for both dryland grazing and irrigated pasture. Much of the remaining areas are characterized by relatively flat to rolling topography supporting comparatively undisturbed annual grasslands. The elevation of the site ranges from approximately 60 to 85 feet above mean sea level (MSL).

The Project Site is located within boundaries of the Morrison Creek and Elder Creek Watersheds (Figure 6). The Morrison Creek watershed encompasses approximately 200 acres in both Aspen VIII and IX, while the Elder Creek Watershed includes approximately 483 acres. Although Morrison Creek itself does not traverse the Project Site, its southern watershed boundary lies within the western portion of Aspen VIII and along the northwestern portion of Aspen IX before transitioning into the Elder Creek watershed to the south. Elder Creek occurs on both Aspen VIII and IX, whereby it enters Aspen VIII on the southeast and exits Aspen IX on the west (Figures 2 and 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized. Elder Creek originates near the intersection of Kiefer Boulevard and Eagles Nest Road and eventually discharges into Morrison Creek near Brookfield Drive in the City of Sacramento, approximately 8 miles west of the Project Site. Historically, Elder Creek was probably an ephemeral to intermittent watercourse, seasonally supported by winter precipitation and runoff from the surrounding uplands. Today, however, the majority of Elder Creek can be characterized as a semi-perennial creek fed primarily by runoff from ranches, residential areas, and irrigated pasture lands. Within the Project Site, Elder Creek is bordered by irrigated pastures, which are supported by a groundwater release and recycling system that provides year-round irrigation to fields. In this system, groundwater is first supplied to pastures during the early summer months and allowed to sheet across fields. This water eventually drains into a network of surrounding ditches and irrigation ponds for capture and reutilization, while excess irrigation runoff flows to Elder Creek.

4.2 SOILS

Natural Resources Conservation Service (NRCS) soil surveys for Sacramento County identifies six soil types within in the Project Site (NRCS 1993). The most predominant soil component is Red Bluff-Xerarents complex, 0 to 2 percent slopes, which is distributed throughout much the proposed mining area (Figure 7). Red Bluff loam, 0 to 2 percent slopes is the second-most predominant soil type on the Project Site (Figure 7). Other soil types include San Joaquin silt loam, 0 to 3 percent slopes; Kimball silt loam, 0 to 2 percent slopes; San Joaquin silt loam, leveled; and Hedge loam, 0 to 2 percent slopes (Figure 7). Detailed summaries of these soil types have been described in the original wetland delineation report prepared by Foothill Associates (2006).

4.3 HABITAT COMMUNITIES/VEGETATION

Presently, both annual grasslands and irrigated pastures dominate the landscape on the Project Site (Figure 3). Elder Creek appears on the USGS 7.5-minute series Carmichael and Elk Grove, California quadrangles as a solid blue line feature (perennial drainage) and traverses the Project area in a northeast to southwest direction (Figure 3). In addition, other wetland features are present at the site, including vernal pools, seasonal wetlands and swales, ephemeral drainages, freshwater marshes, ditches, and ponds (Figure 3). Scattered areas of riparian woodland habitat also exist along some of these wetlands (i.e., Elder Creek, ponds and ditches) (Figure 3). Other features on the Project Site include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the site.

4.3.1 Irrigated Pasture

Irrigated pastures, totaling 331 acres north of Elder Creek, are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures (further discussed in Section 4.3.3.5). Common plant species occurring in irrigated pastures include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

4.3.2 Annual Grassland

Annual grasslands on the Project Site are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and includes grazing by cattle (Figure 3). Annual grasslands that maintain a natural topography and have not been leveled are generally located south of Elder Creek, within the southern and eastern portions of Aspen IX. Similar landscapes are also present near the northwestern corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft-chess brome (*Bromus*

hordeaceus), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes (further discussed in Sections 4.3.3.2 and 4.3.3.3.

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist (i.e., roads, ditches, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulensis*) occurs within the western section of Aspen VIII near an existing cemetery.

4.3.3 Wetlands and Waters of the U.S.

A delineation of wetlands and other Waters of the U.S. for the Project Site was prepared by Foothill Associates in 2006. ECORP revised the delineation in November 2009 and March 2010 and again in March 2014 (ECORP 2009, ECORP 2010, ECORP 2014) as part of continued work on the Project (Figure 3). The USACE issued a preliminary jurisdictional determination (PJD) on 03 June 2014. Table 1 summarizes acreages of Waters by wetland type.

TABLE 1. WETLANDS AND WATERS OF THE U.S

Wetland Type	Aspen VIII (acres)	Aspen IX (acres)	Conveyor (acres)	Totals
Perennial Stream	2.351	3.064	----	5.415
Vernal Pool	0.988	6.243	0.029	7.260
Seasonal Wetland	2.195	3.486	0.060	5.741
Seasonal Swale	0.299	0.959	----	1.258
Freshwater Marsh	2.017	2.735	----	4.752
Ephemeral Stream	0.001	0.005	----	0.006
Pond	0.920	----	----	0.920
Ditch	1.756	0.688	----	2.444
Totals	**10.527**	**17.180**	**0.089**	**27.796**

The Project Site includes a total of 27.796 acres of wetlands, including a perennial stream, vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, ephemeral streams, ponds, and ditches. Each

of the aquatic vegetation communities/Waters, including associated common plant species, are summarized below.

4.3.3.1 Perennial Stream (Elder Creek)

A total of 5.415 acres of perennial stream have been delineated on the Project Site (Figure 3). This includes approximately 8,470 lineal feet of Elder Creek. The creek is often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (*Paspalum distichum*), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is rather limited throughout much of the creek, probably due to present and past grazing pressures. Trees consisting of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*) are scattered along portions of Elder Creek, particularly within the Aspen VIII site. This area of the creek also supports dense stands of Himalayan blackberry (*Rubus armeniacus*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted that this creek is hydrologically sustained from late-spring through summer by groundwater pumping and irrigation runoff from adjacent pastures.

4.3.3.2 Vernal Pools

Vernal pools are characterized as shallow depressions underlain by an impermeable geomorphic layer that captures and stores seasonal rainfall in its basin, losing water primarily through evaporation rather than drainage. Numerous pools, totaling 7.260 acres, occur throughout the undisturbed grassland areas of the Project Site (Figure 3). These vernal pools vary in maximum water depth between a few inches to 20 inches deep, and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Vernal pool habitat supports breeding and foraging habitat for many aquatic invertebrates such as flatworms (Phylum Platyhelminthes), snails (*Helisoma* spp. and *Physa* spp.), dragonflies and damselflies (Order Odonata), predaceous diving beetles (Family Dytiscidae), aquatic beetles (Family Hydrophilidae), and various crustaceans (branchiopods, ostracods, copepods). These habitats also provide feeding areas and resting sites for migratory birds. The vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool

tadpole shrimp (*Lepidurus packardi*), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the Project Site and adjacent areas (C. Rogers, pers. observ.).

4.3.3.3 Seasonal Wetlands, Swales, and Ephemeral Drainage

The Project Site also supports numerous seasonal wetlands, swales, and ephemeral drainages, totaling 7.004 acres (Figure 3). Some of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other instances, seasonal wetlands and swales are associated within irrigated pastures and affected by summer irrigation, remaining saturated or inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatsedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean beardgrass, and waxy mannagrass.

4.3.3.4 Freshwater Marsh

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the Project Site (Figure 3). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

4.3.3.5 Ditches and Ponds

A network of ditches (2.444 acres) and ponds (0.920 acre) are scattered throughout irrigated pastures (Figure 3). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall

fescue, dallis grass, mannagrass, and annual beard grass. One ditch in Aspen VIII was dominated by Sanford's arrowhead (*Sagittaria sanfordii*) (Teichert 2015b).

Ponds on site are relatively deep, and thus tend to lack vegetation. Pond levels may also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

4.3.4 Riparian Woodland

Riparian woodland vegetation is limited to patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Figure 3). Most of these species consists of Fremont cottonwood, willows, Himalayan blackberry, and California wild rose. Most of Elder Creek lacks riparian woodland vegetation, probably due to past and present grazing pressures. Existing ditches also lack riparian woodland species due to routine maintenance activities.

4.3.5 Ruderal

Ruderal vegetation is frequently associated with various equipment storage areas and access roads. In addition, disposal areas along ditches from maintaining them are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), and soft-chess brome.

5.0 SPECIAL-STATUS SPECIES AND SPECIES ACCOUNTS

Federal and State endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the Project Site. In addition, State resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents (i.e., CRPR plants and SSC animals), have identified additional species as sensitive and occurring in the vicinity of the Project Site. Such species are referred to collectively as "special-status species." As provided in Attachment A (Table A-1), a list of special-status species known or potentially known to occur in the local region was compiled from records found in the literature review and database records in the CNDDB and CNPS Online Inventory. The table also contains specific information for each of the special-status species, including federal and State designations, biological and distribution information, survey (blooming or activity) period, and likelihood of occurrence on the Project Site. Figures 8 and 9 include the results of special-status species locations from the USGS 7.5-minute series *Carmichael, California* quadrangle and eight surrounding quadrangles. Sections 5.1 and 5.2 below further describe those species with potential to occur on the Project Site based on the presence of suitable habitat.

5.1 PLANTS

A number of special-status plants have been documented in the CNDDB to occur in the vicinity of the site, and habitat communities on-site represent potentially suitable habitat for a number of other regionally occurring special-status plants (Table A-1, Figure 8). Nine of those species were considered to have potential to occur on the Project Site. These include dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* subsp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*). One species was found during protocol-level plant surveys: Sanford's Arrowhead (Attachment A).

Dwarf Downingia (*Downingia pusilla*)

Dwarf downingia is not listed pursuant to either the federal or California Endangered Species Acts (ESAs); however, it is listed as a CRPR 2B species by the CNPS. Dwarf downingia is known from vernal pools and other seasonal wetlands. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively 'flashy' hydrology (CNDDB 2014). The species will also frequently occupy ephemeral drainages and swales and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes (Baba pers. obs.). Flowering typically occurs between March and May.

In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north, generally below 500 feet elevation. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern

Sacramento Valley. Dwarf downingia, like some other members of the annual vernal pool flora, is also known from disjunct localities in Chile. There is one known occurrence of dwarf downingia within 5 miles of the Project Site (CNDDB Occurrence No. 54), approximately 4.9 miles to the south of the Project Site (CNDDB 2014). This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is till presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014 (Teichert 2015b), dwarf downingia is not expected to occur at the Project Site at this time.

Boggs Lake Hedge-Hyssop (*Gratiola heterosepala*)

Boggs Lake hedge-hyssop is listed as threatened by the California ESA. The CNPS also includes Boggs Lake hedge-hyssop as a CRPR 1B plant. The species blooms between April and June. The species occurs over a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. Boggs Lake hedge-hyssop has been reported to grow in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau. There are six known occurrences of Boggs Lake hedge-hyssop within 5 miles of the Project Site (CNDDB 2014). The nearest known location is approximately 2.5 miles northwest of the site, at Mather Field (CNDDB Occurrence No. 84; CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014 (Teichert 2015b), Boggs Lake hedge-hyssop is not expected to occur at the Project Site at this time.

Hogwallow Starfish (*Hesperevax caulescens*)

Hogwallow starfish is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 4 species by the CNPS. Hogwallow starfish is typically associated with shallow vernal pools and seasonally saturated clay flats. The species has also been found from a fallow (formerly irrigated) pasture (LSA 2009).

Hogwallow starfish has a wide distribution throughout the Central valley and adjacent foothills from Tehama County south to Kern County. It has also been recorded in San Luis Obispo County. Flowering typically occurs between March and June. CRPR List 4 plants are not tracked by the CDFW, thus occurrence records for hogwallow starfish are not included in the CNDDB. A previous survey conducted by ECORP Consulting did identify a population of hogwallow starfish at the Piliken Ranch near Sloughhouse in eastern Sacramento County (ECORP 2007), approximately 10 miles southeast of the Project Site. This population was recorded growing in a rocky, sparsely vegetated upland area. B. Baba revisited this location in 2009 but only observed dwarf evax (*Hesperevax acaulis*). Some of the shallow vernal pools and seasonal wetlands at the Project Site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, May and June 2013 and 2014 (Teichert 2015b), hogwallow starfish is not expected to occur at the Project Site at this time.

Ahart's Dwarf Rush (*Juncus leiospermus* var. *ahartii*)

Ahart's dwarf rush is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to be restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions are more "flashy." In addition, this species is also known to occur on gopher mounds along the margins of these wetlands (CNDDB 2014). Flowering generally occurs from late-March through May.

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 90 to 300 feet (CNDDB 2014). Most occurrences are from Butte and Sacramento County. The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast from the Project Site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in shallow vernal pools and along vernal swales and still presumed extant (CNDDB 2014). Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014 (2015b), Ahart's dwarf rush is not expected to occur at the Project Site at this time.

Legenere (*Legenere limosa*)

Legenere is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average

and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*). Flowering typically occurs from April to June.

This species' range includes the northern Central Valley from Shasta to San Joaquin County and the Inland Coast Range from Lake to Santa Clara County. Populations are reported from 78 occurrences, ranging in elevation from less than 950 meters (CNDDB 2014). The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties (Holland 1983; Platenkamp 1998; CNDDB 2014). The nearest known occurrence of Legenere is approximately 1.4 miles south of the Project Site (CNDDB Occurrence No. 29; CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the Project Site. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014 (Teichert 2015b), Legenere is not expected to occur at the Project Site at this time.

Pincushion Navarretia (*Navarretia myersii* subsp. *myersii*)

Pincushion navarretia is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Pincushion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils (CNPS 2014). Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations (Dittes and Guardino 2001). Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may be more 'flashy.' The species may be seen flowering from mid-April through May (Dittes and Guardino 2001, CNPS 2014).

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 60 and 1,100 feet elevation (CNDDB 2014). The nearest known location of this species is approximately 10.6 miles northeast of the Project Site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3; CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within the Project Site. Based on negative findings of protocol-level rare plant surveys conducted in April and May 2013 and 2014 (Teichert 2015b), pincushion navarretia is not expected to occur at the Project Site at this time.

Slender Orcutt Grass (*Orcuttia tenuis*)

Slender Orcutt grass is listed as threatened under the federal ESA and endangered under the California ESA. The CNPS also includes slender Orcutt grass as a CRPR 1B species. Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic origin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range (CNDDB 2014). The lowest reported elevation is 88 feet in Sacramento County and the highest is 5,760 feet in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region. The nearest documented occurrence of Slender Orcutt grass is approximately 2 miles south of the Project Site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek (CNDDB 2014). The population is till presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and May, June and July 2014 (Teichert 2015b), slender Orcutt grass is not expected to occur at the Project Site at this time.

Sacramento Orcutt Grass (*Orcuttia viscida*)

Sacramento Orcutt grass is listed as endangered under both the federal and California ESAs. The CNPS also includes Sacramento Orcutt grass as a CRPR 1B species. Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grow in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses. Flowering typically occurs in May and June.

Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences, most of which are still presumed extant (CNDDB 2014). The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south. The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the Project Site (CNDDB Occurrence No. 20); however, this

population is presumed extirpated (CNDDB 2014). This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery (CNDDB 2014). The nearest possible extant location is approximately 3.6 miles northeast of the Project Site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard (CNDDB 2014). The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and 2014 (Teichert 2015b), Sacramento Orcutt grass is not expected to occur at the Project Site at this time.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B.2 species by the CNPS. Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Flowering typically occurs between May and August.

This species is widely distributed throughout the Central Valley between 0 and 2,200 feet. Sanford's arrowhead is documented from 93 occurrences and is presently known from Shasta to Kern County, with the majority of records occurring in Sacramento County (CNDDB 2014). A disjunct population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura counties). A nearby population of Sanford's arrowhead occurs approximately 1.8 miles northwest of the Project Site (CNDDB Occurrence No. 25) (CNDDB 2014). Sanford's arrowhead was recorded at the Project Site during protocol-level surveys conducted in May and July 2014 (Teichert 2015b). Large populations of this species (2,000+ individuals) were observed growing within an irrigation ditch in Aspen VIII, near the western portion of the property (Figure 10). This ditch is fed by irrigation runoff from irrigated pastures to the east, before eventually emptying into a large irrigation pond on the northern project boundary (Teichert 2015b).

5.2 ANIMALS

A number of special-status animals have been documented in the CNDDB within the USGS 7.5-minute series *Carmichael, California* topographic quadrangle as well as the immediate eight surrounding quadrangles, and the habitats and vegetation communities found on-site represent potentially suitable habitat for a number of other special-status animal species (Table A-1, Figure 9). A total of nine invertebrates, one amphibian, one reptile, and nine birds were considered to have potential to occur on the Project Site. These include the blennosperma vernal pool andrenid bee (*Andrena blennospermatis*), an andrenid bee (*Andrena subapasta*), vernal pool fairy shrimp, mid-valley fairy shrimp (*Branchinecta mesovallensis*), hairy water flea (*Dumontia oregonensis*), Ricksecker's hydrochara (*Hydrochara rickseckeri*), venal pool tadpole shrimp, California linderiella (*Linderiella occidentalis*), valley elderberry

longhorn beetle (*Desmocerus californicus dimorphus*), western spadefoot toad (*Spea hammondii*), western pond turtle(*Emys marmorata*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), Ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), yellow-billed magpie (*Pica nuttallii*), and tricolored blackbird (*Agelaius tricolor*). Five species were observed during various field surveys in 2013 and 2014: white-tailed kite (perched in willow tree), northern harrier (foraging), Swainson's hawk (flyover), yellow-billed magpie (foraging), and tricolored blackbird (nesting in Himalayan blackberries).

5.2.1 Invertebrates

Blennosperma Vernal Pool Andrenid Bee (*Andrena blennospermatis*)

The blennosperma vernal pool andrenid bee is not listed pursuant to either the federal or California ESAs; however, it is tracked by the CNDDB due to its restricted habitat. The species is a solitary, ground-nesting bee that inhabits upland areas near vernal pools and specializes on the flowers in the *Blennosperma* genus (yellow carpet) (Leong, et al. 1995). Presence of this bee is reported in scattered locations where *Blennosperma* is found, along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento and Tehama Counties, as well as near the base of the Coast Ranges in Contra Costa, Lake and Sonoma Counties (CNDDB 2014). The female bee collects and provisions *Blennosperma* pollen into ground nests, forming it into a ball onto which she lays a single egg. Bees are active through the bloom period of yellow carpet (late February through April), allowing a female to produce multiple ground nests. The next spring, adults emerge around the same time that *Blennosperma* begins blooming and the cycle repeats.

The blennosperma andrenid bee is dependent upon the presence of *Blennosperma* flowers, which occur in grasslands associated with vernal pools. The nearest occurrence for this species is approximately 10 miles to the southeast of the study area (CNDDB Element Occurrence No. 08), in a vernal pool complex near Sloughhouse (CNDDB 2014,). *Blennosperma* plants were not identified through any of the comprehensive spring surveys in the vernal pool and grassland habitats of the study area (Teichert 2015b); therefore, the blennosperma vernal pool andrenid bee is not considered to occur at the Project Site at this time.

Andrenid Bee (*Andrena subapasta*)

Similar to other andrenid bees, *Andrena subapasta* is a solitary, ground-nesting bee that specializes on native flowers endemic to vernal pool grassland habitats. It is not listed pursuant to federal or California ESAs, but is tracked by the CNDDB, as very little is known about this species. Records exist from the Sacramento Valley and foothill regions in Sacramento, San Joaquin, Placer and El Dorado Counties (CNDDB 2014). It is known to forage on a variety of native forbs, and has been observed to collect pollen from the flowers of sandwort (*Minuartia californica*), Johnny-tuck (*Triphysaria eriantha*) and California goldfields (*Lasthenia* spp.) (Rogers, pers. obs.; CNDDB 2014).

The nearest occurrence for this species is more than 5 miles north of the study area and is from 1954 (CNDDB Element Occurrence No. 03), in what is now a developed area of Fair Oaks near the American River (CNDDB 2014). The annual grassland habitat surrounding vernal pools within the study area may provide suitable habitat for *A. subapasta*, as several pools were noted to contain *Lasthenia fremontii* and *L. glaberrima* and other native flowering forb species during spring plant surveys (Teichert 2015b). Therefore, *A. subapasta* could occur within the study area.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The vernal pool fairy shrimp is listed as threatened under the federal ESA. This species is usually found in vernal pools, but can also occur in association with other ephemeral wetlands including alkali pools, seasonal swales, and rock outcrops. Vernal pool fairy shrimp act as filter-feeders and are present in seasonal pools during the wet stage, hatching from cysts as soon as ponding occurs. Vernal pool fairy shrimp develop rapidly into adults, reaching sexual maturity in as little as 18 days (Helm 1998); although, Rogers (pers. obs.) observed this species reaching maturity in as little as 6 days under high temperatures. Maturation and reproduction rates of vernal pool crustaceans are controlled by water temperature and can vary greatly (C. Rogers, pers. obs.). Three to six hatches may occur within a season if rainfall patterns and conditions are favorable (Gallagher 1996; Helm 1998). Cysts typically remain dormant until the next rainy season, but can last in vernal pool substrate for many years. The species is an important food source for many other vernal pool animals, from aquatic beetles to toads and ducks.

The vernal pool fairy shrimp is distributed throughout the Central Valley, as well as at a small number of locations in the central Coast Ranges from Monterey County south to Santa Barbara County and in the South Coast Mountains in Riverside County (CNDDB 2014). There are 26 records for this species within 5 miles of the Project Site, with the nearest record existing approximately 0.6 mile to the east of the study area (CNDDB Element Occurrence No. 228) within natural vernal pools surrounded by grazed grassland (CNDDB 2014). Vernal pool fairy shrimp have also been observed from reconnaissance level special-status shrimp surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pools and other seasonal wetlands and swales within the study area are considered to likely support vernal pool fairy shrimp.

Mid-valley Fairy Shrimp (*Branchinecta mesovallensis*)

The mid-valley fairy shrimp is not listed pursuant to the federal or California ESAs, but is tracked by the CNDDB. The species is closely related to the federally-listed vernal fairy shrimp and is limited to vernal pools, swales, and other ephemeral freshwater habitats in the Central Valley. Similar to the vernal pool fairy shrimp, the mid-valley fairy shrimp is a small, filter-feeding crustacean that experiences a rapid life cycle adapted to the filling and drying of its astatic seasonal wetland habitat, complete with the formation of cysts that are capable of lying dormant for many years until the return of appropriate hydrological conditions. Data from laboratory experiments indicate that the young of this species may have a higher tolerance for elevated water temperatures than other *Branchinecta* species (Helm 1998).

Mid-valley fairy shrimp have been found in habitats ranging from 0.001 to 0.5 acre in size, and typically utilize habitats shorter in duration than other *Branchinecta* species (Rogers, pers. obs.).

Records of this species are scattered from Sacramento, Solano, Contra Costa, Merced, Madera and Fresno Counties. There are eight known occurrences for this species within 5 miles of the study area. The nearest record is less than one mile to the northeast (CNDDB Element Occurrence No. 28), within a vernal pool/annual grassland complex south of Mather Regional Park and north of Jackson Road (CNDDB 2014). The vernal pools, swales, and other seasonal wetland habitats on site are considered suitable habitat for this species; thus, the species is considered to have potential to occur.

Hairy Water Flea (*Dumontia oregonensis*)

The hairy water flea is not listed pursuant to the federal or California ESAs, but is tracked by the CNDDB due to a restricted range and lack of specific habitat requirements. In general, the hairy water flea is described as a branchiopod crustacean found in vernal pools and similarly seasonally astatic wetlands. Three populations have been found in vernal pools in Jackson County, Oregon and two in California (Travis AFB, Solano County, and Sacramento County) (Santos-Flores and Dodson 2003; Van Damme & Dumont 2008; CNDDB, 2014; Rogers, pers. obs.). Vernal pools within the study area may provide suitable habitat for the hairy water flea. The only known record for this species in Sacramento County is located approximately one mile north of the study area (CNDDB Element Occurrence No. 01), from a vernal pool at Mather Field (CNDDB 2014). Therefore, the species is considered to have potential to occur at the Project Site.

Ricksecker's Hydrochara (*Hydrochara ricksecker*i)

Ricksecker's hydrochara is a relatively newly-discovered species and is currently not listed pursuant to the federal or California ESAs. Because there is very little information about this species and so few populations are known, it is tracked by the CNDDB. Ricksecker's hydrochara is entirely dependent upon vernal pool-type wetland ecosystems. Records suggest that this species occupies a variety of vernal pools, seasonal wetlands, and other ephemeral habitats below 1,000 feet, but may prefer deeper, long-lasting pools (Rogers, pers. obs.). Like the majority of Hydrophilid beetles, the Ricksecker's hydrochara is predatory in the larval stage and omnivorous as an adult. The larvae of this species will consume other insects, crustaceans, or amphibian larvae (Rogers, pers. obs.). Adults have been seen feeding on common frog-fruit (*Phyla nodiflora*), and dead insects and tadpoles (Rogers, pers. obs.).

This species was originally reported as endemic to the San Francisco Bay region, occurring in Alameda, Marin, San Mateo, and Sonoma Counties (Smetana, 1980). Recent collections have been made in Solano County at the Jepson Prairie Preserve, and from vernal pools in Sacramento, San Joaquin and Placer Counties (Rogers pers. obs.; CNDDB 2014). Larger vernal pools within the study area may provide suitable habitat for this species. The nearest occurrence record for this species is from an aquatic habitat located within a mile north of the study area at Mather Field (CNDDB Element No. 05; CNDDB 2014). Therefore, Ricksecker's hydrochara is considered to have potential to occur at the Project Site.

Venal Pool Tadpole Shrimp (*Lepidurus packardi*)

The vernal pool tadpole shrimp is listed as endangered by the federal ESA. This species inhabits a wide variety of seasonal wetlands, including vernal pools, ponded clay flats, alkaline pools, ephemeral stock ponds, and roadside ditches (Helm 1998; Rogers 2001; CNDDB 2014). Wetlands supporting vernal pool tadpole shrimp have included small (<25 square feet), clear, vegetated pools to highly turbid alkali scald pools to large (>100 acre) winter lakes (Helm 1998; Rogers 2001). These wetlands must dry out and be inundated again for their cysts to hatch. Most records are from larger, deeper vernal pools. Although maturation and reproduction rates of vernal pool crustaceans are controlled by water temperature and can vary greatly (Rogers, pers. obs.), it is estimated that the vernal pool tadpole shrimp take between 3 and 4 weeks to mature (Ahl 1991; King et. al. 1996). This species is relatively large in contrast to fairy shrimp, and covered in an oblong-shaped carapace that is molted as the crustacean grows. Due to their large size, the vernal pool tadpole shrimp is a favorite food source among a variety of animals, from frogs to herons. They are very active hunters, burrowing and swimming in pursuit of various prey items, such as rotifers, fairy shrimp, and tadpoles (C. Rogers, pers. obs.).

Vernal pool tadpole shrimp is a California Central Valley endemic species, with the majority of populations in the Sacramento Valley. There are 51 occurrences that have been recorded for this species within 5 miles of the study area (CNDDB 2014). The nearest record for this species is located approximately 0.5 mile to the north of the study area at Mather Field (CNDDB Element Occurrence No. 25), within natural vernal pools surrounded by annual grassland (CNDDB 2014). Vernal pools within the study area are considered suitable habitat for the vernal pool tadpole shrimp. Vernal pool tadpole shrimp have also been observed from reconnaissance level special-status shrimp surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pool habitats within the study area are considered to likely support this species.

California Fairy Shrimp (*Linderiella occidentalis*)

The California fairy shrimp is the most widely distributed fairy shrimp in California. The species is not currently listed pursuant to federal or California ESAs, but, given continued threats to habitat, is tracked by the CNDDB. This species has been found on most land forms, geologic formations, and soil types supporting vernal pools and other seasonal wetlands throughout California, but tends to occupy relatively deep pools (Eriksen & Belk 1999). Similar to the vernal pool fairy shrimp, the California fairy shrimp is a filter-feeding Branchiopod that hatches from cysts in large numbers within vernal pool habitats.

Within the Central Valley, records for California fairy shrimp come from Shasta, Tehama, Butte, Yuba, Placer, Sacramento, and San Joaquin Counties. There are 38 known occurrences for this species within 5 miles of the study area, with the majority of these occurrences located immediately north of the site at Mather Field (CNDDB 2014). The nearest record for this species exists 0.6 mile to the east of the study area (CNDDB Element Occurrence No. 258), within natural vernal pools surrounded by grazed grassland (CNDDB 2014). This species has also been observed from reconnaissance level special-status shrimp

surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pool and seasonal wetland habitats within the study area are considered to likely support California fairy shrimp.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle (VELB) is listed as threatened by the federal ESA. The VELB is entirely dependent upon its host plant, elderberry (i.e., *Sambucus* spp.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. The VELB life cycle consists of four stages: egg, larva, pupa, and adult. Eggs are typically deposited within the bark crevices of live elderberry shrubs. Upon hatching, the larvae bore through the bark where they tunnel and feed in the pith of the stem for up to 2 years. Prior to pupating, the larvae bore back out of the stem (thereby creating the "exit hole") and then return into the stem to enter the pupil stage. Exit holes are more frequently found in trunks or branches between 2 and 7 inches in diameter, or at least 1.0 inch or greater in diameter at ground level (USFWS 1984). Between March and early June, about the same time the elderberries flower, VELB adults emerge from the exit holes. Adults feed on the leaves of elderberry shrubs and possibly the flowers. The life span of adults is unknown, but they are presumed to die after reproducing.

This taxon occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. At the time the VELB was federally listed, it was known from less than 10 locations along the American and Merced Rivers, and along Putah Creek (USFWS 1980). The known range now extends from southern Shasta County to Fresno County and across the Central Valley, with approximately 204 records (mostly based on exit holes) in existence (CNDDB 2014). The nearest occurrence record for this taxon is approximately 5.6 miles north of the Project Site (CNDDB Element Occurrence No. 01; CNDDB 2014). This occurrence is described as being located on elderberry shrubs within dense riparian habitat along the American River Parkway from River Bend Park up to the lower southeast shore of Lake Natoma. Considering the relatively close proximity of nearby populations and wide geographical range of elderberry shrubs, the VELB could be expected to occur within the study area. Focused surveys for elderberry shrubs were conducted on the Project Site as part of a rare plant survey, carried out over a two year period from March 2013 through August 2014 (Teichert 2015b). No elderberry shrubs were present on the Project Site (Teichert 2015b); therefore, the species is considered to have no potential to occur within the study area due to a lack of required habitat.

5.2.2 Amphibians

Western Spadefoot Toad (*Spea hammondii*)

The western spadefoot is not listed pursuant to the federal or California ESAs, but is designated by the CDFW as a California Species of Special Concern. The species primarily occurs in lowland habitats below 3,000 feet in elevation within or adjacent to washes, floodplains of rivers, alluvial fans, playas, and alkali flats. However, it also occurs in the foothills and mountains at a few locations at elevations up to 4,500

feet (Stebbins 1985, Morey 1988). Associated vegetative communities, where it occurs, include annual and perennial grasslands, open chaparral, pine-oak woodland, and lower montane conifer and mixed conifer forest with open areas comprised of short grasses and sandy or gravelly soil. Western spadefoot toads breed from February to May in temporary pools and drainages that form following winter or spring rains. Their eggs and larvae have been observed in a variety of temporary wetlands (CNDDB 2014). They have also been found in altered wetlands including vernal pools that have been disturbed by activities such as earthmoving, disking, intensive livestock use, and off-road vehicle use, and man-made wetlands such as artificial ponds, livestock ponds, sedimentation and flood control ponds, irrigation and roadside ditches, roadside puddles, tire ruts, and borrow pits (Fisher and Shaffer 1996, CNDDB 2014).

The species occurs in Sacramento County, but is largely localized to the southeastern portion of the County (south of Rancho Murieta) (CNDDB 2014). There are four records for this species within 5 miles of the study area. The nearest known occurrence to the Project Site is less than 4 miles away and near the intersection of Zinfandel Drive and Kiefer Boulevard (CNDDB Element Occurrence No. 167; CNDDB 2014). Western spadefoot was found in three vernal pools at this location, surrounded by annual grassland within Mather Field. Given potentially suitable breeding sites (e.g., vernal pools) and surrounding upland, it is considered to have potential for occurring within the Project Site.

5.2.3 Reptiles

Western Pond Turtle (*Emys marmorata*)

Western pond turtle is not listed pursuant to either the federal or California ESAs, but is designated by the CDFW as a California Species of Special Concern. This species is discontinuously distributed from western Washington State south to northwestern Baja California, but exists at numerous localities in the Central Valley of California. It occurs in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow moving streams (Jennings and Hayes 1994). Although primarily aquatic, the western pond turtle will leave its aquatic habitats to reproduce, aestivate, or overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops appears to be the preferred aquatic habitat of the species. Although adults are habitat generalists, hatchlings and juveniles require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western pond turtles are typically active between March and November. Mating generally occurs from late April to early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, within substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet of the aquatic habitat. However, sites have been documented as far as 1,310 feet from aquatic habitat. Nests are typically located on a slope that is unshaded and at least partly south-facing. The slope of nest sites ranges up to 60˚, but is typically less than 25˚.

The pond within the northern portion of the Project Site may provide suitable seasonal or perennial aquatic habitat for western pond turtle. Furthermore, individuals may occasionally occur in Elder Creek. Most of the upland habitat within the study area is unsuitable for nesting given that it is in active agricultural use (including flood irrigation) each year. However, nesting may occur in small areas that are relatively undisturbed. This species has occasionally been observed at locations hydrologically connected to the lower Elder Creek watershed (Bumgardner pers. obs.) and occasionally in the adjacent Morrison Creek watershed (i.e., south of Mather Airport) (CNDDB 2014). There are two records within 5 miles of the project area, with the nearest occurrence located approximately one mile to the northwest of the site in Morrison Creek, below the confluence with the Mather Field drain (CNDDB Element Occurrence No. 433; CNDDB 2014). Therefore, it is considered to have potential to occur within the Project Site.

5.2.4 Birds

White-tailed Kite (*Elanus leucurus*)

White-tailed kite is not listed pursuant to either the federal or California ESAs. However, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. The species is a common resident in the Central Valley as well as most of the California coast (Dunk 1995). In northern California, white-tailed kites typically nest from March through June. Nesting occurs in large, dense-topped trees within riparian, oak woodland, savannah, and agricultural communities that are near suitable foraging areas (i.e., open grassland, oak savannah, emergent wetlands, and some row and field crops). The species has been observed regularly in small numbers throughout Sacramento County (Bumgardner pers. obs.).

A total of six occurrences exist within 5 miles of the study area for this species, with one occurrence recorded within the study area along Elder Creek (CNDDB Element Occurrence No. 27; CNDDB 2014). This occurrence is described as a nest located in a tree between pastures and fields. In addition, there are several eBird records for the species within 2 miles or less from the Project Site (eBird 2014). Therefore, white-tailed kite is considered to have potential for nesting within or immediately adjacent to the study area.

Northern Harrier (*Circus cyaneus*)

Northern harrier (*Circus cyaneus*) is not listed in accordance with either the federal or California ESAs. However, it is designated as a California Species of Special Concern by the CDFW (when nesting). It occurs from sea level to the mid-elevations of the Sierra Nevada where there is grassland, open rangeland, desert flats, or fresh or saltwater marsh. The species nests from April to September with peak activity occurring June through July. Nests are typically located on the ground in grassland, weedy fields, grain fields, or emergent marsh.

No nesting occurrences of this species in Sacramento County have been reported in the CNDDB; the nearest occurrence is at the Beale Air Force Base, approximately 40 miles to the north of the study area (CNDDB 2014). However, it has been observed to occur in small numbers throughout Sacramento County during the nesting season and there are multiple eBird records from June and July in Sacramento County (Bumgardner pers. obs.; eBird 2014). The species was also recently observed nesting in a grain field approximately one mile northwest of the site, just north of Morrison Creek (Baba and Bumgardner, pers. observ. 2015). Consequently, the species is considered to have potential to nest within the study area, particularly in fallow pastures with tall grass.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species pursuant to the California ESA. The species nests in western North America (i.e., Canada, western United States, and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (England et al. 1997). In California, the nesting season for Swainson's hawk ranges from mid-March to late August. In the Central Valley, Swainson's hawks are known to nest within tall trees in a variety of wooded communities including, but not limited to, riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas.

Swainson's Hawks have an unusual raptor diet, in that they are predominantly insectivorous, feeding on grasshoppers, dragonflies and crickets. During the breeding season, insects become less important and larger prey, such as rabbits, rodents and small reptiles, are incorporated as the main source of protein. Foraging habitat includes open grassland, savannah, low-cover row and field crops, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), passerine birds, and grasshoppers (*Melanopulus* spp.). The species is an opportunistic forager and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for the species. According to a recent study by Swolgaard, et al. (2008), the most frequently used foraging habitats within the Sacramento-San Joaquin Delta region are irrigated hay fields, ruderal areas, and dryland grain fields, with the heaviest usage immediately after mowing, likely due to a temporal increase in prey availability due to the loss of vegetative cover. The least frequently used habitats were oak woodland, irrigated field crops, urban environments, and riparian and lacustrine areas. Habitat loss and degradation are often cited as likely factors contributing to declines in Swainson's hawk populations in California. Threats include loss of riparian forest as nesting substrate, together with similar losses of grassland and other open habitats (such as a vernal pool/seasonal wetland complexes), as well as conversion of field crops to unsuitable foraging cover (such as cotton, vineyard and orchard).

Tall trees along the boundaries of the study area provide potential nesting habitat for Swainson's hawk, and the annual grasslands and irrigated pastures provide potential foraging habitat for the species. The grazed, annual grassland habitat within the study area is considered to be of the highest foraging habitat

quality, as the vegetative cover here is maintained at relatively short levels (Swolgaard, et al. 2008). Though neither foraging Swainson's Hawks nor nests have been reported within the study area, nine nests have been reported to the CNDDB within 5 miles of the site, with the nearest record located approximately 2 miles southeast of the study area near Bradshaw Road (CNDDB Element Occurrence 2244; CNDDB 2014). This record is described as an active nest in a 40-foot tall native tree surrounded by fallow land. Therefore, the species is considered to have potential for nesting within or immediately adjacent to the study area.

Ferruginous Hawk (*Buteo regalis*)

The winter distribution of ferruginous hawks historically included Kansas, Colorado, California, and Nevada south to New Mexico. Wintering ferruginous hawk is not listed in accordance with either the federal or California ESAs, but is currently tracked by the CNDDB. The historic nesting distribution of the ferruginous hawk in North America included eastern Washington, southern Saskatchewan, southwestern Manitoba, and western North Dakota south to eastern Oregon, Nevada, northern and southeastern Arizona, northern and southwestern New Mexico, northwestern Texas, western Oklahoma, western Kansas, western Nebraska, and rarely northeastern California. Currently, ferruginous hawks occupy much of their former breeding distribution. However, they are now gone from southwestern Manitoba, southeastern Arizona, southwestern New Mexico, and northwestern Texas. Historically, a few pairs of ferruginous hawks were known to nest in extreme northeastern California in Modoc County (Grinnell and Miller, 1944), and a few pairs still nest in this region of the State (particularly the Fall River Valley of Shasta County). Ferruginous hawks begin to migrate into California in August or September and return to their breeding habitat in late February or early March. Expansive, open grassland is the primary wintering habitat of the species. The wintering distribution of the ferruginous hawk in California extends from the Oregon state line to the Mexican border, west of the Colorado Desert and east of the northern humid coastal belt. Though no ferruginous hawks have been reported within the study area, there are multiple winter eBird records for the species in Sacramento County (eBird 2014). Though most CNDDB occurrence records are from the far eastern portions of the County, records of this species exist within 5 miles of the Project Site (near Mather Airport). The nearest occurrence is located approximately one mile north of the study area, within annual grassland at Mather Field (CNDDB Element Occurrence No. 31; CNDDB 2014). Consequently, the species is considered to have potential to winter at the Project Site.

Merlin (*Falco columbarius*)

Merlin is not listed in accordance with either the federal or California ESAs, but the wintering distribution of this species is currently tracked by the CNDDB. The species breeds in Canada and Alaska and occurs in California as an uncommon migrant and winter resident (August through April). Suitable foraging habitat includes a wide range of open environments including sea coast estuaries, desert, open grasslands, and semi-open woodlands within which it can hunt from low perches. It feeds primarily on small birds (e.g., horned lark [*Eremophila alpestris*]). Consequently, the irrigated pastures and annual grasslands provide potential foraging habitat for the species.

There are no CNDDB records for this species in the vicinity of the study area, with the nearest record reported approximately 8.5 miles southeast at the Sacramento Regional Wastewater Treatment Plant Bufferlands, near Laguna Creek (CNDDB Element Occurrence No. 20; CNDDB 2014). This occurrence is described as open habitat, dominated by annual grassland and seasonal wetlands, interspersed with vernal pools and some riparian vegetation. In addition, there are multiple winter eBird records for the species in Sacramento County (eBird 2014). The nearest eBird records are from the Rosemont area of Sacramento County (less than 4 miles from the Project Site). Therefore, it is considered to have a potential for wintering within the Project Site.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is not listed pursuant to either the federal or California ESAs. However, it is designated as a California Species of Special Concern by the CDFW. It is a year-round resident in annual and perennial grasslands or other vegetation communities that support sparse or non-existent tree or shrub canopies, such as rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Haug et al. 1993). The species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 2012). It has even been observed wintering in boulder piles (Bumgardner pers. obs.). The breeding season extends from approximately February 1 through August 31 (CBOC 1993; CDFG 2012).

Though no occurrences of this species have been recorded within the study area, multiple occurrences have been recorded in the CNDDB and eBird for the vicinity of the Project Site (CNDDB 2014, eBird 2014). The nearest of these occurrences is at Mather Field, approximately one mile north of the study area (CNDDB Element Occurrence No. 487), and is described as being grazed annual grassland with 16 active burrows and several individual birds observed over three different dates (CNDDB 2014). Though use of much of the study area for active agricultural operations (particularly irrigated grassland) precludes occupation by burrowing owls, California ground squirrel burrows are present within the site at scattered locations and could provide suitable roosting or nesting habitat for individuals. In addition, most of the study area (even the irrigated grasslands) is suitable as foraging habitat for the species. Consequently, it is considered to have potential to occur within the Project Site.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is not listed pursuant to either the federal or California ESAs, but is considered a California Species of Special Concern by the CDFW (when nesting). The species generally occurs in a variety of open grassland, oak savannah, shrubland, and other similar habitats where it feeds primarily on large insects (e.g., grasshoppers). However, the species may also occasionally take small reptiles, birds, and mammals. It nests in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas,

and open woodlands (Yosef 1996). It has even been observed nesting in cattails (Bumgardner pers. obs.). Nesting typically occurs during March to June with young becoming independent during July or August. The nest is generally well-concealed on a stable branch in a densely-foliaged shrub or tree. Nest territories have been found to range in size from 11 to 40 acres (Miller 1931). In areas of year-round residence (such as much of lowland California) members of a pair are known to defend adjoining territories during the non-breeding season and then defend a single nesting territory comprised of the adjoining winter territories during the breeding season (Lefranc 1997).

The nearest CNDDB record for this species is in Alameda County (CNDDB 2014). Though no nesting occurrences of loggerhead shrike have been reported within the vicinity of the study area (CNDDB 2014), it has been observed nesting elsewhere in Sacramento County (Bumgardner pers. obs.). In addition, there are eBird records for the species for the peak nesting season in the County (eBird 2014). The nearest of these records are from the Rancho Cordova Golf Course (less than 2 miles from the Project Site) and areas immediately west of Sunrise Boulevard (eBird 2014). Clumps of landscape trees, as well as that of riparian scrub habitat along Elder Creek, may provide suitable nesting habitat, especially considering that existing annual grassland provides ideal foraging conditions. Therefore, it is considered to potentially nest within the Project Site.

Yellow-Billed Magpie (*Pica nuttallii*)

Yellow-billed magpie is not listed in accordance with either the federal or California ESAs, but is currently tracked by the CNDDB (when nesting or communally roosting). This endemic species is a year-long resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. It builds large, bulky nests in trees in a variety of open woodland habitats, typically near grasslands, pastures, or croplands. Nesting occurs from February through July (CDFG 2005). It has shown to be particularly susceptible to West Nile Virus, which may have been the cause of death for thousands of individuals during the last decade.

Large trees along Elder Creek and associated with nearby residences provide potential nest and roost sites for the species. Though no occurrences of yellow-billed magpie are known from within the study area, there are many eBird records for the species from throughout Sacramento County. The nearest of these records is from the intersection of Elder Creek Road and Excelsior Road (less than one mile from the study area) (eBird 2014). Several yellow-billed magpies were observed to be foraging in the understory of landscape trees along Elder Creek Road during the 2014 rare plant surveys. Therefore, it could nest within the study area.

Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird (*Agelaius tricolor*) is listed as an endangered species pursuant to the California ESA. It was emergency listed by the California Fish and Game Commission on December 3, 2014. The emergency listing provides the full protection of the California ESA to the species immediately. This unheralded step (i.e., first emergency listing by the Commission) was considered necessary due to the

species precipitous decline (41% since 2011) and provides time for the Commission to consider a formal listing petition sometime in spring 2015. The emergency listing is valid for six months and can be renewed for six months if necessary. The basis for an emergency listing under California Fish and Game Code section 2076.5 is an "emergency posing a significant threat to the continued existence of the species."

The tricolored blackbird has one of the smallest ranges of any bird species in North America. Almost the entire population occurs year-round in cismontane California, with the Central Valley supporting the largest populations. However, small numbers occur in transmontane California (i.e., deserts and Great Basin), Oregon, western Nevada, Washington, and northern Baja California. Tricolored blackbird is not migratory over most of its range, but leaves northeastern California in fall and winter. Flocks become nomadic in fall seeking food. In winter flocks become more widespread from Marin to Santa Cruz counties and in the Sacramento River Delta. The breeding season for this species generally extends from mid-April into late July. Prospecting (i.e., searching for and visiting potential nest sites) typically occurs between early April and early June in the Sacramento area. Nesting colonies vary in size from about 50 nests to over 20,000 nests. Historically, tricolored blackbirds were found nesting in large to very large colonies (some estimated at over 100,000 nests) in areas with cattail or tule marsh habitats. However, with the decline in such habitats, the species now also nests in thickets of willow, Himalayan blackberry, grain fields, and tall herbs (especially species with spines or stinging hairs such as milk thistle and stinging nettle respectively). Foraging habitats are generally associated with open grassland, fields, and farm lands that provide high densities of prey species such as grasshoppers and butterfly larvae during the nesting seasons. Such foraging habitats are typically within 3 miles or less of the nesting colony. The species has been recorded as a nesting species in the CNDDB (2014) at several locations close to the Project Site. The nearest of these locations is less than 900 feet east of the eastern boundary of Aspen VIII. In addition, there are four existing colonies associated with small Himalayan blackberry stands located in the central and southeastern portions of Aspen VIII (Figure 10). As such, the species is known to nest on and immediately adjacent to the project site.

5.3 BIRDS OF PREY (RAPTORS)

All raptors including those species that are not considered as special-status species are protected under Section 3503.5 of the California Fish and Game Code. This latter section of the California Fish and Game Code provides protection to the nests and eggs of such species as well as individuals. Raptor species that are not considered as "special-status species" by CDFW but that occur in the vicinity of the Project Site include American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) in the order Falconiformes, and great-horned owl (*Bubo virginianus*) and barn owl (*Tyto alba*) in the order Strigiformes (Bumgardner pers. obs.). It should be noted that American kestrel and barn owl are cavity or crevice nesters, whereas each of the other raptor species build stick nests. Nonetheless, suitable nesting locations for each of these species are limited to the larger trees in and immediately adjacent to the Project Site (typically with DBH larger than 15 inches). Though there is no evidence of nesting by raptors on the Project Site, nests are known from throughout this portion of Sacramento County. Consequently, given the presence of suitable nesting structure

within and immediately adjacent to the Project Site and known occurrences of other nesting raptors within the site vicinity, these species are considered to have potential for nesting at the site.

6.0 POTENTIAL IMPACTS TO BIOLOGICAL RESOURCES AND RECOMMENDED MITIGATION MEASURES

This section of the document addresses changes in the existing environmental baseline for biological resources (i.e., impacts) that may result from implementation of the Project and are considered significant consistent with Section 15065 and Appendix G of the CEQA Guidelines. Figure 10 shows the locations of sensitive species identified at the site, the various habitat communities, as well as the proposed boundaries of the mining and limits of disturbance. Also depicted in Figure 10 is the proposed area of preservation, totaling 90.63 acres, including Elder Creek. Figure 5 illustrates existing features upon completion of reclamation. Mitigation measures are provided to avoid, minimize, or otherwise compensate for the identified impacts where such measures are available.

It should be noted that no potential impacts are associated with the following criteria:

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Consequently, impacts associated with the above criteria are not analyzed in this document.

6.1 WETLANDS AND WATERS OF THE U.S.

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the Project Site (Table 2, Figures 3). The proposed Project will result in the loss of 5.282 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, pond, and ditch wetland habitats (Table 2, Figure 10).

TABLE 2. WETLAND IMPACTS SUMMARY

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	0.597
Seasonal Wetland	5.741	1.500
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	----
Pond	0.920	0.185
Ditch	2.444	2.178
Totals	**27.795**	**5.373**

Impacts to wetlands and other Waters of the U.S. that would occur with project implementation would result in a substantial adverse effect on federally jurisdictional Waters of the U.S., including wetlands, as defined by Section 404 of the CWA. These impacts would also constitute an adverse effect on waters of the State subject to the RWQCB jurisdiction. Additionally, these areas may be regulated by the CDFW and protected under the Sacramento County General Plan. Therefore, impacts to wetlands and other Waters are considered to be *significant.*

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-1 *Before conducting any grading, clearing, or excavation activity associated with the Project, Teichert shall obtain all necessary permits under Sections 401 and 404 of the CWA or the state's Porter-Cologne Act. Any wetlands or waters that would be lost or disturbed shall be replaced or created, restored, or enhanced on a "no-net-loss" basis in accordance with the USACE and the RWQCB policies. Any wetland creation or restoration proposed shall be at an acreage and location and by methods agreeable to the USACE, the RWQCB, and the County, as determined during the Section 401 and Section 404 permitting process. Alternatively, Teichert may choose to purchase wetland mitigation credits from a wetland mitigation bank that is authorized by the USACE.*

MM-2 *Water quality concerns during construction will also be addressed in a Section 401 water quality certification from the RWQCB. A Storm Water Pollution Prevention Plan (SWPPP) will also be required during construction activities. SWPPPs are required in issuance of a National Pollutant Discharge Elimination System (NPDES) construction discharge permit by the U.S. Environmental Protection Agency. Implementation of Best Management Practices (BMPs) during construction is standard in SWPPPs and water quality certifications. Examples of BMPs include stockpiling of debris away from regulated wetlands and waterways; immediate removal of debris piles from the site during the rainy season; use of silt fencing and construction fencing around regulated waterways; and use of drip pans under work vehicles and containment of fuel waste throughout the site during construction.*

MM-3 *In addition, a Streambed Alteration Agreement will be obtained from CDFW, pursuant to Section 1602 of the CDFW Code, for the installation of the culvert under Elder Creek Road, and any other activities affecting the bed, bank, or associated riparian vegetation of the stream. Teichert will coordinate with CDFW in developing appropriate mitigation, and should abide by the conditions of any executed permits.*

6.2 SPECIAL-STATUS SPECIES

Implementation of the proposed Project would result in both temporary (with reclamation), direct, and/or indirect impacts on a number of special-status plant and animal species. A discussion of those

species is provided below.

6.2.1 Loss of Habitat for and Individuals of Sanford's Arrowhead

Sanford's arrowhead was identified at the site through protocol-level rare plant surveys performed in 2014 (Teichert 2015b). Colonies were observed growing in two irrigated ditches near the western portion of the Aspen VIII property (Figure 10). A large population (2,000+ plants) occurs within an irrigated ditch, extending approximately 2,779 lineal feet in a south to north direction. A few additional plants were identified in a connected ditch running east to west along the northern border of an adjacent cemetery. The majority of Sanford's arrowhead would be directly impacted by the proposed Project, including approximately 2,278 linear feet of irrigation ditch supporting the plants. Other portions of the ditch not proposed to be disturbed by the Project would also expect to be indirectly impacted, since irrigation to existing pastures would likely cease through implementation of the Project. For these reasons, Project-related impacts to Sanford's arrowhead would be considered *significant*.

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-4 *Because all current populations of Sanford's arrowhead are supported through irrigation and farming practices at the site, no preservation of Sanford's arrowhead is proposed. Instead, Teichert shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a preserved portion of Morrison Creek associated with the Granite Vineyard-Aspen III-South project area located approximately 1.5 miles west of the Project. Morrison Creek presently supports a similar hydrological regime to that where Sanford's arrowhead is currently growing and new occurrences of the species have been observed within a portion of the Morrison Creek channel approximately 2.5 miles northeast of the proposed transplant site (B. Baba, pers. obs.). The locations from which plugs are taken shall be selected randomly to assure the greatest potential genetic diversity of the source plants.*

MM-5 *Teichert shall monitor the transplanted Sanford's arrowhead to evaluate the efficacy of such transplantation as it relates to future mitigation efforts for this species. Monitoring shall occur for five consecutive years after transplantation and a final report submitted to Sacramento County PER and CDFW by October of the final year of monitoring. Teichert shall not be bound by any survivorship monitoring standards nor additional transplantation requirements given that all occupied habitat within Aspen VIII will be removed or impacted and no source material for additional transplantation will be available upon loss of the occupied onsite habitat.*

6.2.2 Impacts to and Loss of Habitat for Vernal Pool Invertebrates

An andrenid bee, vernal pool fairy shrimp, mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, vernal pool tadpole shrimp, and California linderiella occur in or utilize seasonally inundated depressions such as vernal pools, seasonal wetlands, and seasonal wetland swale. The vernal pool fairy shrimp, vernal pool tadpole shrimp, and California fairy shrimp have been observed from numerous vernal pools and seasonal wetlands at the Project Site (EcoAnalysts 2006). Based on these previous observations, Teichert has assumed that all suitable habitat (i.e., non-irrigated) for special-status vernal pool invertebrates within the affected area is occupied by vernal pool invertebrates.

Table 3 below summarizes the total acreage of habitat that the Project would affect, including potential indirect impacts. It should be noted that several seasonal wetlands are located in irrigated pastures and continuously affected by summer irrigation, remaining saturated or inundated for prolonged periods. These irrigated seasonal wetlands do not provide habitat for the special-status species invertebrates discussed above due to their extended hydroperiods.

TABLE 3. DIRECT AND INDIRECT EFFECTS ON SPECIAL-STATUS VERNAL POOL INVERTEBRATES

Potential Habitat	Total Acres (Aspen VIII/IX)	Direct Impacts (acres)	Indirect Impacts (acres)
Vernal Pool (non-irrigated)	*6.964	0.301	0.031
Seasonal Wetland (non-irrigated)	3.524	0.572	0.182
Seasonal Swale (non-irrigated)	0.362	0.021	0.047
Totals	**11.146**	**0.894**	**0.260**

*Note: 0.296 acre of vernal pools were field confirmed as irrigated based on recent observation with the USFWS

Implementation of the proposed Project would result in the loss of 0.894 acre of special-status vernal pool invertebrates, including the vernal pool fairy shrimp and vernal pool tadpole shrimp. There is also the potential for indirect loss of 0.260 acre of habitat. The direct and potential indirect impacts to 1.154 acres of habitat and potential mortality of these vernal pool invertebrates are considered to be *significant.*

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-6 *Teichert shall purchase vernal pool fairy shrimp and vernal pool tadpole shrimp conservation/mitigation credits from a USFWS-authorized conservation bank whose service area includes the Project. The purchase of conservation/mitigation credits shall be consistent with the requirements of the Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California (1-1-96-F-1). As such, preservation credits for vernal pool fairy shrimp and vernal pool tadpole*

shrimp shall be acquired at a compensation ratio of two vernal pool credits for every acre of suitable habitat directly or indirectly affected. Furthermore, creation credits for vernal pool fairy shrimp and vernal pool tadpole shrimp shall be acquired at a compensation ratio of one vernal pool credit for every acre of suitable habitat directly affected. All other provisions of the programmatic biological opinion also apply. Note that no compensation for seasonal wetlands created or affected by irrigation runoff is required given that these aquatic features are not considered suitable habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp. The final acreage of affected suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp will be determined by the USFWS in the agency's determination that the Project can be addressed by the programmatic biological opinion. The above compensation will also address other special-status vernal pool invertebrates that have been determined to have some potential to occur on the Project Site (e.g., an andrenid bee, the mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, and California fairy shrimp).

Alternatively, Teichert may participate in a regional planning/conservation process, such as the proposed SSHCP that provides a mechanism to mitigate all biological impacts based on a standardized formula. Preparation of the SSHCP, a regional conservation plan, is currently in progress pursuant to Section 10 of the federal Endangered Species Act and Section 2800 of the California Fish and Game Code (Natural Communities Conservation Act of 1991).

6.2.3 Loss of Habitat for and Disturbance to Western Spadefoot

Western spadefoot has a patchy and localized distribution in Sacramento County, but is known from similar habitats less than 4 miles away at the Mather Field Vernal Pool Complex. Aquatic sites on the Project Site that are potentially suitable as breeding sites for western spadefoot include vernal pools, seasonal wetlands, and ponds. There are a total of 19.936 acres of such aquatic sites on the property. The Project would result in the permanent loss of 3.034 acres of these aquatic sites. Thus, the Project would reduce the reproductive potential and recruitment from these aquatic sites for western spadefoot (if utilized by the species).

The Project Site also supports 308.5 acres of annual grassland that could be occupied by western spadefoot during the non-breeding season (note that irrigated pasture/hay is not considered to be suitable terrestrial habitat). The Project would result in the temporary loss of 96.2 acres of such habitat. This loss is considered temporary given that reclamation activities would eventually restore those acres, in addition to potentially providing more acres of annual grassland through the conversion of irrigated to non-irrigated grasslands.

Lastly, an unknown number of western spadefoots could be disturbed, killed, or injured during earth-moving activities associated with the Project. The loss of individuals would also reduce the reproductive potential and recruitment of the species in the Project vicinity. The loss of suitable western spadefoot habitat and individuals is considered to be *potentially significant*.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-7 *Teichert shall retain a qualified biologist to conduct focused surveys for western spadefoot in the potentially suitable aquatic sites on the Project Site (i.e., vernal pools, seasonal wetlands, and ponds) that could be directly affected by the Project. The surveys shall be conducted prior to each discrete phase of mining and include a minimum of three nighttime surveys for calling adults during the early breeding season and a minimum of three surveys for egg masses and larvae throughout the remainder of the breeding season (mid-February to mid-May). If no evidence of western spadefoot is found during the surveys, no further mitigation shall be required.*

If western spadefoot is found on the Project Site, Teichert shall purchase mitigation credits at a 1:1 compensation ratio for the total acreage of occupied western spadefoot aquatic habitat that would be permanently lost as a result of the Project. The mitigation credits shall be purchased from an authorized mitigation bank that includes the Project within its service area or is otherwise authorized by the CDFW to sell mitigation credits to Teichert for the Project.

6.2.4 Loss of Habitat for and Disturbance to Western Pond Turtle

Western pond turtle typically occurs in natural or semi-natural still or slow-moving aquatic sites. As such it sometimes appears in ponds, marshes, and slow-moving perennial drainages where there is water, basking sites, and food. The Project would result in the permanent loss of 0.676 acres of pond, marsh, and perennial drainage. However, this impact is considered to be *less-than-significant* given that reclamation on the Project Site would eventually create up to 14.2 acres of stormwater retention pond that could be occupied by the species and the entire reach of Elder Creek within the property will be within the proposed preservation area for the Project.

Given that the majority of western pond turtle nesting sites are located within 650 feet, and up to 1,310 feet, from aquatic habitat, much of the annual grassland within the Project Site is considered suitable nesting habitat. Thus, earth-moving activities within the Project Site could then result in the destruction of eggs or neonate turtles. It should be noted that neonate western pond turtles may overwinter in the nest, as individuals have almost never been observed in early fall (Holland 1985). They are believed to exit the nest during the following spring (Buskirk 1992). Therefore, a limited operating period (i.e., period when eggs or neonates could not be affected by ground disturbance) is not available for this species. The loss of eggs, neonates, or adults is considered to be *potentially significant.*

Mitigation Measures

The following mitigation measures would reduce the above potential impacts to a *less-than-significant* level.

MM-8 *Teichert shall retain a qualified biologist to conduct focused surveys for western pond turtle in the potentially suitable aquatic sites on the Project Site (i.e., ponds, marshes, and perennial drainages). The survey shall be conducted prior to each discrete phase of mining, be conducted no more than five days prior to the initiation of site preparation activities, and be focused on water bodies that are within 300 feet or less of the proposed activities. If western pond turtles are observed during the pre-construction survey, and a qualified wildlife biologist determines site preparation activities could harm the turtles, the biologist shall conduct salvage and relocation of the turtles downstream to suitable perennial aquatic habitat during the same day of their capture. The aquatic habitat to which the turtles are relocated shall be no less than one mile of the Project Site.*

MM-9 *All construction staff shall be aware of the potential to uncover western pond turtle nests during grading and earthmoving activities. Construction staff shall be advised, if turtle eggs are discovered during such activities, construction shall temporarily be halted and a qualified wildlife biologist contacted to salvage the eggs. Prior to arrival of the biologist, the outer boundaries of the egg scatter shall be flagged. The eggs shall then be covered with a small layer of sand or soil over the eggs (to prevent damage or overheating). The qualified wildlife biologist shall then salvage the eggs and transport them to a nearby wildlife rehabilitation center that has been approved in advance by the USFWS and CDFW. Release of any hatchling turtles from the wildlife rehabilitation center shall occur downstream within suitable perennial aquatic habitat that is no less than one mile downstream of the Project.*

6.2.5 Disturbance to Nesting White-tailed Kite or Swainson's Hawk

White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the Project Site. Though there is no evidence to suggest that either of these species have nested within the Project Site, it is possible that nests could be sited in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the Project, occur during the nesting season of these species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.25 miles of the Project Site could be adversely affected during mining-related vegetation removal or earthmoving associated with the Project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-10 *To avoid and minimize impacts to nesting white-tailed kite or Swainson's hawk, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting white-tailed kite and Swainson's hawk in all suitable trees that are within and out to 0.25 miles from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 0.25 miles of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 0.25 miles or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 0.25 miles of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest.

Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 500 feet of an active nest once nesting has begun. Note that no restrictions on mining-related vegetation removal or earthmoving are required in relation to active nests beyond 500 feet if nesting is initiated after active mining has begun.

6.2.6 Disturbance to Nesting Northern Harrier

Northern harrier is known to nest in grassland, weedy fields, grain fields, and emergent marsh. It is strongly suspected to nest in Sacramento County given the prevalence of sitings each year during the peak nesting season, and has recently been observed nesting in a nearby grain field northwest of the Project Site (Baba and Bumgardner, pers. observ. 2015). As such, it may nest in suitable habitat on the

Project Site (e.g., taller, denser grasses). Consequently, should mining-related vegetation removal or earth-moving associated with the Project occur during the nesting season of the species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-11 *To avoid and minimize impacts to nesting northern harrier, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for northern harrier in suitable nesting habitat within and out to 500 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 500 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 500 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 500 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 200 feet of an active nest once nesting has begun.

6.2.7 Disturbance to Other Nesting Raptors

Common raptors (i.e., species not designated as special-status species) that are known to nest near the Project Site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the Project vicinity, but some individuals (especially red-tailed hawk and great-horned owl) may occasionally nest in "stand alone" trees. Consequently, should tree removal, as proposed for the Project, occur during the nesting season of these species (i.e., early February to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-12 *To avoid and minimize impacts to other nesting raptors, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates construction between February 15 and August 31, surveys shall be conducted for other nesting raptors (species not designated as special-status) in suitable nesting habitat within and out to 500 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 300 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 300 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could

occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 300 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 200 feet of an active nest once nesting has begun.

6.2.8 Disturbance to Nesting or Roosting Burrowing Owl

Burrowing owl has not been documented within the Project Site. Nonetheless, potentially suitable nesting and roosting habitat for burrowing owl is provided by California ground squirrel burrows that are scattered throughout the Project Site and the species is known from other locations in the Project vicinity. As such, the species is could occur on the Project Site.

If burrowing owl occurs on the Project Site, individuals could be subject to entombment and mortality during mining-related vegetation removal or earthmoving. Adults may be able to escape such impacts, but eggs and juveniles could still be lost since they are unable to leave the nest burrow. Even if adults are not lost directly due to ground-disturbing activities, individuals could abandon eggs or juveniles in the nest burrow due to adjacent disturbances. This impact is considered to be *potentially significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-13 *A pre-construction burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading conducted between January 1 and February 14 that is associated with implementation of MM-12).*

The pre-construction survey shall be conducted by a qualified biologist within 500 feet or less of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the CDFG Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugia showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the Project Site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to CDFW within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found

during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, Teichert may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, Teichert may backfill the burrows. If passive relocation is utilized, Teichert shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the Project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the CDFG Staff Report on Burrowing Owl Mitigation (2012). Teichert shall be responsible for reporting all observations of burrowing owl to the CNDDB within ten (10) days of sighting.

6.2.9 Disturbance to Nesting Birds Protected Under the Migratory Bird Treaty Act

Other nesting birds have not been documented within the Project Site, but are to be expected. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (particularly while nesting). Some of these species would nest in the onsite woody vegetation (i.e., trees and shrubs), but other species would nest on or near the ground (mostly in the non-irrigated, annual grassland). Consequently, should tree or other vegetation removal, as proposed for the Project, occur during the nesting season of these species (i.e., mid-February to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, mining-related vegetation removal or earthmoving could result in noise and visual changes that distract adjacent nesting individuals from being properly attentive to eggs or juveniles. Consequently, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-14 *Teichert shall rough grade all irrigated pasture/hay and non-irrigated, annual grassland within the mining boundary of the Project between September 1 and February 14 of the year in which mining starts to ensure that there is no available nesting habitat for species protected by the Migratory Bird Treaty Act in these onsite habitats (see restrictions associated with burrowing owl in MM-13).*

Alternatively, if mining-related vegetation removal or earthmoving is initiated between February 15 and August 31, a pre-construction nesting bird survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving.

The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving. The survey shall be conducted within all onsite habitats that could support nests and are within 120 feet or less of proposed mining-related vegetation removal or earthmoving. All active nests that are found during the survey shall be geo-referenced with a GPS unit and mapped on an appropriate scale map of the Project Site (no smaller than 1 inch = 40 feet). Data shall be collected for each active nest site and at a minimum shall include: (1) identification of nesting species; (2) description of nest site; (3) estimated nesting cycle status (i.e., time to nest completion, egg-laying, fledging, etc.); and (4) likelihood of nest failure from adjacent mining-related vegetation removal or earthmoving.

The results of the surveys, including negative findings, shall be submitted to CDFW within three days of their conclusion. If any active non-raptor bird nests are found onsite, Teichert shall develop and implement a plan for the protection of these nests, to be approved by CDFW, in a timely manner. The results of any protective measures instituted as a part of the protection and monitoring plan shall be provided to CDFW in electronic format within one week of implementation. Teichert shall be responsible for reporting all observations of threatened/endangered species or species of special concern to the CNDDB within ten (10) days of sighting.

All active nests found during the pre-construction survey shall be monitored at least twice per week to assess whether adjacent mining-related vegetation removal or earthmoving are adversely affecting the nest. If adverse effects are observed, all project-related activities within 120 feet of the nest shall be temporarily halted until fledging occurs (i.e., the juveniles are no longer dependent upon the nest).

No pre-construction nesting bird survey is required in areas within 120 feet of mining-related vegetation removal or earthmoving, if the activities are initiated prior to February 15 or after August 31.

6.2.10 Loss of Foraging Habitat for White-tailed Kite and Swainson's Hawk

White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the Project Site. Consequently, foraging habitat associated with nearby nest territories for these species may include the

Project Site. Swainson's hawk utilizes both annual grasslands and irrigated pasture/hay as suitable foraging habitat. Approximately 331.1 acres of the Project Site was dedicated to irrigated pasture/hay in 2015, while 308.5 acres of the Project Site supported non-irrigated annual grassland. Another 14.265 acres of seasonal wetlands (i.e., vernal pool, seasonal wetland, and seasonal swale) occur on the Project Site and are suitable Swainson's hawk/white-tailed kite foraging habitat later in the breeding season (i.e., after dry-down). The Project would impact a total of 371.2 acres of potential Swainson's hawk/white-tailed kite foraging habitat, including 95.8 acres of annual grassland, 273.0 acres of irrigated pasture, and 2.4 acres of seasonal wetlands/vernal pools. The proposed reclamation includes restoring 359.8 acres to annual grassland and/or irrigated pasture. Furthermore, the proposed Project will mitigate for vernal pool and seasonal wetland habitats through the requirements of 404 permits.

White-tailed kite is a rodent specialist with 95 percent of the diet consisting of small rodents (especially California vole [*Microtus californicus*]). This latter prey species is abundant in both non-irrigated annual grassland and irrigated pasture/hay. As such, there is near 100 percent overlap in the suitable foraging habitat for Swainson's hawk and white-tailed kite on the Project Site. Impacts associated with the loss of suitable foraging habitat for Swainson's hawk are therefore similar for white-tailed kite. These impacts are considered to be *significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-15 *Reclaim disturbed areas to suitable Swainson's hawk/white-tailed kite foraging habitat. Prior to commencing any site disturbing activities, Teichert will acquire temporary easement(s) over sufficient acreage to mitigate at a 1:1 ratio for the temporary loss of foraging habitat within a mining phase during the period between initial disturbance and final reclamation of that phase. The location of the temporary easement(s) and the management activities to be included therein shall be determined in coordination with Sacramento County PER and CDFW, and shall be based on the best available data for Swainson's hawk and white-tailed kite in Sacramento County. The acreage to be temporarily protected shall be, at a minimum, equal to that proposed to be disturbed for a particular phase(s). The temporary easement(s) for any given Project phase shall remain in place until onsite reclamation activities have fully reestablished, to the satisfaction of PER, suitable Swainson's hawk/white-tailed kite foraging habitat for the Project phase. If Teichert is unsuccessful in reestablishing suitable Swainson's hawk/white-tailed kite foraging habitat for any part of the Project, Teichert shall mitigate for the acreage that could not be re-established through one of the following approaches: (a) converting the temporary easement(s) to a permanent easement(s), (b) acquiring alternative lands to place into permanent easement(s) at a 1:1 ratio, (c) purchasing mitigation credits at a County-approved mitigation bank at a 1:1 ratio, or, (d) if the total acreage of Swainson's hawk/white-tailed kite foraging habitat that is permanently lost upon final reclamation is less than 40 acres, Teichert may choose to pay the per-acre impact fees as outlined in the Sacramento County Swainson's Hawk Mitigation Program. Teichert shall only be responsible for establishing a permanent easement(s)*

over acreage equal to the acreage on which suitable Swainson's hawk/white-tailed kite foraging habitat could not be reestablished upon final reclamation.

OR *Prior to commencing any site disturbing activities purchase permanent easement(s) over suitable Swainson's hawk foraging lands (1:1 ratio to account for any permanent loss of foraging habitat). The location of the easement(s) and the management activities to be included therein shall be determined in coordination with Sacramento County PER and CDFW, and shall be based on the best available data for Swainson's hawk and white-tailed kite in Sacramento County. Alternatively, Teichert may purchase credits for permanent loss of foraging habitat from an established mitigation bank authorized to sell Swainson's hawk foraging habitat credits and whose service area includes the Project. Any future projects occurring on Project Site shall be exempt from any additional mitigation pertaining to the loss of Swainson's hawk or white-tailed kite foraging habitat.*

6.2.11 Loss of Winter Foraging Habitat for Merlin and Ferruginous Hawk

Merlin and ferruginous hawk are known to winter throughout the Central Valley in small numbers (including in the vicinity of the Project Site). The loss of irrigated pasture/hay and non-irrigated annual grassland associated with the Project Site would result in a net decrease in the local foraging habitat for these species. Most of this net decrease in local foraging habitat would be temporary given that final reclamation associated with the Project would result in 359.8 acres of suitable habitat (i.e., annual grassland and/or irrigated pasture). In addition, merlin is a wide-ranging species and feeds primarily on various small avian species that tend to move over large areas (e.g., horned lark). Consequently, there is a substantial amount of suitable foraging habitat for the species within the Project vicinity and elsewhere each winter. Ferruginous hawk is also a wide-ranging species, and feeds mostly on small to medium-sized mammals (up to the size of black-tailed jackrabbit). There is also a substantial amount of suitable foraging habitat for this latter species within the Project vicinity and elsewhere each winter. Consequently, this impact is considered to be *less-than-significant*.

<u>Mitigation Measures</u>

No additional mitigation is required.

6.2.12 Disturbance to Nesting Loggerhead Shrike

Loggerhead shrike has not been documented nesting within the Project Site. However, it has been documented at nearby locations in Sacramento County during the nesting season. In addition, potentially suitable nesting and adjacent foraging habitat occurs on and immediately adjacent to the Project Site. Dense, woody vegetation (i.e., shrubs and trees) on the site could be used for nesting by the species, while the adjacent irrigated pasture/hay and non-irrigated annual grassland provides suitable foraging habitat. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the Project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances

associated with mining-related vegetation removal and earthmoving. This impact is considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

MM-16 *To avoid and minimize impacts to nesting loggerhead shrike, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 100 feet of an active nest once nesting has begun.

6.2.13 Disturbance to Nesting or Roosting Yellow-billed Magpie

Yellow-billed magpie has not been documented nesting or communally roosting within the Project Site. However, it has been documented at many locations throughout Sacramento County (as close as one mile from the Project Site). In addition, large trees along either Elder Creek or at nearby residences provide potential nest sites for the species. Therefore, the species could occur on the Project Site as a nesting species. Yellow-billed magpies prefer groves of trees (often near water) for communal roost

sites (typically in riparian woodland or forest). Given the lack of such habitat on or adjacent to the Project Site, the species is considered to have no potential to be impacted by the Project while communally roosting. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances. This impact is considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

MM-17 *To avoid and minimize impacts to nesting yellow-billed magpie, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 100 feet of an active nest once nesting has begun.

6.2.14 Disturbance to Nesting Tricolored Blackbird

Tricolored blackbird nests as a colonial species at scattered locations throughout Sacramento County where there is suitable nesting habitat (e.g., stands of cattail, tule, willow, California blackberry, Himalayan berry, wild rose, grain fields, milk thistle, stinging nettle, etc., that provide protection from

nest predators) adjacent to large open expanses of non-irrigated, annual grassland; irrigated pasture/hay; or alfalfa that support large numbers of prey species (e.g., grasshopper, butterfly larvae, etc.). The species is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the Project Site. It also has been documented nesting approximately 900 feet east of the eastern boundary of Aspen VIII and several other locations within 4 miles or less of the Project Site. Because tricolored blackbirds vacate nest sites at the end of the breeding season, adults are unlikely to be substantially disturbed from ground disturbing activities associated with the Project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to disturbances associated with mining-related vegetation removal and earthmoving. This impacts are considered to be *significant*.

Mitigation Measures

The following mitigation measure would reduce the above impact to a *less-than-significant* level.

MM-18 *To avoid and minimize impacts to nesting tricolored blackbird, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 150 feet of an active nest colony once prospecting or nesting has begun.

6.3 PROTECTED TREES AND TREE CANOPY

The Aspen VIII and IX Arborist Report (Teichert 2015c, Attachment C) identifies a total of 102 trees, representing 17 species, within the Project boundaries or that could potentially be affected (i.e., dripline) by the proposed Project. A total of 3 valley oak and 9 California black walnut, representing 22.3 and 156.3 inches in diameter at breast height (dbh), respectively, were found to be of sufficient size to be protected by the Sacramento County Tree Ordinance (Chapter 19.12) and are proposed for construction removal.

In addition to native trees, the Sacramento County General Plan affords protections to mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species (as identified and listed by the California Invasive Plant Council as 'Moderate' [Cal-IPC 2006]), were mapped within the survey study area. The majority of canopy consists of non-native, ornamental landscape trees (i.e., Modesto Ash, mulberry, red gum, etc.), with a small portion (0.469 acre) representing native mixed riparian forest. Approximately 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the Project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with valley oak or Northern California black walnut. Moreover, riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore excluded from canopy totals. Impacts to native trees (valley oak and California black walnut) and tree canopy are considered to be significant.

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce project-related impacts to protected trees and tree canopy to a *less-than-significant* level.

MM-19 *All potentially impacted native trees currently protected by Sacramento County's Tree Preservation Ordinance and policy CO-139 of the Sacramento County General Plan (i.e., locally native oaks and black walnuts) will be compensated for via the planting of one replacement seedling for every inch of trunk diameter removed within the preserved portions of Elder Creek. To mitigate for potential losses to native and non-native tree canopy, the resulting mitigation planting area shall meet or exceed the acreage of tree canopy removed. Teichert shall prepare a detailed tree mitigation planting plan to the Sacramento County PER prior to the removal of any trees on site. The tree mitigation plan shall illustrate planting locations and provide detailed descriptions on planting densities, species type, maintenance activities, and performance standards.*

MM-20 *In order to ensure no net loss of mixed riparian forest, project impacts to riparian canopy will be compensated for via the provision of native tree mitigation plantings (as described in MM-19) contiguous with Elder Creek, such that the tree mitigation planting areas meet or exceed the acreage of riparian canopy removed as a result of the Project*.

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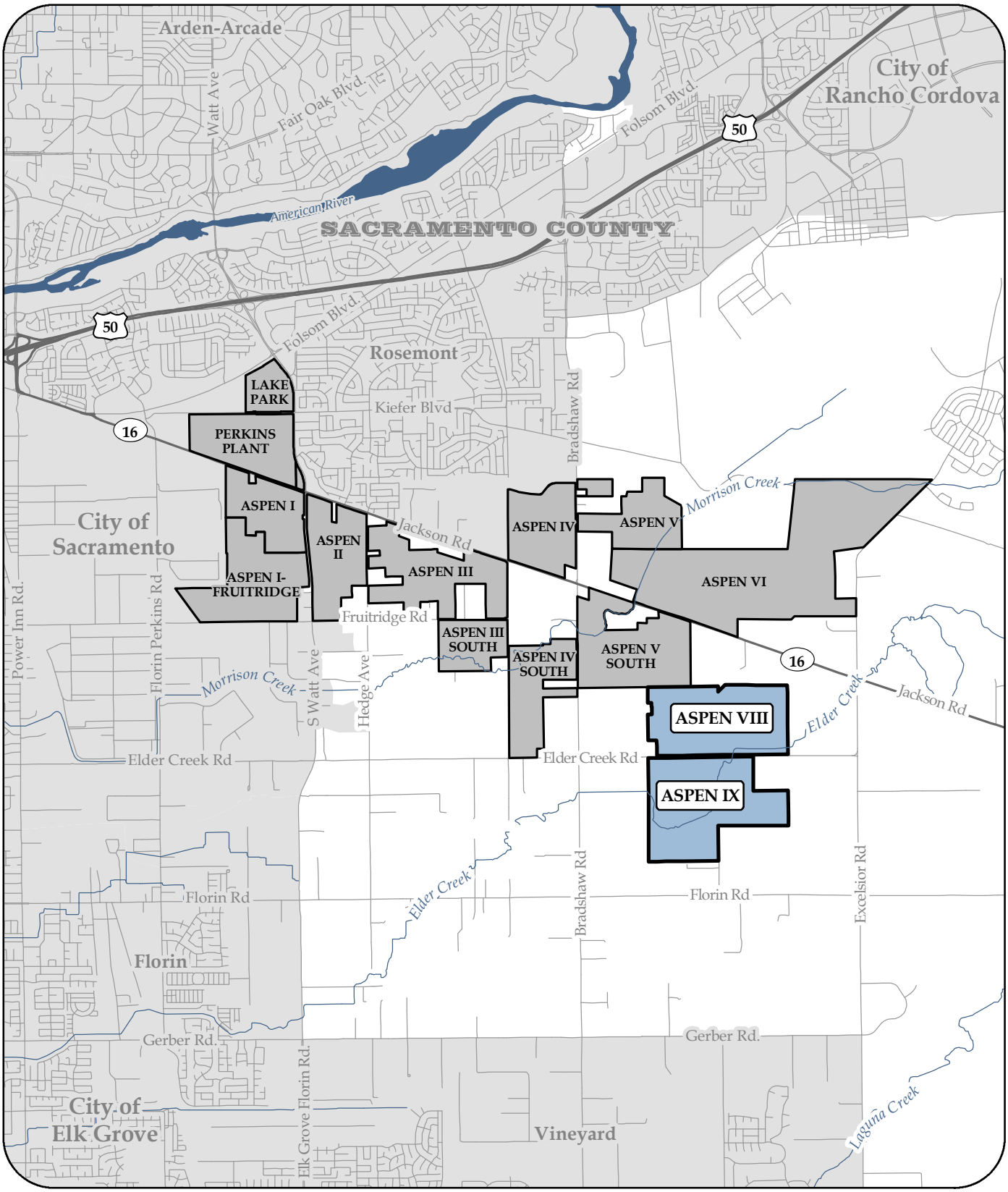


TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

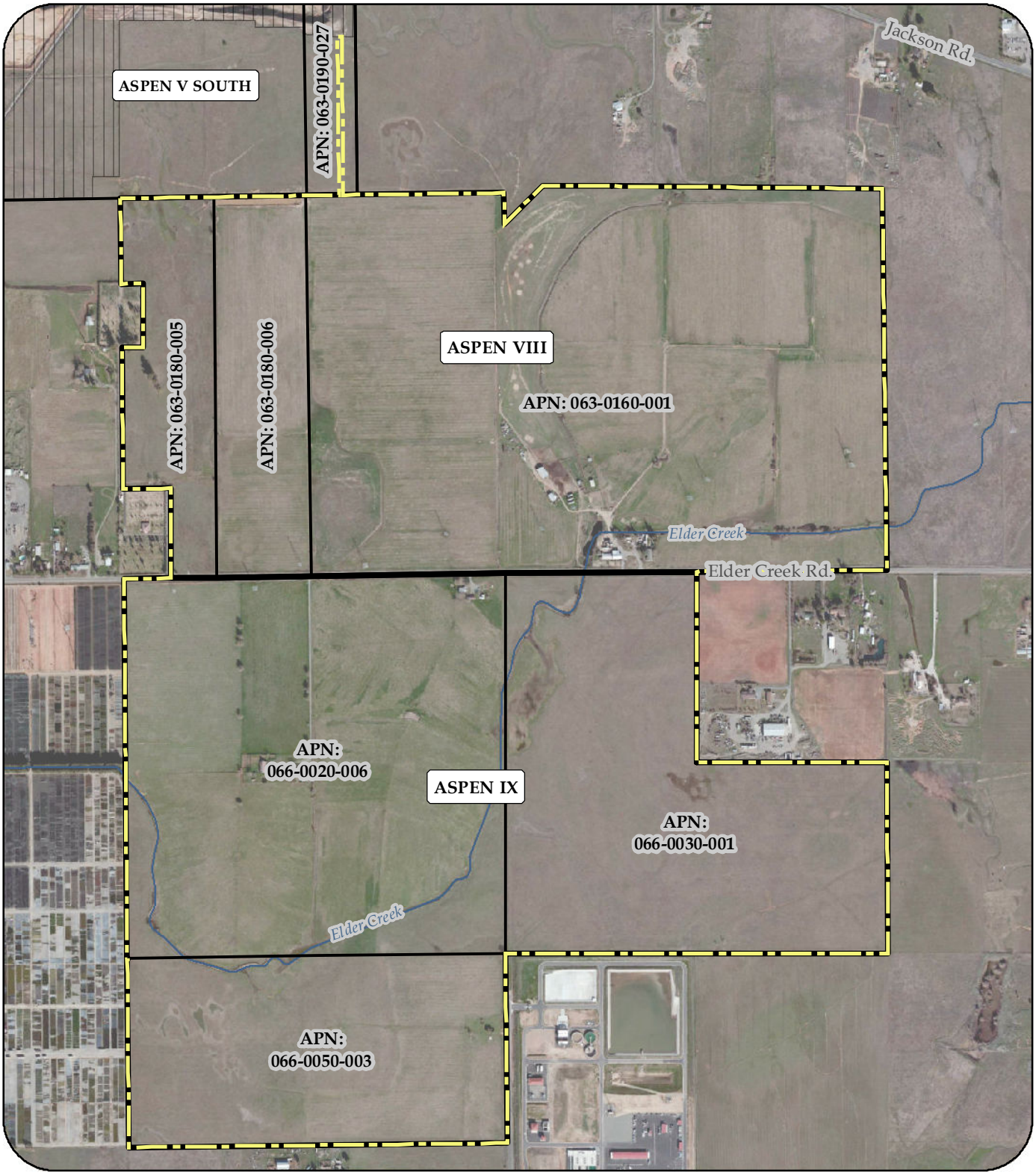
FIGURE 1

SITE VICINITY

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/22/2014 AS8_AS9_BRA_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Project Parcel Boundaries
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

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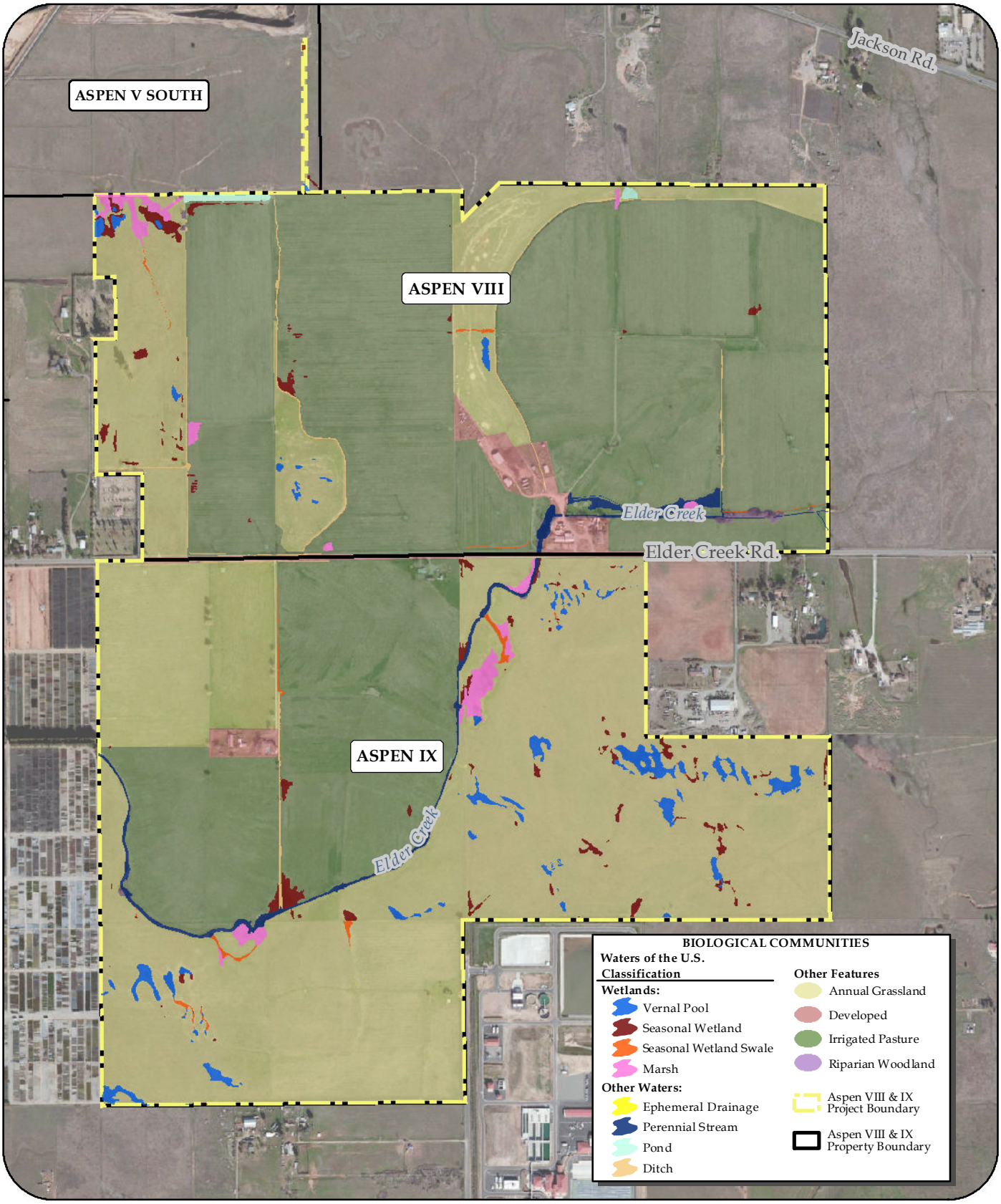
FIGURE 2

PROJECT SITE MAP

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 10/22/2014 AS8_AS9_BRA_Fig2_Site_201410.mxd



TEICHERT MATERIALS

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

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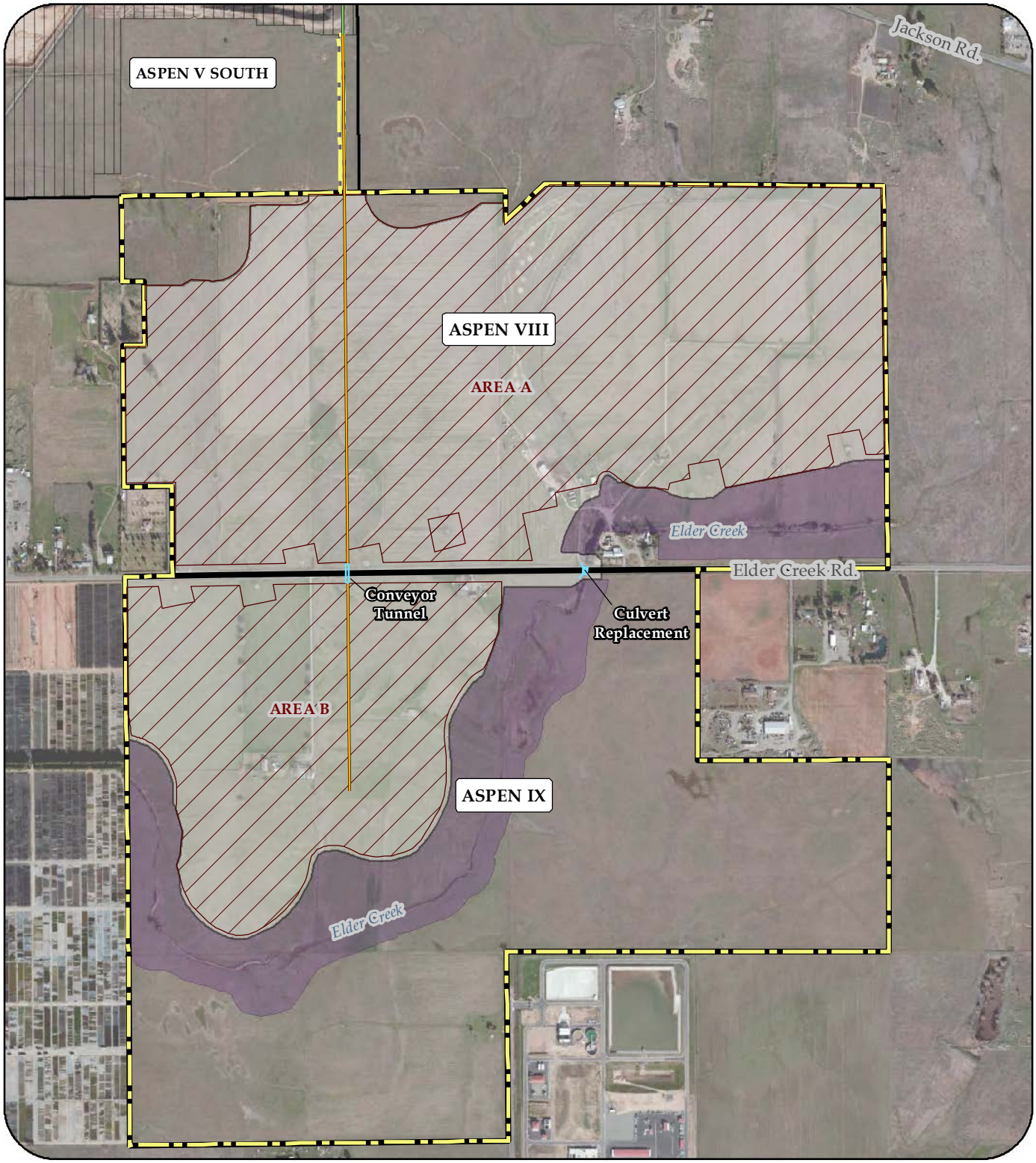
FIGURE 3
EXISTING HABITATS AND WETLAND COMMUNITIES
BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 10/25/2014 AS8_AS9_BRA_Fig3_Bio_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Proposed Mining Boundary
- Proposed Preserve Boundary
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

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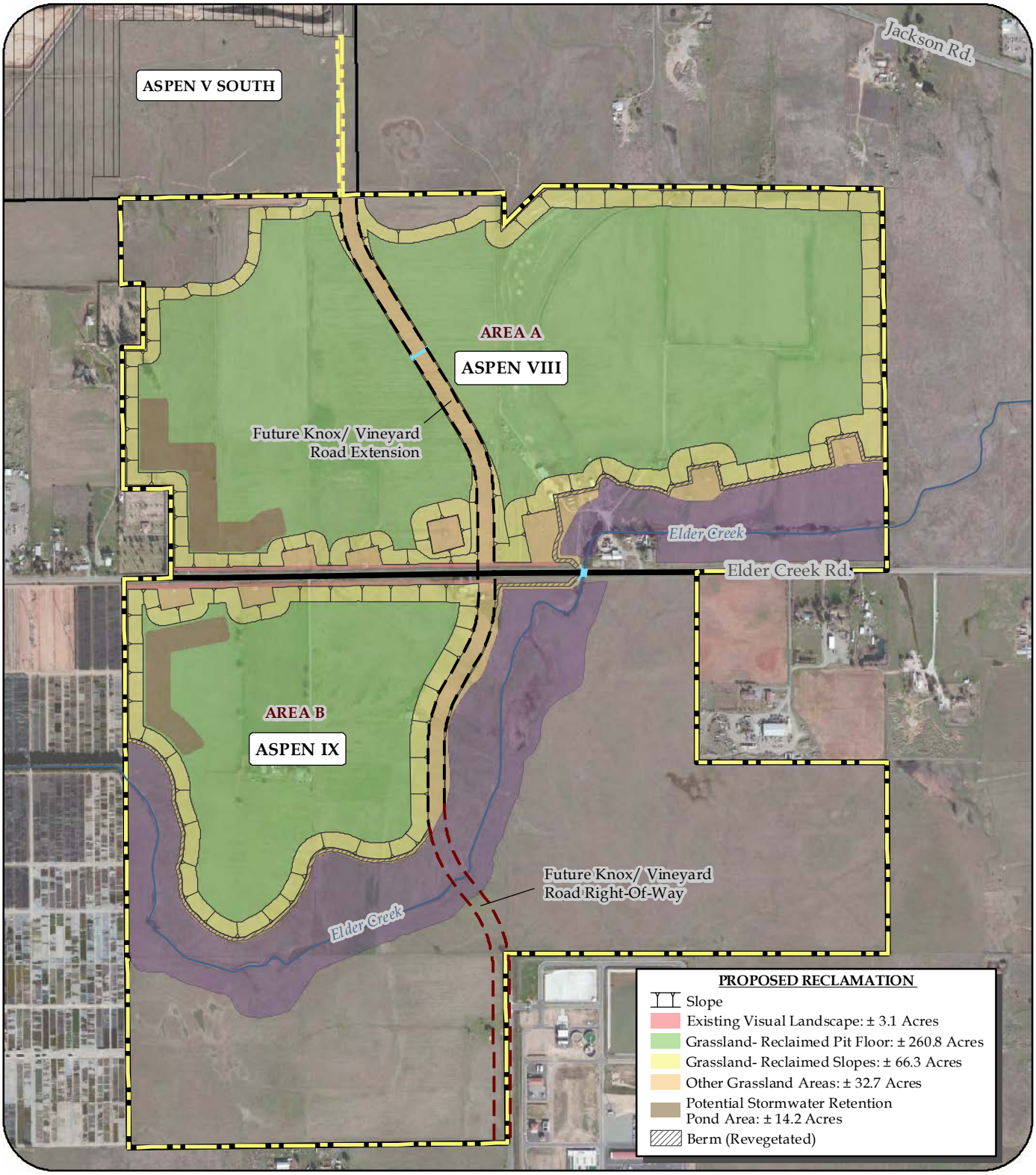
FIGURE 4

PROPOSED MINING AREAS AND PRESERVE

BIOLOGICAL RESOURCES ASSESSMENT ASPEN VIII & IX TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/11/2015 AS8_AS9_BRA_Fig4_MiningAreas_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Culverts
- Future Knox/ Vineyard Road Extension
- Future Knox/ Vineyard Road Right-Of-Way
- Preserve Boundary
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

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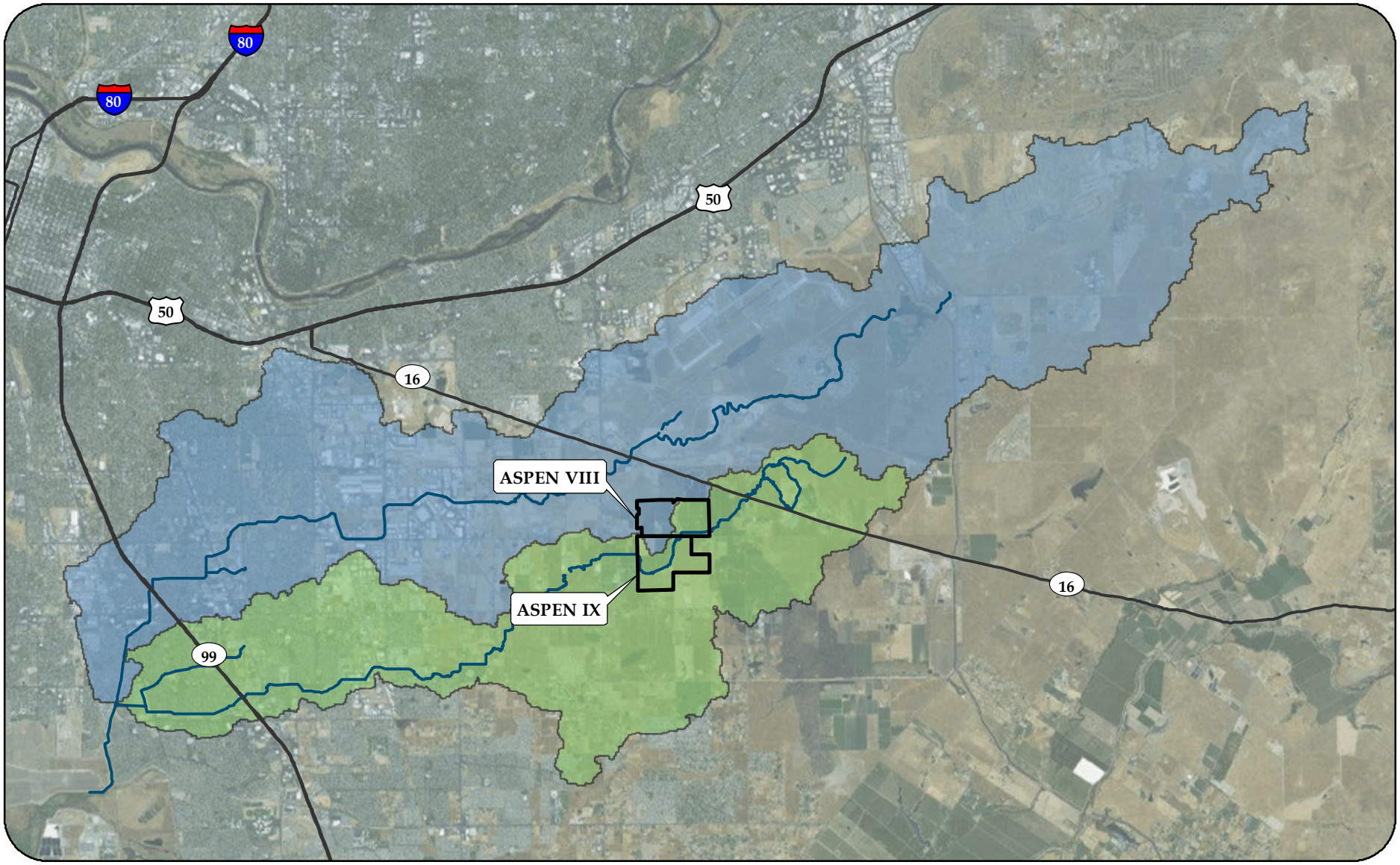
FIGURE 5

PROPOSED RECLAMATION PLAN

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/15/2015 AS8_AS9_BRA_Fig5_ProposedRec_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek & Elder Creek
- Morrison Creek Watershed
- Elder Creek Watershed
- Aspen VIII & IX Property Boundaries

SOURCE:

- Watersheds Provided by Foothill & Associates (2010)
- Aerial Photography Provided by ESRI Basemaps & Affliates (Feb. 2012)

0 1 2 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 6
MORRISON CREEK/ELDER CREEK WATERSHED MAP
BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/22/2014 AS8_AS9_BRA_Fig6_Watershed_201410.mxd

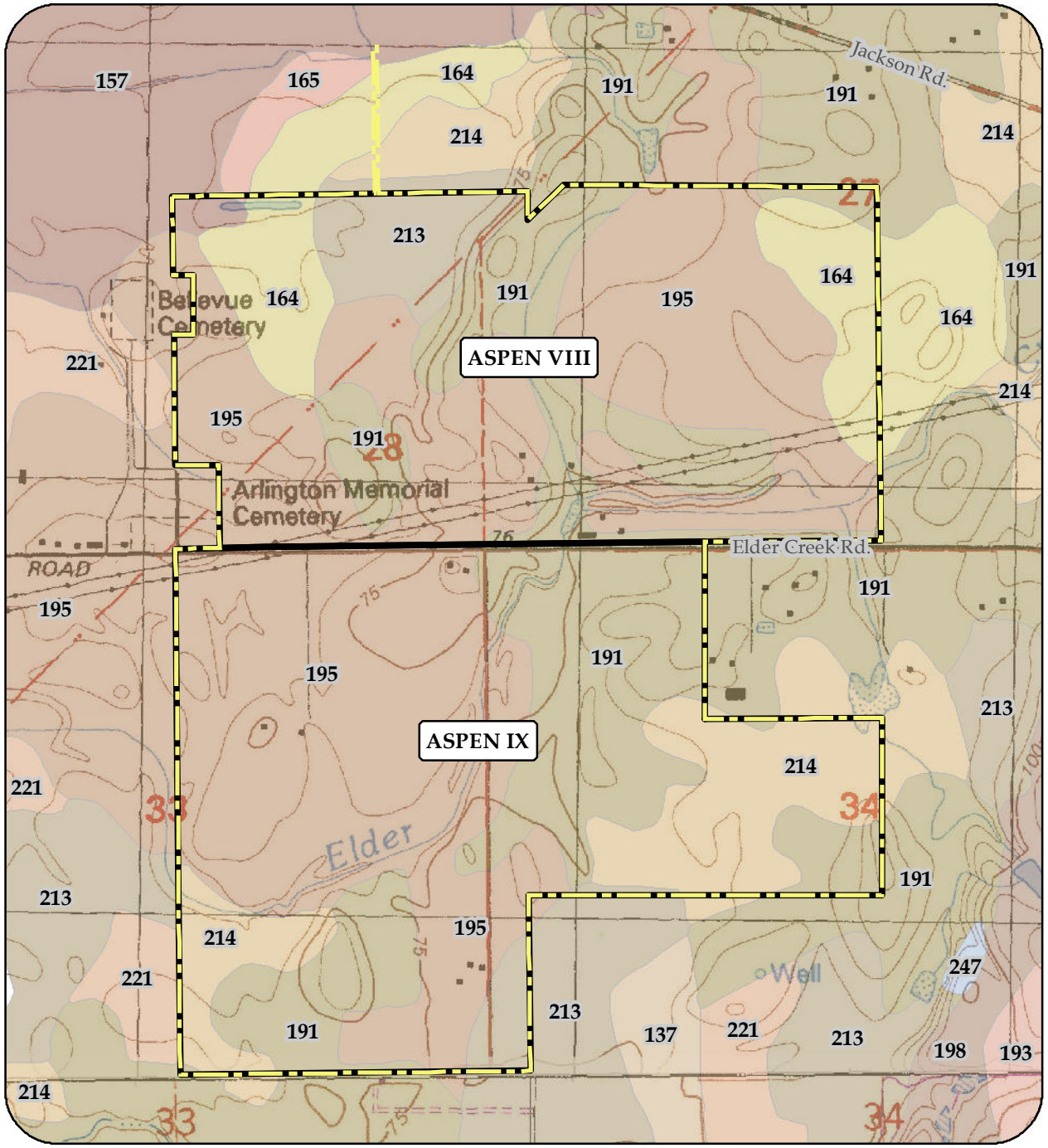


FIGURE 7

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- 137- Durixeralfs, 0 to 1 percent slopes
- 157- Hedge loam, 0 to 2 percent slopes
- 164- Kimball silt loam, 0 to 2 percent slopes
- 165- Kimball silt loam, 2 to 8 percent slopes
- 191- Red Bluff loam, 0 to 2 percent slopes
- 193- Red Bluff-Redding complex, 0 to 5 percent slopes
- 195- Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 198- Redding gravelly loam, 0 to 8 percent slopes
- 214- San Joaquin silt loam, 0 to 3 percent slopes
- 213- San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 221- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes
- 247- Water
- Project Boundary
- Aspen VIII & IX Property Boundaries

0 600 1,200 Feet

SOURCE:

Soil Survey Provided by NRCS (Nov. 26, 2013)
USGS 7.5' Quads: Carmichael & Elk Grove
Property Boundary Provided by RFE Engineering (Mar. 2014)

DISCLAIMER:

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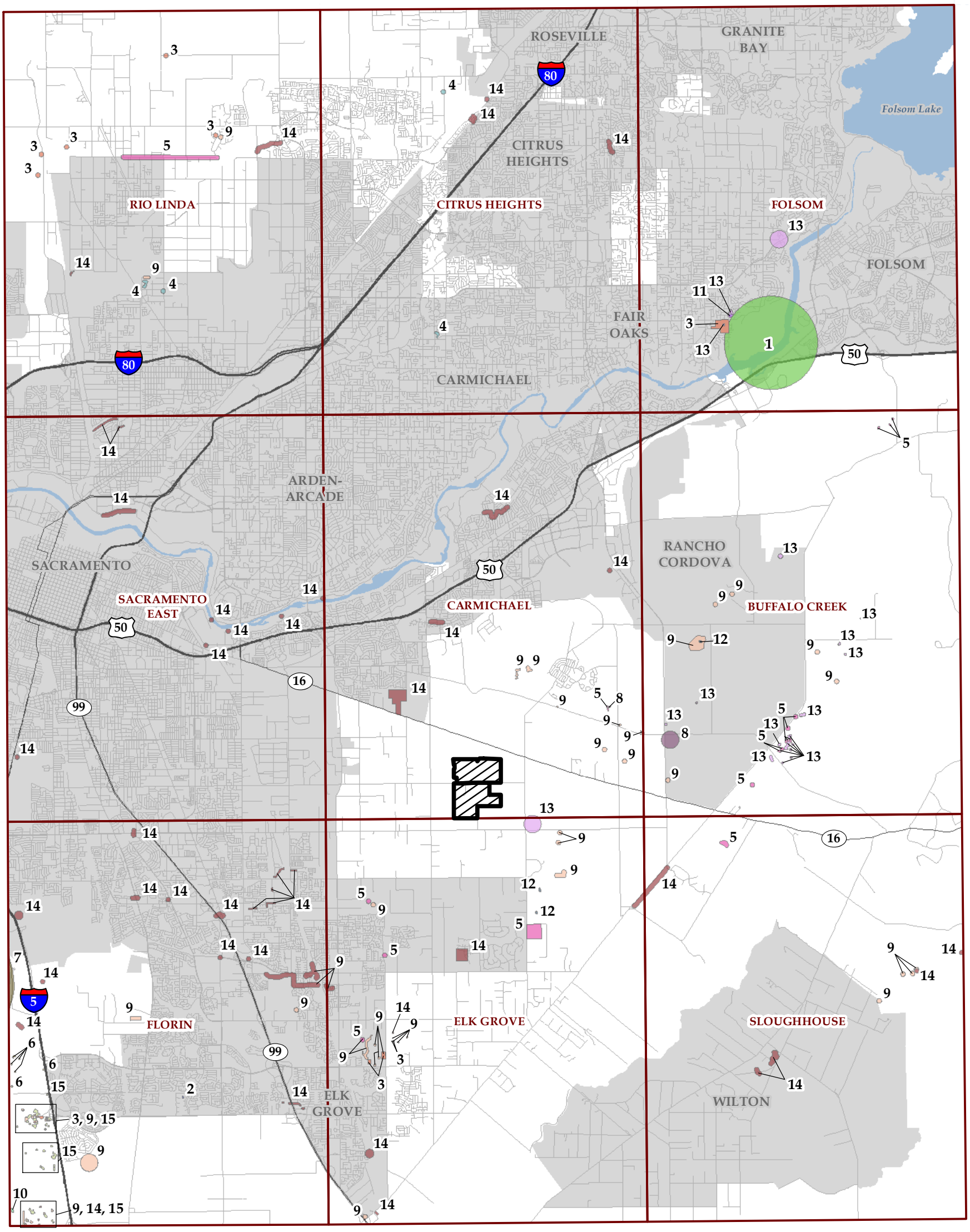
TEICHERT MATERIALS

C. Cornejo 10/22/2014 AS8_AS9_BRA_Fig7_Soils_201410.mxd



CNDDB RARE PLANT SPECIES:

1 - Clarkia biloba ssp. brandegeeae
2 - Cuscuta obtusiflora var. glandulosa
3 - Downingia pusilla
4 - Fritillaria agrestis
5 - Gratiola heterosepala
6 - Hibiscus lasiocarpos var. occidentalis
7 - Juglans hindsii
8 - Juncus leiospermus var. ahartii
9 - Legenere limosa
10 - Lepidium latipes var. heckardii
11 - Navarretia myersii ssp. myersii
12 - Orcuttia tenuis
13 - Orcuttia viscida
14 - Sagittaria sanfordii
15 - Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

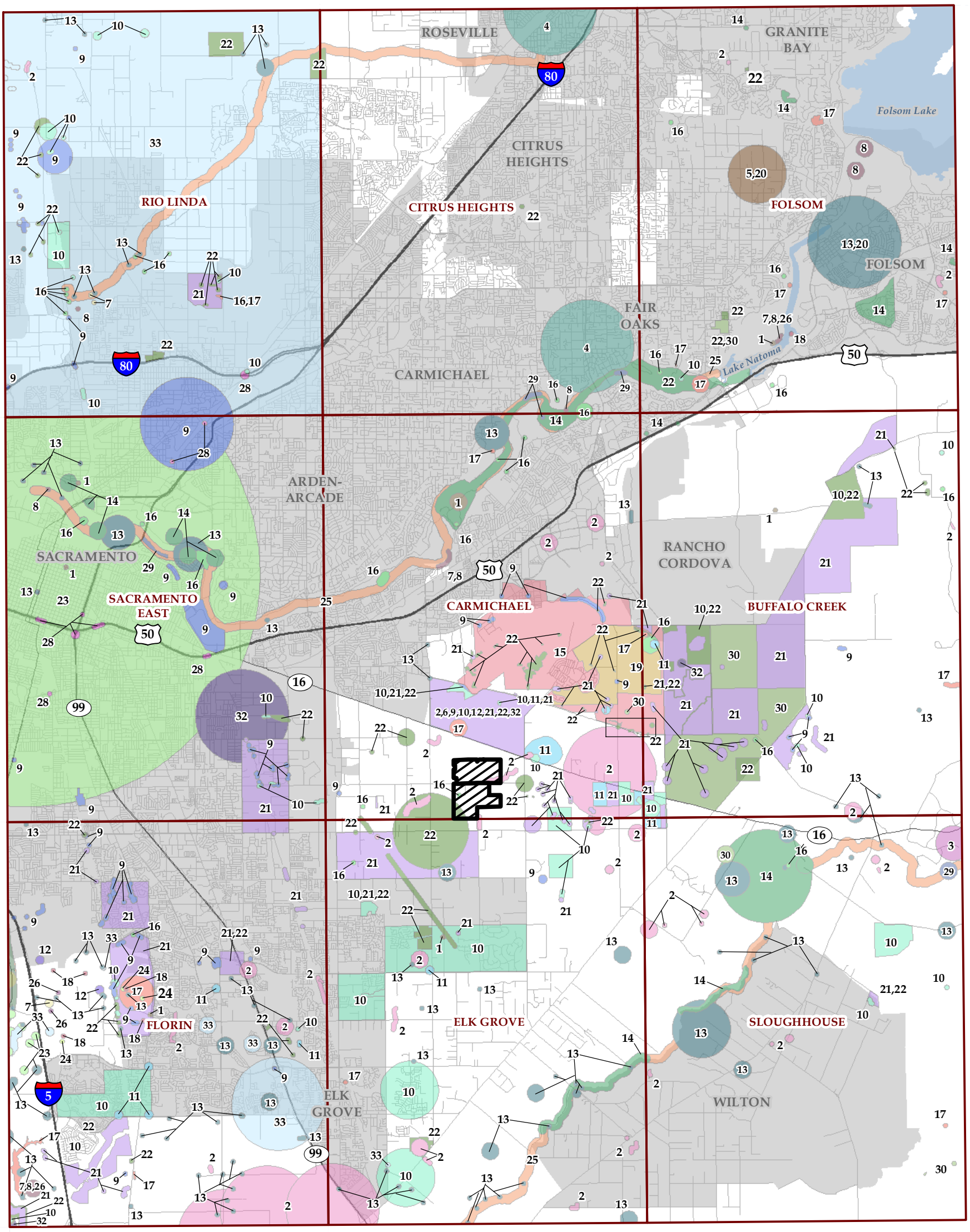
FIGURE 8

CNDDB RARE PLANT LOCATIONS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/24/2014 AS8_AS9_BRA_Fig8_CNDDB_Plants_201410.mxd



CNDDB RARE ANIMAL SPECIES:

1- Accipiter cooperii
2 - Agelaius tricolor
3 - Andrena blennospermatis
4 - Andrena subapasta
5 - Antrozous pallidus
6 - Aquila chrysaetos
7 - Ardea alba
8 - Ardea herodias
9 - Athene cunicularia
10 - Branchinecta lynchi
11 - Branchinecta mesovallensis
12 - Buteo regalis
13 - Buteo swainsoni
14 - Desmocerus californicus dimorphus
15 - Dumontia oregonensis
16 - Elanus leucurus
17 - Emys marmorata
18 - Falco columbarius
19 - Hydrochara ricksecker
20 - Lasionycteris noctivagans
21 - Lepidurus packardi
22 - Linderiella occidentalis
23 - Melospiza melodia
24 - Nycticorax nycticorax
25 - Oncorhynchus mykiss irideus
26 - Phalacrocorax auritus
27 - Pogonichthys macrolepidotus
28 - Progne subis
29 - Riparia riparia
30 - Spea hammondii
31 - Spirinchus thaleichthys
32 - Taxidea taxus
33 - Thamnophis gigas
34 - Xanthocephalus xanthocephalus

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

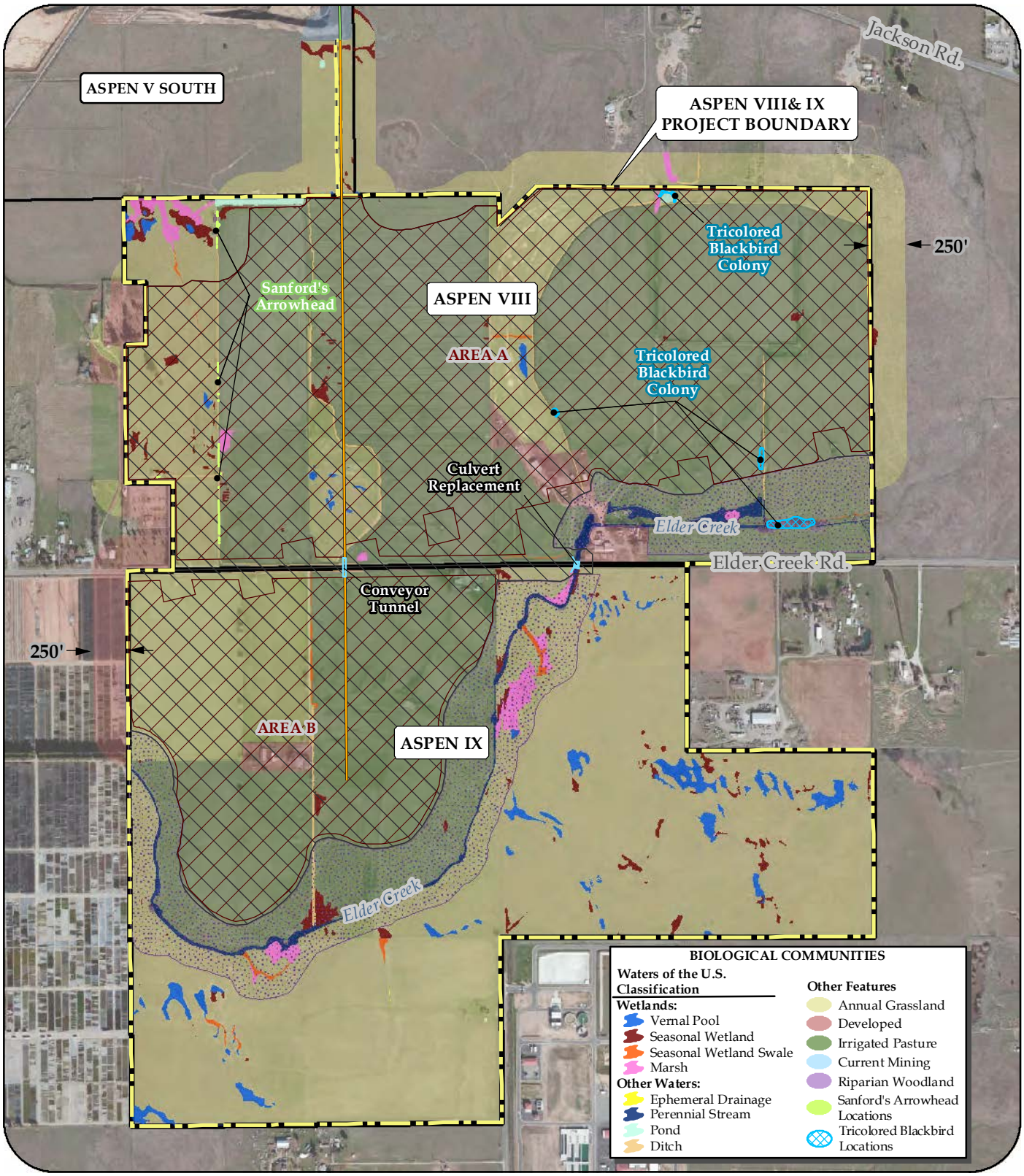
FIGURE 9

CNDDB RARE ANIMAL LOCATIONS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/24/2014 AS8_AS9_BRA_Fig9_CNDDB_Animals_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Survey Study Area
- Proposed Mining Boundary
- Limits of Disturbance
- Proposed Preserve
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 10

BIOLOGICAL RESOURCES AND IMPACTS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/16/2015 AS8_AS9_BRA_Fig10_BioImpacts_201506.mxd

Teichert – Aspen VIII & IX Biological Resources Assessment
Special-Status Species Known or Potentially Known to Occur within the Project Vicinity

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
PLANTS				
FERRIS' MILKVETCH *Astragalus tener* var. *ferrisiae*	— / — / 1B	Vernally moist meadows, alkaline flats & fallow rice fields. Scattered throughout the Sacramento Valley region from Butte Co. south to Solano Co. Elev. <75 m.	April - May	Unlikely to Occur
ALKALI MILKVETCH *Astragalus tener* var. *tener*	— / — / 1B	Alkali meadows, vernal pools & playas, edges of salt marshes, & moist grassy flats. Western portion of Central Valley & San Francisco Bay area from Yolo Co. south to Merced, San Benito & Monterey Cos. Elev. < 60 m.	March - June	Unlikely to Occur
HEARTSCALE *Atriplex cordulata* var. *cordulata*	— / — / 1B	Generally alkali grassland, alkali meadow & alkali scrub. Occasional on margins of alkali pools. Western Central Valley from Glenn Co. south to Tulare & San Luis Obispo Cos. Elev. < 200 m.	April - Oct	Unlikely to Occur
BRITTLESCALE *Atriplex depressa*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Mostly western regions of Sacramento Valley from Glenn & Butte Cos. south throughout the San Joaquin Valley (Kern Co.). Elev. < 320 m.	May - Oct	Unlikely to Occur
SAN JOAQUIN SALTBUSH *Atriplex joaquiniana*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Western Central Valley & Inner South Coast Range from Glenn Co. south to San Luis Obispo Co. Elev. < 835 m.	April - Oct	Unlikely to Occur
VERNAL POOL SMALLSCALE *Atriplex persistens*	— / — / 1B	Deeper portions of large, alkaline vernal pools. Central Valley from Glenn Co. south to Tulare Co. Most occurrences in San Joaquin Valley. Elev. < 115 m.	June - Oct	Unlikely to Occur
HISPID BIRD'S-BEAK *Cordylanthus mollis* ssp. *hispidus*	— / — / 1B	Saline marshes, alkali flats & alkali vernal pools. Scattered locations throughout San Joaquin Valley. Also Solano & Alameda Cos. & near Rocklin in Placer Co. Elev. < 150m.	June - Sept	Unlikely to Occur
PALMATE BIRD'S-BEAK *Cordylanthus palmatus*	FE / SE / 1B	Saline alkali flats, alkali scrub & alkali grassland. Scattered locations in the Central Valley from Glenn Co. south to Fresno Co. Also Livermore Valley in Alameda Co. Elev. < 150 m.	May - Oct	Unlikely to Occur
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B	Vernal pools & swales, ephemeral drainages & margins of other seasonal wetlands. Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. < 450 m.	March - May	Could Occur
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B	Swales, vernal pools, moist flats & ephemeral drainages. North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	May - August	Unlikely to Occur
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B	Marshy lake margins, cattle ponds & in vernal pools. Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	April - Aug.	Could Occur
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4.	Vernal pools & seasonally saturated clay flats. Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Luis Obispo Co. Elev. < 500 m.	March - June	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
AHART'S DWARF RUSH *Juncus leiospermus* var. *ahartii*	— / — / 1B	Vernal pools, swales & ephemeral drainages. Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	March - May	Could Occur
LEGENERE *Legenere limosa*	— / — / 1B	Vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	April - June	Could Occur
HECKARD'S PEPPERGRASS *Lepidium latipes* var. *heckardii*	— / — / 1B	Alkali flats and alkali grassland near the margins of vernal pools. Western Sacramento Valley from Glenn Co. south to Solano Co. Elev. < 200 m.	March - May	Unlikely to Occur
HOARY NAVARRETIA *Navarretia eriocephala*	— / — / 4	Seasonally wet flats, usually in heavy soil. Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	May - June	Unlikely to Occur
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4	Typically growing heavy soils, vernal pools, & drying flats. Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	April - June	Unlikely to Occur
BAKER'S NAVARRETIA *Navarretia leucocephala* ssp. *bakeri*	— / — / 1B	Vernal pools and ephemeral drainages. Western Sacramento Valley & northern Inland Coast Range from Glenn & Mendocino Cos. to Solano Co. Elev. < 1700 m.	April - July	Unlikely to Occur
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B	Vernal pools, usually with acidic soils. E. Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	April - May	Could Occur
ADOBE NAVARRETIA *Navarretia nigelliformis* ssp. *nigelliformis*	— / — / 4	Vernal pools & vernally moist swales. Scattered locations from the Sierra Nevada Foothills, Central Valley & Inner South Coast Range. Elev. 90-1000 m.	April - June	Unlikely to Occur
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B	Generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev. 30-1700 m.	May - Oct	Could Occur
SACRAMENTO ORCUTT GRASS *Orcuttia viscida*	FE / SE / 1B	Generally found in larger, deeper vernal pools. Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	April - Sept	Could Occur
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	May - Aug	Known to Occur
SALINE CLOVER *Trifolium depauperatum* var. *hydrophilum*	— / — / 1B	Salt marshes, alkali meadows, & vernal pools. Central Western California (Sonoma Co. to San Luis Obispo Co.) & southwestern Sacramento Valley. Elev. < 300 m.	April - June	Unlikely to Occur
INVERTEBRATES				
ANDRENID BEE *Andrena subapasta*	— /—/CNDDB	Inhabits upland areas near vernal pools. Females collect pollen primarily from *Arenaria*, but also *Triphysaria eriantha* and *Lasthenia* flowers. Occurs in vernal pool grassland habitats in El Dorado, Placer, Sacramento and San Joaquin Cos.	Late Feb - early May	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
BLENNOSPERMA VERNAL POOL ANDRENID BEE *Andrena blennospermatis*	— /—/CNDDB	Bee is oligolectic on *Blennosperma*. Occurs in vernal pool grassland habitats where *Blennosperma* is found. Records include scattered locations along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento & Tehama Cos., & near the base of the Coast Ranges in Contra Costa, Lake & Sonoma Cos.	Late Feb - April	Unlikely to Occur
CONSERVANCY FAIRY SHRIMP *Branchinecta conservatio*	FE/ — / —	Alkaline pools, vernal lakes & vernal pools that are typically large and/or relatively deep and moderately turbid. Known from several disjunct locations in the Central Valley from Tehama Co. south to Ventura Co.	Nov - May	Unlikely to Occur
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	Nov - May	Known to Occur
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	Nov - May	Likely to Occur
Hairy water flea *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento Co., as well as from Solano Co. Little information exists regarding the species' habitat or life history requirements.	Nov - May	Could Occur
RICKSECKER'S HYDROCHARA *Hydrochara ricksecker*i	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	Nov - May	Could Occur
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	Nov - May	Likely to Occur
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to Fresno County, across the Central Valley and some of the coast ranges.	Nov - May	Likely to Occur
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/—	The subspecies occurs at scattered locations in the Central Valley & adjacent foothills of the Sierra Nevada & Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., *Sambucus* spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant).	Year-round (exit holes)	Could Occur
AMPHIBIANS				
CALIFORNIA TIGER SALAMANDER *Ambystoma californiense*	FT / ST / —	Restricted to large vernal pools, seasonal ponds, or stock ponds that hold water for at least 4 months during spring for breeding & larval development. Adult non-breeding habitat is generally grasslands & oak savannah. In Sacramento Co. known only from southeastern county (south of the Cosumnes River).	March - May	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
WESTERN SPADEFOOT *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, & quiet in-channel pools for breeding & larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley & surrounding foothills from Colusa Co. to Tulare Co. In Sacramento Co., known from southeastern county (mostly south of the Cosumnes River), but also at Mather Field vernal pool complex.	March - May	Could Occur
CALIFORNIA RED-LEGGED FROG *Rana draytonii*	FT/—/ SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and stream-sides with plant cover. Most common in lowlands or foothills along the California coast and surrounding the Central Valley. Only a handful of scattered populations within the Central Valley.	Jan – Feb	Unlikely to Occur
REPTILES				
WESTERN POND TURTLE *Emys marmorata*	—/—/ SSC	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers). Loose soils in adjacent banks, grasslands, and open woodland for nesting.	March - Oct	Could Occur
GIANT GARTER SNAKE *Thamnophis gigas*	FT / ST / —	Found in marshes, low gradient streams and adjacent rice fields supported by perennial fresh water in the Central Valley. All credible occurrences in Sacramento County are west of State Route 99.	April - Sept	Unlikely to Occur
BIRDS				
AMERICAN WHITE PELICAN *Pelecanus erythrorhynchos* (nesting colony)	—/—/ SSC	California's nesting pelicans have been confined mainly to the Klamath Basin, within Siskiyou, Modoc and Lassen Cos. Historic breeding range includes the Central Valley, prior to large-scale urban and agricultural development. No nesting records exist for this species within Sacramento Co.	March - July	Unlikely to Occur
LEAST BITTERN *Ixobrychus exilis* (nesting)	—/—/ SSC	Breeds in tall emergent vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps. Breeding populations known from throughout California, including the Central Valley. In Sacramento Co., only known to occur in far eastern portion of county.	May – July	Unlikely to Occur
WHITE-FACED IBIS *Plegadis chihi* (nesting colony)	—/—/ CNDDB	This species nests at scattered locations in the Central Valley as well as elsewhere in California where there are dense, freshwater emergent wetlands. No breeding colonies known from Sacramento Co.	May – July	Unlikely to Occur
DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus* (nesting colony)	—/—/ CNDDB	Breeding colonies are typically formed in clusters of large trees near water. Require aquatic bodies (lakes, ponds) large enough to support a mostly fish diet. Only records from Sacramento Co. are from the American River & the Delta region.	April – Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near dense-topped trees (for nesting and roosting). Occurs throughout Sacramento County.	Year-round	Could Occur
NORTHERN HARRIER *Circus cyaneus* (nesting)	—/—/ SSC	Nests in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Occurs throughout Sacramento County.	Year-round	Could Occur
BALD EAGLE *Haliaeetus leucocephalus* (nesting & wintering)	FD/ SE / CFP	Nests near large lakes, reservoirs, and rivers. Wintering occurs near these latter habitats as well as in rangelands and coastal wetlands. Occasional winter visitor in Sacramento County.	Oct - March	Unlikely to Occur
GOLDEN EAGLE *Aquila chrysaeto* (nesting & wintering)	—/—/ CFP	Nests on secluded cliffs, but may also use large, isolated trees. Hunts widely over open areas. Most records in Sacramento County are winter occurrences from the far eastern portions of the county.	Year-round	Unlikely to Occur
COOPER'S HAWK *Accipiter cooperii* (nesting)	—/—/CNDDB	Nests in dense riparian or oak woodland. Hunts and winters in wide variety of woodland and forest vegetation communities. Most nesting occurrences in Sacramento County are associated with riparian habitat along the larger rivers or large urban stands of trees.	May - July	Unlikely to Occur
SHARP-SHINNED HAWK *Accipiter striatus* (nesting)	—/—/ CNDDB	Nests in dense pole and small-tree stands of riparian and coniferous forest near water. Hunts and winters in wide variety of woodland and shrub vegetation communities. No nesting occurrences in Sacramento County have been documented.	May - July	Unlikely to Occur
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— /ST / —	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Scattered throughout Sacramento County.	April - Sept	Could Occur
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Hunts in expansive, open vegetation communities. Winter visitor in small numbers throughout Sacramento County.	Oct - April	Could Occur
PRAIRIE FALCON *Falco mexicanus* (nesting)	—/—/ SSC	Nests on secluded cliffs, bluffs, or rock outcrops (particularly with southeastern exposure). Hunts in open terrain (grassland, oak savannah, and early succession stages of shrub and woodland habitats). Most records in Sacramento County are winter occurrences from the far eastern portions of the county.	April - Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
AMERICAN PEREGRINE FALCON *Falco peregrinus anatum* (nesting)	FD/ SD / CFP	Species occurs all over the world; in North America, breeds in open landscapes with cliffs (or skyscrapers) for nest sites. Can be found nesting at elevations up to 12,000 feet, as well as along rivers, coastlines, or in cities. Known from mountain & coastal regions throughout the state. No records for this species from the Central or Sacramento Valleys.	March – Aug	Unlikely to Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. It is less often found in open desert. It typically requires dense stands of trees for cover and roosting. It is most often found where there are substantial populations of small birds (the primary prey item). It is a regular winter visitor to Sacramento County.	Oct - March	Could Occur
GREAT BLUE HERON *Ardea herodias* (nesting colony)	—/—/ CNDDB	Breeding colonies are located in trees near isolated swamps or on islands, or near lakes and ponds bordered by forests. Foraging habitat includes freshwater and saltwater wetlands/water bodies, as well as grasslands and agricultural fields. Known to breed in Sacramento Co. only along the American & Cosumnes Rivers & the Delta region.	March – May	Unlikely to Occur
GREAT EGRET *Ardea alba* (nesting colony)	—/—/ CNDDB	Nesting colonies are located in large trees adjacent to bodies of water, such as lakes, ponds, marshes and estuaries. Foraging habitat includes a variety of wetland habitats. Known to breed in Sacramento Co. only along the American & Cosumnes Rivers & the Delta region.	April - May	Unlikely to Occur
MOUNTAIN PLOVER *Charadrius montanus* (wintering)	—/—/ SSC	Found patchily distributed as a wintering species in California where it occurs on relatively level lands with short grass, plowed or burned agricultural fields, and sprouting grain or alfalfa fields. Species tends to show high site fidelity and has never been recorded in Sacramento County.	Oct - March	Unlikely to Occur
SHORT-EARED OWL *Asio flammeus* (nesting)	—/—/ SSC	Suitable nesting habitat is provided by freshwater and coastal marshes, coastal prairie and dunes, wet meadows, and dense grasslands. There is only a single nesting season record for Sacramento County (along Desmond Road in the south county).	April - July	Unlikely to Occur
LONG-EARED OWL *Asio otus* (nesting)	—/—/ SSC	Species requires grassland or other open spaces for foraging, as well as dense tall shrubs or trees for nesting and roosting. Scattered populations exist in the mountain and coastal regions of the state; no records exist for this species within Sacramento Co.	Feb - July	Unlikely to Occur
BURROWING OWL *Athene cunicularia* (burrow sites & some wintering sites)	—/—/ SSC	Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Forages in similar habitats.	Year-round	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging. Occurs throughout Sacramento County in small numbers.	April - July	Could Occur
CALIFORNIA GULL *Larus californicus* (nesting colony)	—/—/ CNDDB	Breeds on islands in lakes or rivers in the Sierra Nevada & Cascade Ranges, & on the coast. Forages in a variety of habitats, from parking lots to farm fields to the open ocean. No nesting season records exist for this species in the Central or Sacramento Valleys.	May - July	Unlikely to Occur
WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis* (nesting)	FT / SE / —	Species is restricted to cottonwood & willow-dominated riparian forests along large rivers. The majority of breeding population currently concentrated along upper Sacramento River. Extirpated from Sacramento Co. Only one historic record in the County, from the Sacramento River near the Delta.	June - Aug	Unlikely to Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting & communal roosts)	—/—/ CNDDB	Found as a resident & wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, & other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts). Scattered throughout Sacramento County.	Year-round	Likely to Occur
PURPLE MARTIN *Progne subis* (nesting)	—/—/ SSC	Extremely localized & limited distribution along Central to North Coast, Sierra Nevada and Cascades, southern California mountains, & Sacramento. Nests mostly in old woodpecker cavities in tall, old, isolated trees or snags. However, the small population in Sacramento County appears to be limited to the drainage holes on the underside of bridges (mostly along the I-5, US 50, and I-80 corridors).	April - Sept	Unlikely to Occur
BANK SWALLOW *Riparia riparia* (nesting)	— / ST / —	Formerly found as a summer nesting species within a larger California distribution along the coast & adjacent to larger streams & rivers. Range is now concentrated along Central Valley streams & rivers. Species nests in vertical banks & cliffs with fine-textured sandy soils. No existing nesting habitat for the species occurs on the project site, but mining activities can create habitat that is sometimes then used by the species. There have been no occurrences of nesting in mining sites in Sacramento Co.	April - July	Unlikely to Occur
WILLOW FLYCATCHER *Empidonax traillii* (nesting)	— / SE / —	Breeds from southern British Columbia, Alberta, North Dakota, New York, & Maine south to central California, Nevada, Arkansas, & Virginia. Nests in riparian brush dominated by deciduous willows/shrubs. Nesting season records for the state limited to the Sierra Nevada & Cascades; no records exist within Sacramento Co.	May - Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
GRASSHOPPER SPARROW *Ammodramus savannarum* (nesting)	—/—/ SSC	Nests in dense, dry, expansive grasslands (sometimes with scattered shrubs). Forages in similar habitat. Species exhibits extreme site fidelity. In Sacramento Co. known only from southeastern county (mostly along Meiss Road).	April - July	Unlikely to Occur
SONG SPARROW (MODESTO POPULATION) *Melospiza melodia* "Modesto" (nesting)	—/—/ SSC	The Modesto Song Sparrow is found in areas containing extensive wetlands, such as the Sacramento-San Joaquin Delta. Prefers freshwater marsh & riparian forest habitats with available water, open areas for foraging & moderately dense vegetation cover for nesting. Known to occur in Sacramento Co. only from the Sacramento River & Delta region.	March - Aug	Unlikely to Occur
TRICOLORED BLACKBIRD *Agelaius tricolor* (nesting)	—/ SE / —	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or grasses. Forages in grassland or rangeland providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within at least three miles of the nest colony. Nesting colonies are scattered throughout Sacramento Co.	April - July	Known to Occur
MAMMALS				
PALLID BAT *Antrozous pallidus*	—/—/ SSC	Found as a resident in all desert, grassland, shrub, woodland, & forest habitats from sea level to approximately 6,000 feet. Day roosts are typically found in buildings, bridges, rocky outcrops, mines, caves, & trees. Night roosts are generally provided by bridges, mines, & caves. Only a small number of occurrences are known for Sacramento Co.	April - Sept	Unlikely to Occur
WESTERN RED BAT *Lasiurus blossevillii*	—/—/ SSC	Occurs at scattered locations throughout the lowland portions of California west of the Sierra Nevada crest and desert regions (typically in riparian forest or orchards). Roosting sites are found in tree or shrub foliage between 2 - 40 ft above ground (typically in large cottonwoods, sycamores, walnuts, and willows). In Sacramento County known from scattered occurrences throughout the county.	April - Sept	Unlikely to Occur
YUMA MYOTIS *Myotis yumanensis*	—/—/ CNDDB	Found in a variety of habitats (including coastal vegetation communities & urban areas) with nearby sources of water over which the species forages. Day roosts are found in caves, mines, buildings, or crevices. Night roosts are typically associated with bridges, buildings, & other man-made structures. In Sacramento Co. known from scattered occurrences throughout the county.	April - Sept	Unlikely to Occur
AMERICAN BADGER *Taxidea taxus*	—/—/ SSC	Found as a resident species at scattered localities throughout California (except in the coastal redwood region). Generally occurs in extensive, open habitats in the vicinity of abundant rodent populations. In Sacramento Co. known mostly from the far eastern portions of the county.	Year-round	Unlikely to Occur

SPECIAL STATUS CODE ABBREVIATIONS AND DEFINITIONS	
FEDERAL	
FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threatened
FC	Federal Candidate Species (former Category 1 candidates)
FD	Federally Delisted
STATE	
SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
SD	State Delisted
Other	
CFP	California Department of Fish and Wildlife designated "Fully Protected"
SSC	California Department of Fish and Wildlife designated "Species of Special Concern"
1A	California Rare Plant Rank - Presumed extinct
1B	California Rare Plant Rank - Rare or Endangered in California and elsewhere
2A	California Rare Plant Rank - Presumed extirpated in California, more common elsewhere
2B	California Rare Plant Rank - Rare or Endangered in California, more common elsewhere
3	California Rare Plant Rank - Plants About Which More Information is Needed, A Review List
4	California Rare Plant Rank - Plants of Limited Distribution, A Watch List
CNDDB	Species is tracked by the California Department of Fish and Wildlife's "California Natural Diversity Database"

LIKELIHOOD OF OCCURRENCE DEFINITIONS	
Known to Occur	Taxon was observed at the Project site during recent surveys.
Likely to Occur	Taxon previously reported within or immediately adjacent to the Project site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project site.
Could Occur	Suitable habitat is available at the Project site; however, there is little to no other indicators that the taxon might be present.
Unlikely to Occur	Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the Project area.

ATTACHMENT B

Teichert's Aspen VIII & IX Biological Resources Assessment
Rare Plant Survey Report

SPECIAL-STATUS PLANT SPECIES SURVEY REPORT

Teichert – Aspen VIII & IX

Sacramento County, California

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ASPEN VIII & IX PROPERTIES

TEICHERT AGGREGATES – SACRAMENTO COUNTY, CALIFORNIA

Special-Status Plant Species Survey Report

July 2015

1.0 INTRODUCTION

This report presents the methods and results of special-status plant surveys conducted on Teichert Aggregates' (Teichert's) Aspen VIII and Aspen IX properties (Property). The Property, comprised of approximately 682 acres, is located in the unincorporated portion of Sacramento County (Figure 1). Teichert is proposing to mine existing aggregate material (sand and gravel) on approximately 357 acres of the Property (Project). The proposed Project will consist of aggregate removal and conveyance, as well as reclamation for agricultural (grazing) purposes. The Project is an extension of mining on Teichert's 'Aspen' properties, which have continuously supplied aggregate resources to Teichert's materials processing operations since the 1950s.

1.1 PROPERTY SITE LOCATION AND DESCRIPTION

The Property is located approximately 2 miles south of Mather Field in Sacramento County and includes two separate properties owned by Teichert, known as Aspen VIII (APNs 063-01800-005, -006 and 063-01600-001) and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) (Figure 2). Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will eventually tie in with an existing conveyor system on Aspen V-South. This portion of conveyor between Aspen VIII and Aspen V-South (APN 063-0190-027) has been included as part of the Project (collectively, Project Site) (Figure 2). The Project Site is located in Township 08N, Range 06E, Sections 27, 28, 33, and 34 with a portion of Aspen VIII falling in the Rio De Los Americanos Land Grant (MDBM) of the "Carmichael, California" 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 1981). The approximate center of the site is located at 38° 30' 39" North and 121° 19' 03" West within the Elder Creek Watershed.

Elder Creek Road bisects the two properties, with Aspen VIII occurring to the north and Aspen IX to the south. Elder Creek enters the Project Site from the east on Aspen VIII, where it was historically channelized, and eventually enters Aspen IX on the north following its natural course before exiting on the west. The Project includes mining the majority of the Aspen VIII site, as well as the northwestern portion of Aspen IX, north of Elder Creek. The Project also includes the installation of a larger culvert under Elder Creek Road to increase the capacity of flows under the road and of a turn lane south of Aspen VIII to accommodate trucks.

2.0 ENVIRONMENTAL SETTING

The Project Site consists of approximately 682 acres of land, including Elder Creek which traverses through the site in an east to west direction. The majority of the site is utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Three separate rural residential houses and/or associated farm buildings also occur on the Project Site. Surrounding land uses include additional rangeland and rural residential homes, agricultural cropland, a nursery facility (Village Nurseries), two cemeteries (Arlington Memorial Cemetery and Bellevue Cemetery), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

2.1 CLIMATE, TOPOGRAPHY, AND HYDROLOGY

Sacramento, as with the rest of California's Central Valley, is typical of a Mediterranean-type climate with hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 38°F in December to a high of 92°F in July (usclimatedata.com). Average annual precipitation is approximately 18.51 inches, with January usually the wettest month (usclimatedata.com).

The majority of the Project Site consists of historically leveled fields for both dryland grazing and irrigated pasture. Moderate rolling hills also characterize the topography of the site on other areas. The elevation of the site ranges from approximately 60 to 85 feet above mean sea level (MSL).

The Project Site is located within boundaries of the Morrison Creek and Elder Creek Watersheds (Figure 3). The Morrison Creek watershed encompasses approximately 200 acres in both Aspen VIII and IX, while the Elder Creek Watershed includes approximately 483 acres. Although Morrison Creek itself does not traverse the Project Site, its southern watershed boundary lies within the western portion of Aspen VIII and along the northwestern portion of Aspen IX before transitioning into the Elder Creek watershed to the south. Elder Creek occurs on both Aspen VIII and IX, whereby it enters Aspen VIII on the southeast and exits Aspen IX on the west (Figures 2 and 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized.

Elder Creek originates near the intersection of Kiefer Boulevard and Eagles Nest Road and eventually discharges into Morrison Creek near Brookfield Drive in the City of Sacramento, approximately 8 miles west of the Project Site. Historically, Elder Creek was probably an ephemeral to intermittent watercourse, seasonally supported by winter precipitation and runoff from the surrounding uplands. Today, however, the majority of Elder Creek can be characterized as a semi-perennial creek fed primarily by runoff from ranches, residential areas, and irrigated pasture lands. Within the Project Site, Elder Creek is bordered by irrigated pastures, which are supported by a groundwater release and recycling system that provides year-round irrigation to fields. In this system, groundwater is first supplied to pastures during the early summer months and allowed to sheet across fields. This water eventually

drains into a network of surrounding ditches and irrigation ponds for capture and reutilization, while excess irrigation runoff flows to Elder Creek.

2.2 SOILS

The Natural Resources Conservation Service (NRCS) soil surveys for Sacramento County identifies six soil types within in the Project Site (NRCS 1993). The most predominant soil component is Red Bluff-Xerarents complex, 0 to 2 percent slopes, which is distributed throughout much the proposed mining area (Figure 4). Red Bluff loam, 0 to 2 percent slopes is the second-most predominant soil type on the Project Site (Figure 4). Other soil types include San Joaquin silt loam, 0 to 3 percent slopes; Kimball silt loam, 0 to 2 percent slopes; San Joaquin silt loam, leveled; and Hedge loam, 0 to 2 percent slopes (Figure 4). Detailed summaries of these soil types have been described in the original wetland delineation report prepared by Foothill Associates (2006).

2.3 EXISTING HABITAT AND PLANT COMMUNITIES

Presently, both annual grasslands and irrigated pastures dominate the landscape on the Project Site (Figure 5). Elder Creek appears on the USGS 7.5-minute series Carmichael and Elk Grove, California quadrangles as a solid blue line feature (perennial drainage) and traverses the Project area in a northeast to southwest direction. Foothill Associates conducted a wetland delineation for the Aspen VIII and IX Property in 2006 (Foothill 2006). ECORP Consulting, Inc. revised the delineation in November 2009 and March 2009 and again in march 2014 as part of the development of the proposed Project (ECORP 2009; ECORP 2010; ECORP 2014). The U.S. Army Corps of Engineers issued a preliminary jurisdictional determination (PJD) on 03 June 2014. A total of 27.795 acres of wetland and waters of the U.S. have been identified on the Project Site (Figure 5). These include a perennial stream (Elder Creek), vernal pools, seasonal wetlands and swales, an ephemeral drainage, freshwater marshes, ditches, and ponds (Figure 5).

Other features on the Project Site include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the site.

3.0 SPECIAL-STATUS PLANT SPECIES

Special-status plants are those that are legally protected under state and federal Endangered Species Acts (ESAs) or other regulations, or species that are considered sufficiently rare by the scientific community to qualify for such listing. These include the following:

- Plants listed or proposed for listing as threatened or endangered under the federal ESA or candidates for possible listing as threatened or endangered under the ESA (50 Code of Federal Regulations (CFR] §17.12);

- Plants listed or candidates for listing by the state of California as threatened or endangered under the California ESA (Fish and Game Code of California §2050 et seq.);
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code of California §1900 et. seq.);
- Plants listed that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) §15380;
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR]1A, 2B, 2A and 2B); and
- Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (CRPR 3 and 4). In general, these plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA §15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

4.0 METHODS

This section describes the methods used to conduct special-status plant surveys on the Project Site. All research and surveys were conducted over a two-year period.

4.1 PRE-FIELD SURVEY INVESTIGATIONS

Prior to field surveys, a preliminary list of special-status plants that have the potential to occur on the Project Site and are documented in the regional area was generated by a query search of existing databases and agency information, including:

California Natural Diversity Database (Rarefind Version 5) – Database query of special-status plant species and sensitive natural communities reported in the study area; generated on 05 March 2013 and 14 August 2014 (CNDDB 2014) (Figure 6). Query included the "Carmichael, California" 7.5-minute quadrangle and eight surrounding quadrangles;

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered plant species having the potential to occur in the study area; generated on 15 March 2013 (USFWS 2013) and 07 April 2014 (USFWS 2014); and

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status plants that may occur in the study area; generated on various dates between March 2013 (CNPS 2013) and August 2014 (CNPS 2014).

A list of all special-status plant species known or potentially known to occur on the Project Site is shown in Table A-1 in Appendix A. For each species (CRPR 1A, 1B, 2A, and 2B) identified as having a moderate to high potential to occur on the Project Site, phenological data and photographs were compiled prior to

field surveys. Specific information gathered included distribution, life cycles, habitat requirements, regional occurrence(s), representative photographs, and species keys. This information was referenced from the CNDDB data, individual treatments from Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012), and photographs from the CalPhoto website.

4.2 SPECIAL-STATUS PLANT SPECIES OCCURRENCE POTENTIAL

The potential for special-status plants depends largely on the presence of specific habitat types on the Project Site. Reconnaissance-level field surveys were conducted on 18 March 2013, and again on 09 April 2014, to review resources (i.e., wetlands) that warrant additional or more focused surveys. Habitat types identified during the reconnaissance-level field assessments were evaluated with known habitat requirements for each special-status plant species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- No Potential – species reported to have a current or historic range in the regional area, but does not occur on the Project Site due to the lack of required habitat for the species;
- Unlikely/Low Potential – species reported to have a current or historic range in the regional area, but has only marginal quality habitat on the Project Site (i.e., disturbed, fragmented, or otherwise degraded) or its presence cannot be completely discounted due to incomplete information on the taxon's distribution or habitat requirements;
- Moderate Potential – species reported to have a current or historic range in the regional area and moderate quality habitat on the Project Site;
- Present/High Potential – species previously reported from the site or otherwise expected to occur due to substantial habitat on the Project Site.

Based on review of the CNDDB and CNPS database searches, previously prepared biological reports for the Project Site and surrounding areas, and reconnaissance-level field surveys, it was determined the Project Site supports potential suitable habitat (moderate to high) for eight special-status plant species. These include dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* subsp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*). Detailed descriptions of these species and their potential to occur on the Project Site are provided in Appendix B.

Several other special-status plant species were identified in the database searches for the selected quadrangles. These species include Brandegee's clarkia (*Clarkia biloba* subsp. *brandegeae*), stinkbells (*Fritillaria agrestis*), Heckard's dwarf peppergrass (*Lepidium latipes* var. *heckardii*), California rose mallow (*Hibiscus lasiocarpos* var. *occidentalis*), and saline clover (*Trifolium hydrophilum*). These species did not have moderate to high potential to occur at the site due to the lack of specific habitat requirements on the Project Site, such as foothill woodland/grassland, chaparral, tidal marsh, saltwater marsh, or alkaline vernal pools and flats. Although there is a CNDDB record of Peruvian dodder (*Cuscuta*

obtusiflora var. *glandulosa*) within the nine quadrangle search area, this species was last seen in 1948 in Merced County and is thought to be extirpated.

It should be noted that focused surveys for Sacramento Orcutt grass and slender Orcutt grass were previously conducted by Foothill Associates in May 2008 (Foothill 2008). In addition, follow-up surveys of special-status plant species were conducted between March and July of 2010 by Teichert's biologist B. Baba (Teichert 2010). No rare plants were found during those surveys; however, a few remnant populations of Sanford's arrowhead may have existed in an irrigation ditch (Baba pers. observ. 2010). This ditch had been previously cleaned out by the farmer and positive identification could not be confirmed at the time.

4.3 FIELD SURVEY METHODS

Field surveys for special-status plants were conducted over a two year period from March 2013 through August 2014 in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001), the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996), and the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009).

4.4 REFERENCE POPULATIONS

Prior to and during the timeframe when surveys of the Project Site were conducted, various reference populations were visited. Reference populations were used to evaluate the condition of specific phenological traits needed to identify plants in the field, such as flowering and fruiting times. Teichert's biologist B. Baba visited various known populations of Legenere, dwarf downingia, bractless hedge-hyssop, Ahart's dwarf rush, Sacramento Orcutt grass, and Sanford's arrowhead within the regional area between April 2013 and July 2014. These sites included Teichert's Lincoln property in Placer County, Teichert's Aspen VI and Grantline properties in Sacramento County, Phoenix Field Vernal Pools in Sacramento County, Mather Field Vernal Pools in Sacramento County, and Jepson Prairie Preserve in Solano County.

Visiting additional species and reference sites was not feasible because of the uncertain status of many previously known locations, the lack of precise information on the location and ownership of local populations, and the lack of access to local populations on private and preserved lands.

4.5 ON-SITE FIELD SURVEYS

To determine if special-status plant species occur on the Project Site, surveys were conducted throughout the Project area for all potentially occurring species (as listed in Table A-1, Appendix A). In addition, the survey study area was extended outside the Project Site boundary to ensure all areas within 250-feet of the proposed mining footprint (i.e., proposed limits of disturbance) were covered (Figure 5). Specific survey dates were March 25th, April 22nd, May 6th and 22nd, and June 20th of 2013 and March 14th, April 14th, 23rd, 24th, May 1st and 23rd, June 19th, and July 14th of 2014. The survey

dates were established to encompass the range of flowering and identification periods for all species, with particular emphasis on the special-status plant species. Over the course of the 2-year survey period, Teichert's biologist B. Baba walked meandering transects across the entire Project Site. Teichert's biologist J. Greer also accompanied B. Baba on some of the 2014 surveys. Survey transects were spaced at 15- to 50-foot intervals, depending upon the existing terrain, habitat types, vegetation cover, and structural complexity. Special attention was given where the habitat type was determined to be suitable and most likely to support special-status plant species (i.e., wetlands). Many areas consisted of irrigated pastures dominated by various pasture species and thus provided limited or no suitable habitat for most special-status plants.

Owing to variance in the phenology and habitat preference of various species, surveys were conducted over a period of several months. Earlier surveys of vernal pools were also conducted to determine which wetlands to revisit later in the season that could most likely support Sacramento Orcutt grass or slender Orcutt grass. All habitats present on the Project Site were surveyed thoroughly in order to properly inventory and document any potential occurrences of special-status plant species. All plant species observed during the survey period were recorded in the field and presented in Appendix C. Nomenclature used follows the Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012).

5.0 EXISTING HABITATS AND PLANT COMMUNITIES

The majority of the Project Site consists of irrigated pastures and annual grasslands (Figure 5). Other habitats at the site include perennial stream (Elder Creek), vernal pool, seasonal wetland, swale and ephemeral drainage, ditches, ponds, riparian woodland, and ruderal. A brief summary of these habitats and plant communities are described below and shown in Figure 5. Representative photos of habitat types are also included in Appendix D.

5.1 IRRIGATED PASTURE

Irrigated pastures, totaling 331 acres north of Elder Creek, are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures (further discussed in Section 5.7 below). Common plant species occurring in irrigated pastures include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

5.2 ANNUAL GRASSLAND

Annual grasslands on the Project Site are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and includes grazing by cattle (Figure 5). Annual grasslands that have not been leveled are generally located south of Elder Creek, within the southern and eastern portions of Aspen IX. Similar landscapes are also present near the northwestern corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes (further discussed in Sections 5.4 and 5.5 below).

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist (i.e., roads, ditches, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulensis*) occurs within the western section of Aspen VIII near an existing cemetery.

5.3 PERENNIAL STREAM (ELDER CREEK)

A total of 5.415 acres of perennial stream have been delineated on the Project Site (Figure 5). This includes approximately 8,470 lineal feet of Elder Creek. The creek is often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (Paspalum distichum), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is rather limited throughout much of the creek, probably due to present and past grazing pressures. Trees consisting of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*) are scattered along portions of Elder Creek, particularly within the Aspen VIII site. This area of the creek also supports dense stands of Himalayan blackberry (*Rubus armeniacus*) and California wild rose (*Rosa californica*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted

that this creek is hydrologically sustained from late-spring through summer by irrigation runoff from adjacent pastures.

5.4 VERNAL POOLS

Numerous vernal pools, totaling 7.260 acres, occur throughout the undisturbed grassland areas of the Project Site (Figure 5). These vernal pools vary in maximum water depth between a few inches to 20 inches deep, and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Typical resident wildlife species associated with the vernal pools include various aquatic invertebrates and amphibians such as the Sierra chorus frog (Pseudacris sierra). The vernal pool fairy shrimp (Branchinecta lynchi) and vernal pool tadpole shrimp (Lepidurus packardi), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the Project Site and adjacent areas (C. Rogers, pers. observ.).

5.5 SEASONAL WETLANDS, SWALES, AND EPHEMERAL DRAINAGE

The Project Site also supports numerous seasonal wetlands, swales, and an ephemeral drainage, totaling 7.005 acres (Figure 5). The majority of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other instances, seasonal wetlands and swales are associated within irrigated pastures and affected by summer irrigation, remaining saturated or inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatsedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean beardgrass, and waxy mannagrass.

5.6 FRESHWATER MARSH

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the Project Site (Figure 5). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

5.7 DITCHES AND PONDS

A network of ditches (2.444 acres) and ponds (0.920 acre) are scattered throughout irrigated pastures (Figure 5). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall fescue, dallis grass, mannagrass, and annual beard grass. One ditch in Aspen VIII was dominated by Sanford's arrowhead.

Ponds on site are relatively deep, and thus pond centers tend to lack vegetation. Pond levels may also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

5.8 RIPARIAN WOODLAND

Riparian woodland vegetation (approximately 1.091 acres) is limited to patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Figure 5). Most of these species consists of Fremont cottonwood, willows, Himalayan blackberry, and California wild rose. Most of Elder Creek lacks riparian woodland vegetation, probably due to past and present grazing pressures. Existing ditches also lack riparian woodland species due to routine maintenance activities.

5.9 RUDERAL

Ruderal vegetation is frequently associated with various equipment storage areas and access roads. In addition, disposal areas along ditches are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), redroot pigweed (*Amaranthus retroflexus*), and soft chess brome.

6.0 PLANT SURVEY RESULTS

A total of 261 taxa of vascular plants were identified on the Project Site (Appendix C). Of these taxa, 113 are native, 125 are naturalized, and 23 are ornamentals planted as landscape. A total of 26 species are considered noxious or invasive weeds in California (Cal-IPC 2014; CDFA 2014). No federal or state-listed plant taxa were observed. No elderberry (*Sambucus nigra* subsp. *caerulea*) shrubs, specific host plant for the federally-listed *Threatened* valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) were found. One rare plant species was documented within the survey area: Sanford's arrowhead (Figure 7; Appendix E).

Sanford's arrowhead is listed as a CRPR List 1B.2 plant. This species is an aquatic perennial member of the water-plantain family (Alismataceae). Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Sanford's arrowhead is widely distributed throughout the Central Valley between 0 and 650 meters. This species is presently known from Shasta to Kern Counties, with the majority of records occurring in Sacramento County. At the Project Site, large populations of Sanford's arrowhead (2,000+ individuals) were observed growing within an irrigation ditch in Aspen VIII, near the western portion of the property (Figure 7; Appendix E). Two individual plants were also observed in a connected ditch running east to west along the northern border of the adjacent cemetery. These ditches are fed by irrigation runoff from irrigated pastures to the east, before eventually emptying into a large irrigation pond on the northern project boundary. Common plants growing in association with the ditch and Sanford's arrowhead include tall flatsedge, creeping spikerush, creeping water primrose, waxy mannagrass, and rice cutgrass.

Sanford's arrowhead is expected to be impacted by proposed mining activities. The proposed limits of disturbance (active mining) include the majority of the ditch containing Sanford's arrowhead and will directly impact the largest and most dense populations of the plant. The remaining populations of Sanford's arrowhead extend to the northern end of the ditch, where mining will not occur, but are expected to be indirectly affected once farming practices no longer utilize and support irrigated pastures. Interestingly, all other ditches or ponds within the study area were not observed to contain Sanford's arrowhead. It appears that the particular ditch supporting Sanford's arrowhead in Aspen VIII is the most maintained (routinely cleaned out), thereby suggesting that the species can be prolific with certain disturbance or management activities.

Because multiple surveys have been conducted during the appropriate blooming periods when target species would have been identifiable, all other special-status plant species are considered to be absent from or unlikely to occur at the Project Site at this time. The results of protocol-level special-status plant species surveys are typically considered to be valid by the resource agencies for a period of 5 years, given that circumstances on the Project Site can be assumed to remain largely unchanged during this time period.

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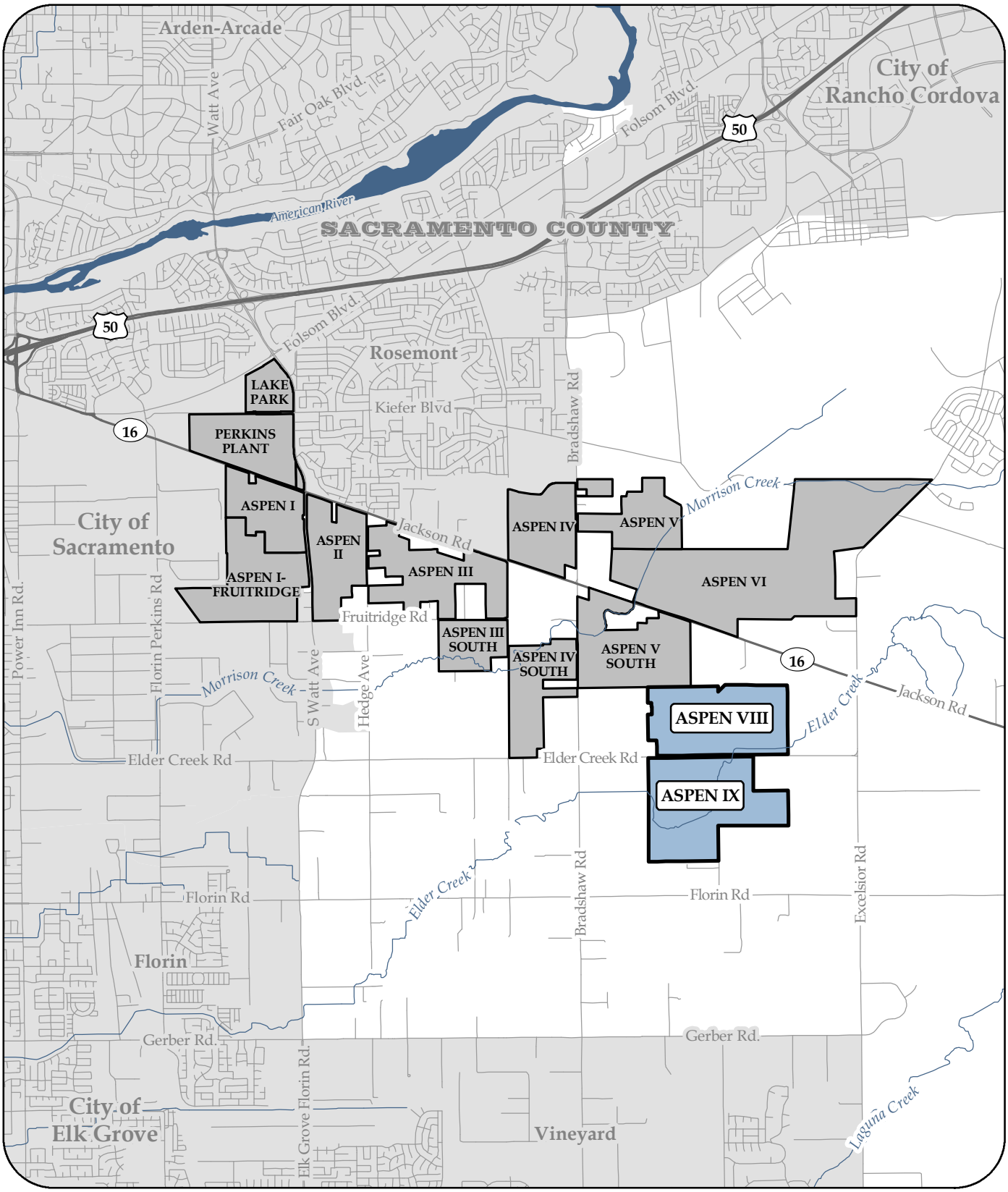
Figure 7 Rare Plant Locations – Sanford’s Arrowhead



TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

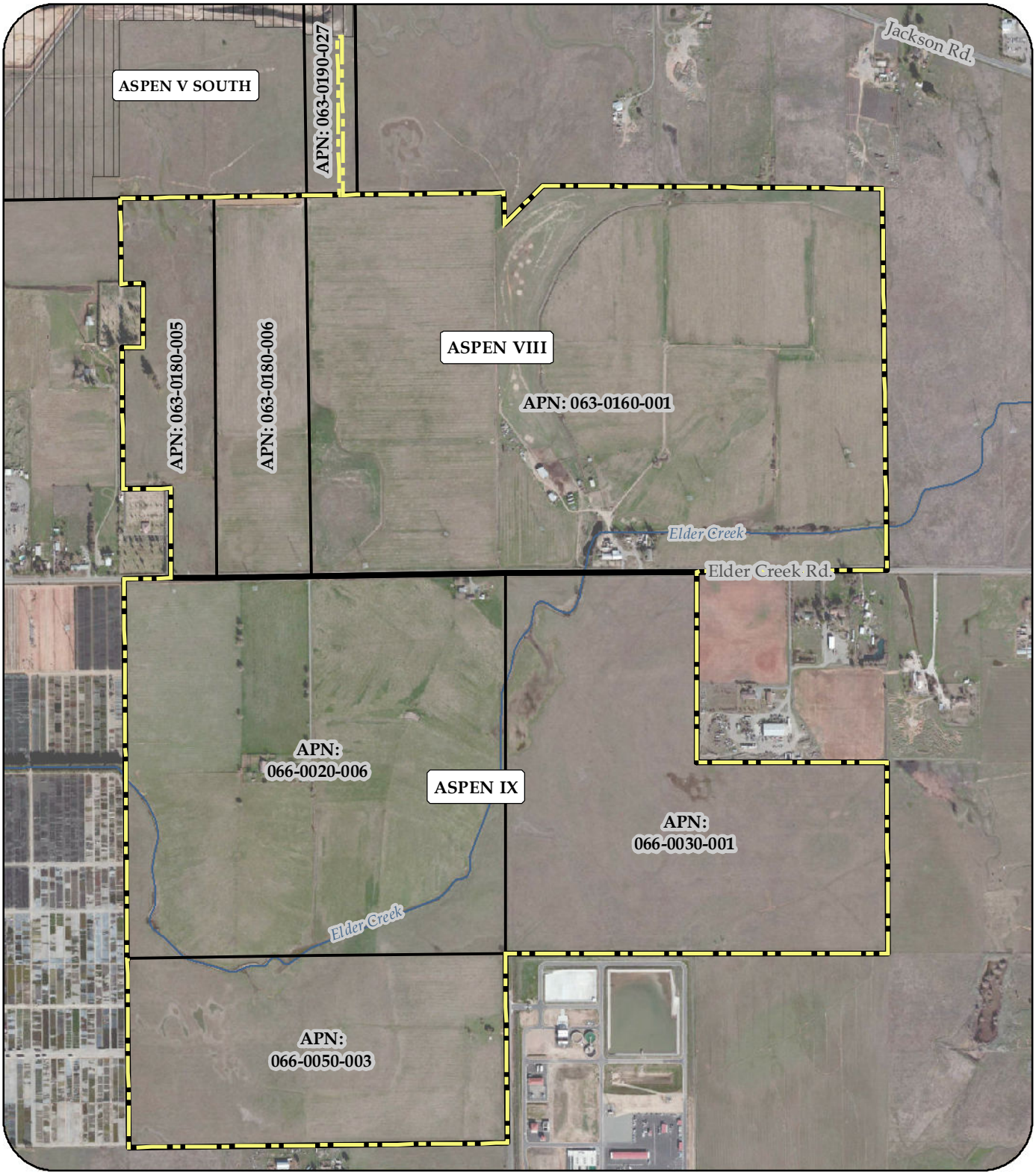
FIGURE 1

SITE VICINITY

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/03/2014 AS8_AS9_RarePlant_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Project Parcel Boundaries
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

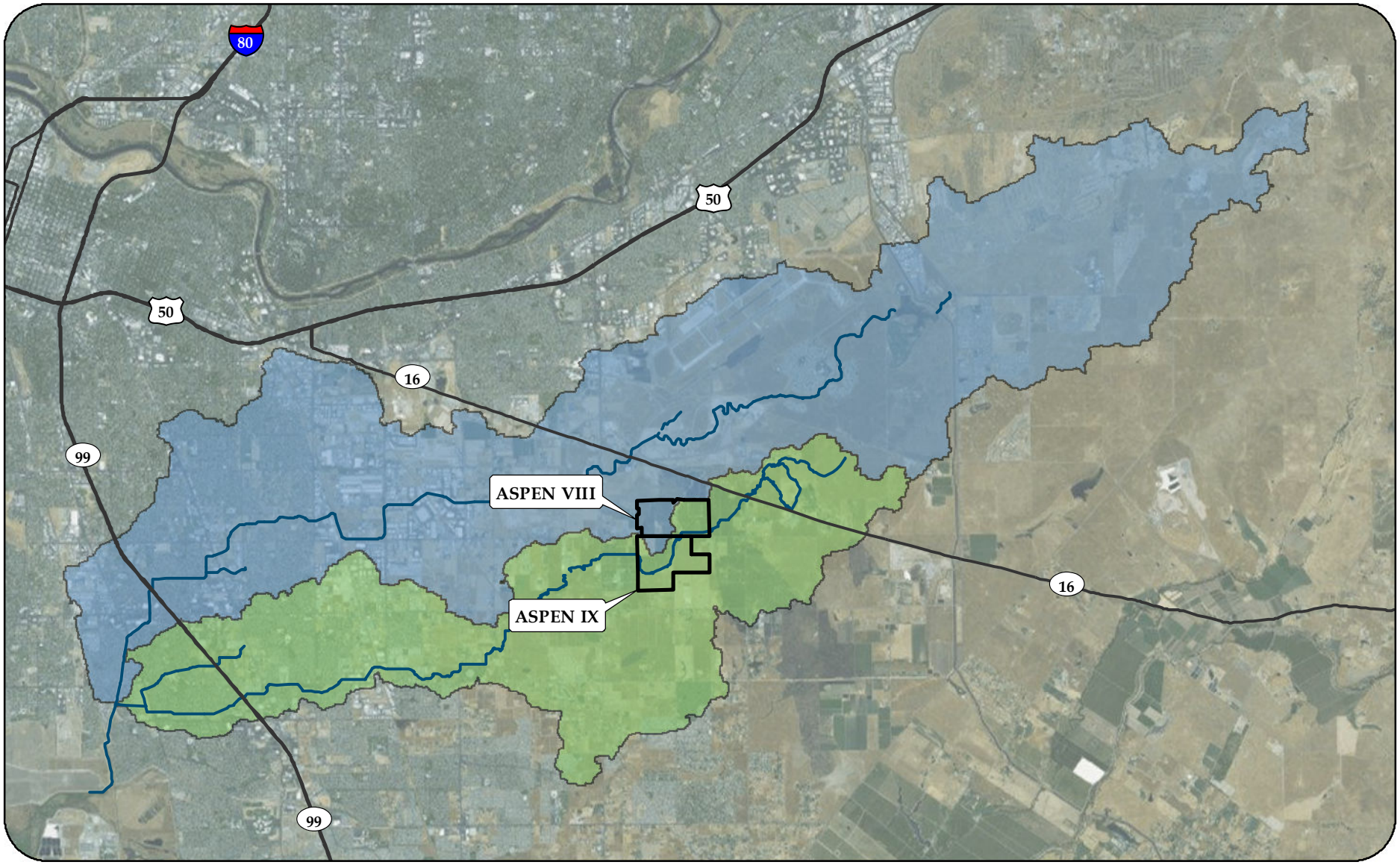
FIGURE 2

PROJECT SITE MAP

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/13/2014 AS8_AS9_RarePlant_Fig2_Site_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek & Elder Creek
- Morrison Creek Watershed
- Elder Creek Watershed
- Aspen VIII & IX Property Boundaries

SOURCE:

- Watersheds Provided by Foothill & Associates (2010)
- Aerial Photography Provided by ESRI Basemaps & Affliates (Feb. 2012)

0 1 2 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 3
MORRISON CREEK/ELDER CREEK WATERSHED MAP
RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

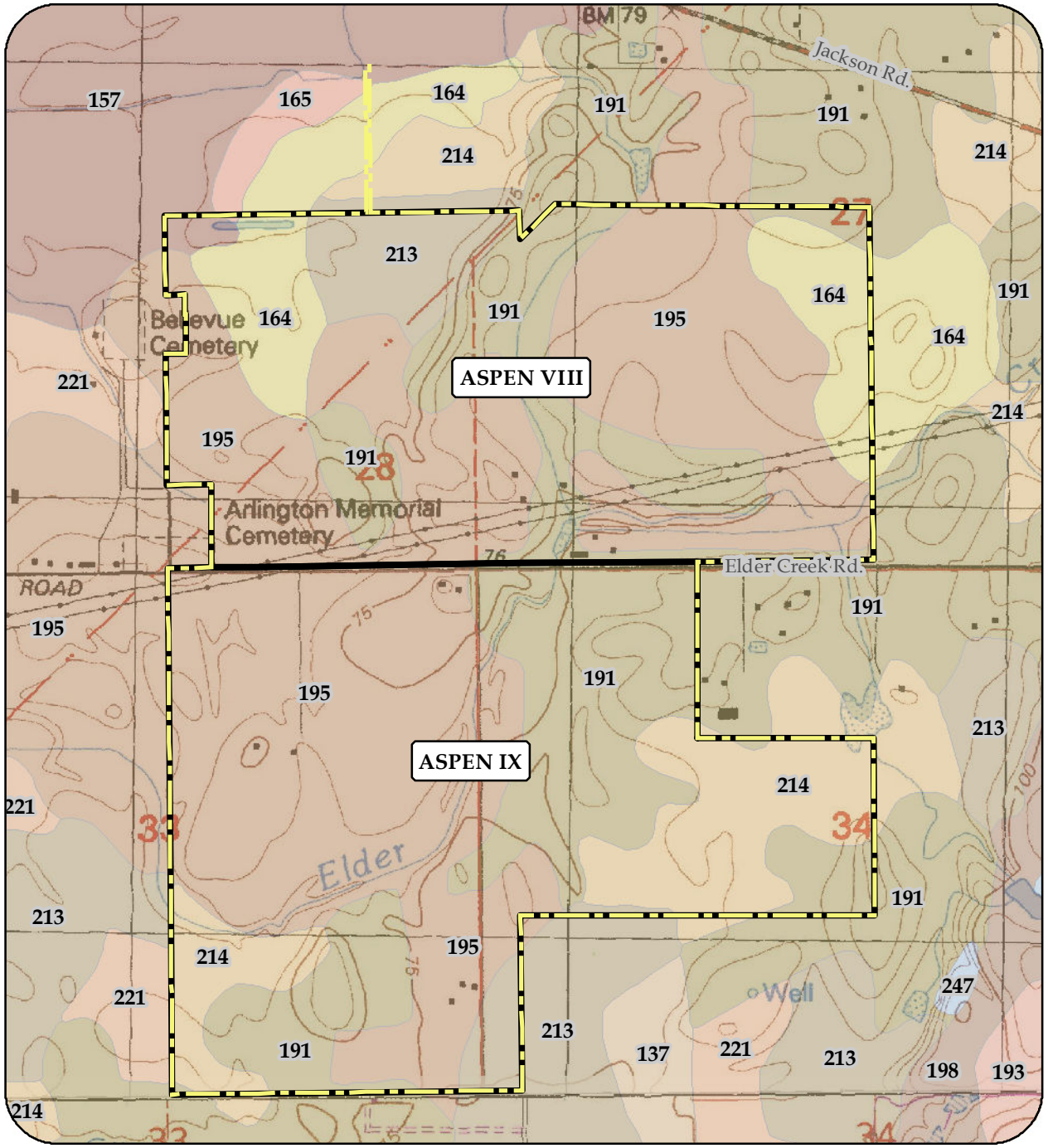
C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig3_Watershed_201410.mxd

FIGURE 4

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA



LEGEND:

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- 137- Durixeralfs, 0 to 1 percent slopes
- 157- Hedge loam, 0 to 2 percent slopes
- 164- Kimball silt loam, 0 to 2 percent slopes
- 165- Kimball silt loam, 2 to 8 percent slopes
- 191- Red Bluff loam, 0 to 2 percent slopes
- 193- Red Bluff-Redding complex, 0 to 5 percent slopes
- 195- Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 198- Redding gravelly loam, 0 to 8 percent slopes
- 214- San Joaquin silt loam, 0 to 3 percent slopes
- 213- San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 221- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes
- 247- Water
- Project Boundary
- Aspen VIII & IX Property Boundaries

0 600 1,200 Feet

SOURCE:

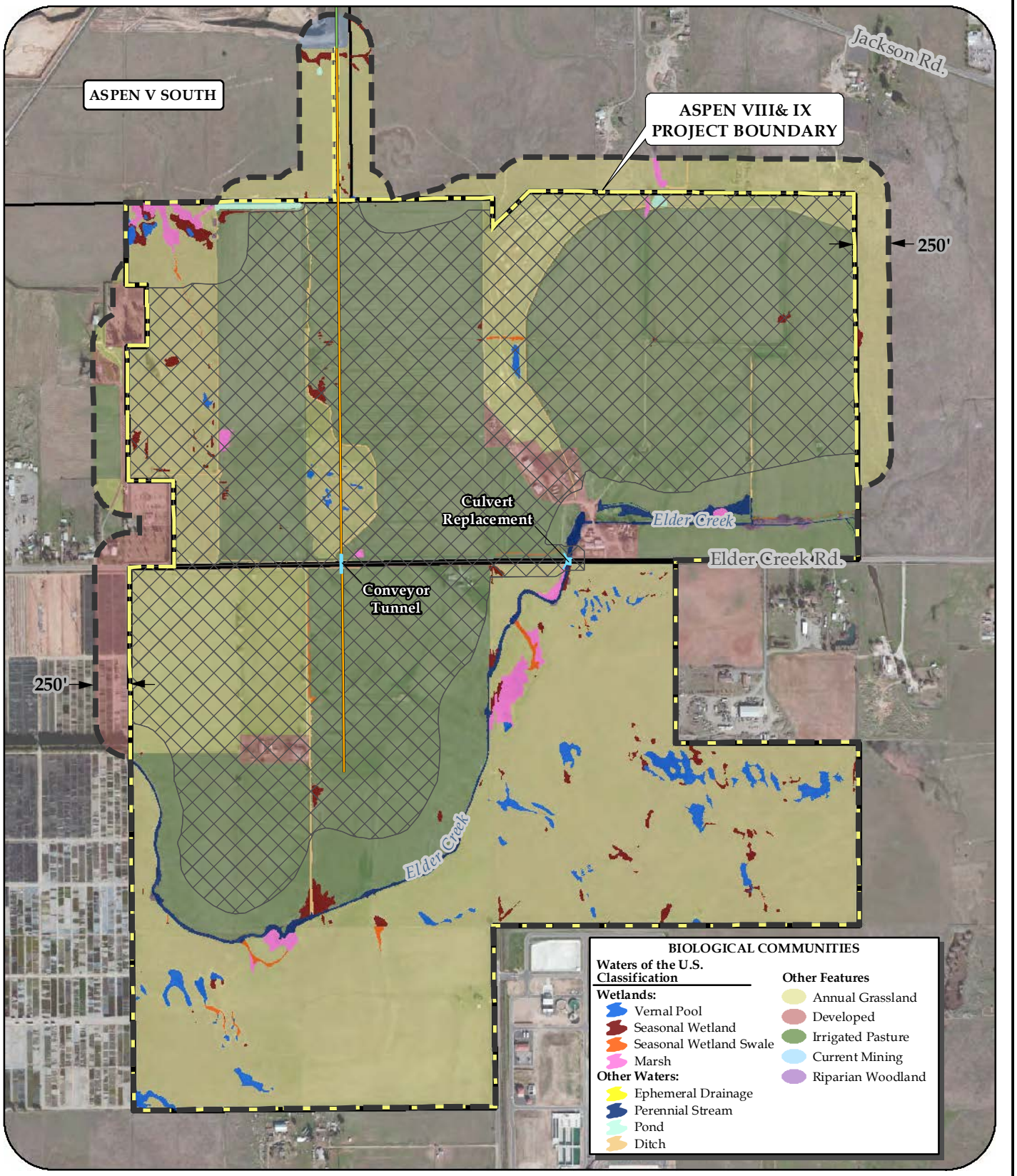
Soil Survey Provided by NRCS (Nov. 26, 2013)
USGS 7.5' Quads: Carmichael & Elk Grove
Property Boundary Provided by RFE Engineering (Mar. 2014)

DISCLAIMER:

The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig4_Soils_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Rare Plant Study Survey Area
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

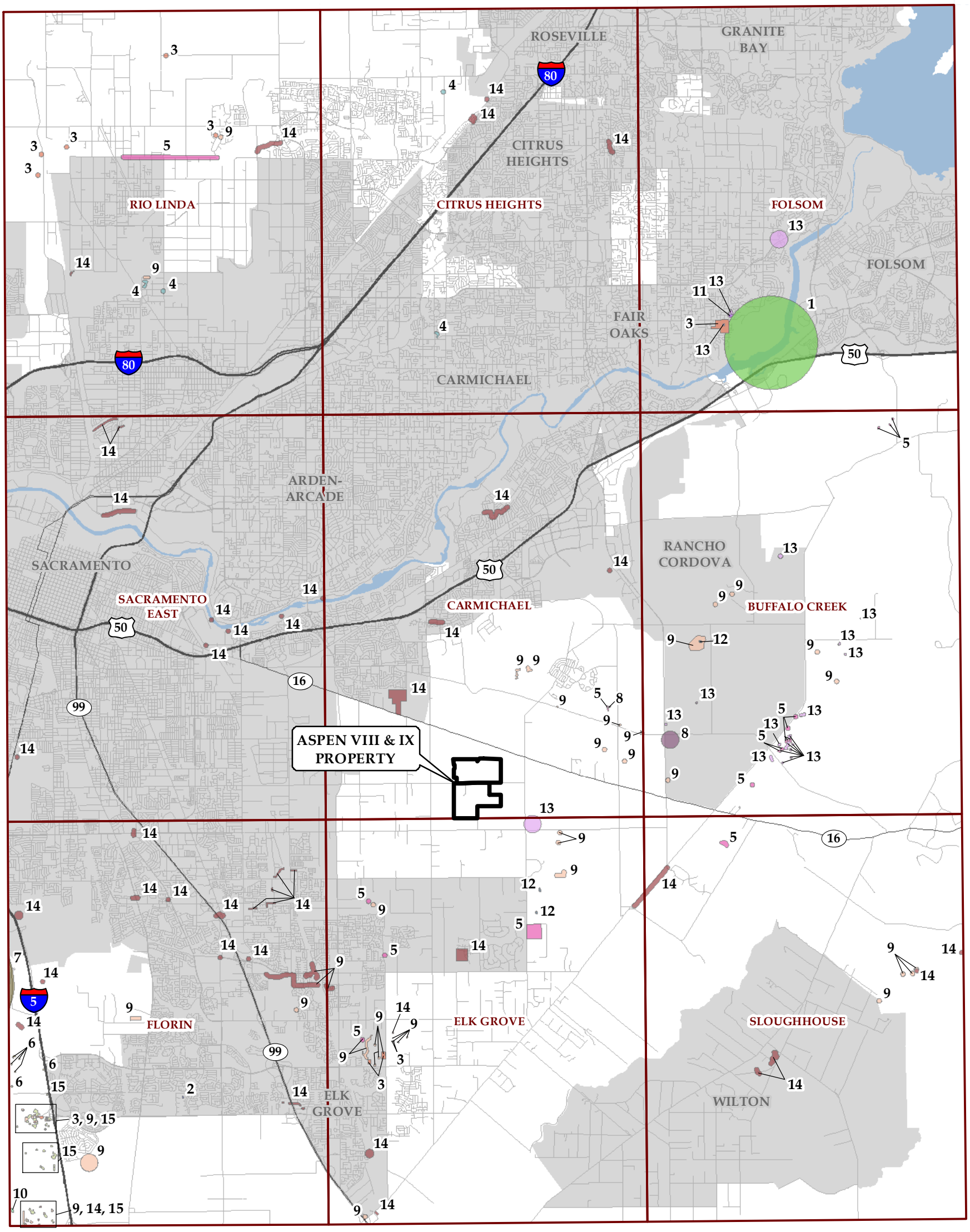
FIGURE 5

HABITATS AND WETLANDS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/16/2015 AS8_AS9_RarePlant_Fig5_Bio_201506.mxd



CNDDB RARE PLANT SPECIES:

1 - Clarkia biloba ssp. brandegeeae
2 - Cuscuta obtusiflora var. glandulosa
3 - Downingia pusilla
4 - Fritillaria agrestis
5 - Gratiola heterosepala
6 - Hibiscus lasiocarpos var. occidentalis
7 - Juglans hindsii
8 - Juncus leiospermus var. ahartii
9 - Legenere limosa
10 - Lepidium latipes var. heckardii
11 - Navarretia myersii ssp. myersii
12 - Orcuttia tenuis
13 - Orcuttia viscida
14 - Sagittaria sanfordii
15 - Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

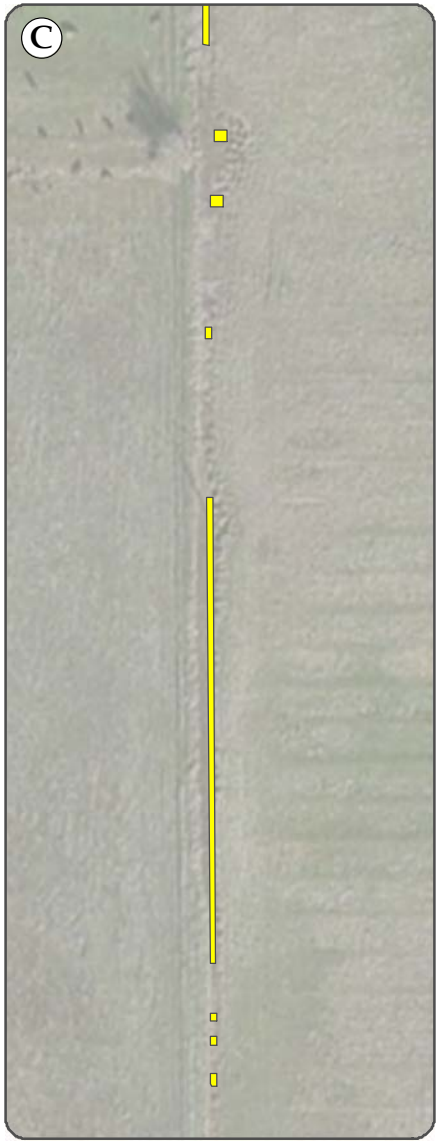
FIGURE 6

CNDDB RARE PLANT LOCATIONS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig6_CNDDB_201410.mxd



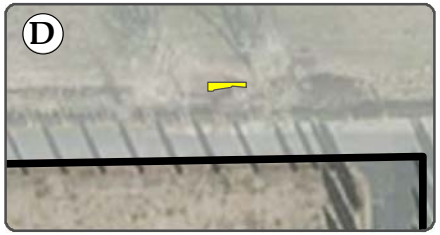


FIGURE 7

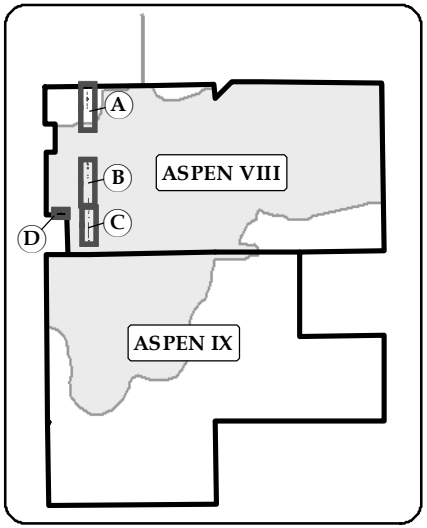
RARE PLANT LOCATIONS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

- Sanford's Arrowhead Observed Locations
- Limits of Disturbance
- Aspen VIII & IX Property Boundaries



0 50 100 Feet

SOURCE:
Aerial Photography Provided by
ESRI Basemaps & Affliates (Feb. 2012)

DISCLAIMER:
The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 6/16/2015 AS8_AS9_RarePlant_Fig7_RarePlantLocs_201506.mxd

APPENDIX A

Teichert – Aspen VIII & IX Rare Plant Survey
Special-Status Plant Species Known or Potentially Known to Occur within the Project Vicinity

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
California androsace *Androsace elongata* ssp. *acuta*	- / - / 4.2	Scattered locations throughout California Elev. 15-2000m.	Annual herb typically on dry grassy slopes in a variety of habitats, including foothill and valley grassland.	March – June	Unlikely/Low Potential
Depauperate milkvetch *Astragalus paupercaulus*	- / - / 4.3	Northeastern Sierra Nevada Foothill from Shasta Co. south to Placer Co. Elev. 150-1200 m.	Annual herb usually found on open, vernally-moist, volcanic clays & grassy flats.	March – June	Unlikely/Low Potential
Ferris' milkvetch *Astragalus tener* var. *ferrisiae*	- / - / 1B.1	Sacramento Valley region from Butte Co. south to Solano Co. Elev. <75 m.	Annual herb of alkaline flats, vernally moist meadows, & fallow rice fields.	April – May	Unlikely/Low Potential
Alkali milkvetch *Astragalus tener* var. *tener*	- / - / 1B.2	Central Valley & San Francisco Bay area from Yolo Co. south to Merced, San Benito & Monterey Cos. Elev. < 60 m.	Annual herb of alkali meadows, vernal pools & playas, edges of salt marshes, & moist grassy flats.	March – June	Unlikely/Low Potential
Heartscale *Atriplex cordulata* var. *cordulata*	- / - / 1B.2	Western Central Valley from Glenn Co. south to Tulare & San Luis Obispo Cos. Elev. < 200 m.	Annual herb of alkali grassland, alkali meadow & alkali scrub. Occasional on margins of alkali pools.	April – Oct.	No Habitat Present
Brittlescale *Atriplex depressa*	- / - / 1B.2	Western Central Valley from Glenn & Butte Cos. South to Kern Co. Elev. < 320 m.	Annual herb occurring on alkali flats, alkali scrub, alkali grassland & playas.	May – Oct.	No Habitat Present
San Joaquin saltbush *Atriplex joaquiniana*	- / - / 1B.2	Western Central Valley & Inner South Coast Range from Glenn Co. south to San Luis Obispo Co. Elev. < 835 m.	Annual herb occurring on alkali flats, alkali scrub, alkali grassland, & playas.	April – Oct.	No Habitat Present
Vernal pool smallscale *Atriplex persistens*	- / - / 1B.2	Central Valley from Glenn Co. south to Tulare Co. Elev. < 115 m.	Annual herb found in the deeper portions of large, alkaline vernal pools.	June – Oct.	No Habitat Present
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	- / - / 1B.1	Scattered locations throughout San Joaquin Valley. Also Solano & Alameda Cos. & near Rocklin in Placer Co. Elev. < 150m.	Annual herb inhabiting saline marshes, alkali flats, & alkali vernal pools.	June – Sept.	No Habitat Present
Palmate bird's-beak *Cordylanthus palmatus*	E / E / 1B.1	Central Valley from Glenn Co. south to Fresno Co. Also Livermore Valley in Alameda Co. Elev. < 150 m.	Annual herb of saline alkali flats, alkali scrub, & alkali grassland.	May – Oct.	No Habitat Present

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
Dwarf downingia *Downingia pusilla*	- / - / 2B.2	Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. < 450 m.	Annual herb of vernal pools & swales, ephemeral drainages, & margins of other seasonal wetlands.	March – May	Moderate Potential
Tuolumne button-celery *Eryngium pinnatisectum*	- / - / 1B.2	North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	Annual to perennial herb occurring in swales, vernal pools, moist flats, & ephemeral drainages.	May – August	Unlikely/Low Potential
Boggs Lake hedge-hyssop *Gratiola heterosepala*	- / E / 1B.2	Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	Annual herb found along marshy lake margins, cattle ponds, & in vernal pools.	April – Aug.	Moderate Potential
Hogwallow starfish *Hesperevax caulescens*	- / - / 4.2	Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Diego Co. Elev. < 500 m.	Annual herb occupying vernal pools, vernal swales, & heavy clay soils.	March – June	Moderate Potential
Rose mallow *Hibiscus lasiocarpos* var. *occidentalis*	- / - / 1B.2	Sacramento Valley and the northern part of San Joaquin Valley. Most records are from the Sacramento River/Delta waterways. Elev. < 120m.	Perennial herb growing on the margins of freshwater marshes, wet riverbanks, and peat islands in sloughs.	June – Sept	Unlikely/Low Potential
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	- / - / 1B.2	Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	Annual herb found in vernal pool, swales & ephemeral drainages.	March – May	Moderate Potential
Legenere *Legenere limosa*	- / - / 1B.1	Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	Annual herb of vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds.	April – June	Moderate Potential
Heckard's peppergrass *Lepidium latipes* var. *heckardii*	- / - / 1B.2	Western Sacramento Valley from Glenn Co. south to Solano Co. Elev. < 200 m.	Annual herb occurring on alkali flats and alkali grassland near the margins of vernal pools.	March – May	No Habitat Present
Hoary navarretia *Navarretia eriocephala*	- / - / 4.3	Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	Annual herb of seasonally wet flats, usually in heavy soil.	May – June	Unlikely/Low Potential

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
Tehama navarretia *Navarretia heterandra*	- / - / 4.3	Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	Annual herb typically growing heavy soils, vernal pools, & drying flats.	April – June	Unlikely/Low Potential
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	- / - / 1B.1	Western Sacramento Valley & northern Inland Coast Range from Glenn & Mendocino Cos. to Solano Co. Elev. < 1700 m.	Annual herb growing in vernal pools and ephemeral drainages.	April – July	Unlikely/Low Potential
Myer's pincushion navarretia *Navarretia myersii* ssp. *myersii*	- / - / 1B.1	Eastern Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	Annual herb found in vernal pools, usually with acidic soils.	April – May	Moderate Potential
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	- / - / 4.2	Scattered locations from the Sierra Nevada Foothills, Central Valley & Inner South Coast Ranges. Elev. 100-1000 m.	Annual herb occurring in vernal pools & vernally moist swales.	April – June	Unlikely/Low Potential
Slender orcutt grass *Orcuttia tenuis*	T / E / 1B.1	Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev. 30-1700 m.	Annual grass generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils.	May – Oct	Moderate Potential
Sacramento orcutt grass *Orcuttia viscida*	E / E / 1B.1	Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	Annual grass generally found in larger, deeper vernal pools.	April – Sept	Moderate Potential
Sanford's arrowhead *Sagittaria sanfordii*	- / - / 1B.2	Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	Perennial herb occurring along the margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals.	May - Aug	Present/High Potential
Saline clover *Trifolium depauperatum* var. *hydrophilum*	- / - / 1B.2	Central Western California (Sonoma Co. to San Luis Obispo Co.) & southwestern Sacramento Valley. Elev. < 300 m.	Annual herb of salt marshes, alkali meadows, & vernal pools.	April – June	Unlikely/Low Potential

APPENDIX B

Teichert – Aspen VIII & IX Rare Plant Survey
Species Accounts

Dwarf Downingia

Downingia pusilla

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 2B.2

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Dwarf downingia is an inconspicuous, annual member of the Bellflower family (Campanulaceae). Depending on location, plants are quite variable, with some growing as small-stature plants less than 3 centimeters tall and others producing sprawling stems up to 15 centimeters long. Floral characteristics are the most distinguishing features separating this rare species from other, more common downingia species. Unlike other species in the genus, dwarf downingia flowers are tiny (2.5 to 4 millimeters) and lack the strong bilateral symmetry characteristic of other *Downingia* flowers. Dwarf downingia flowers are creamy white to occasionally pale blue, with two small yellow spots near the throat. Flowering typically occurs from March through May. Like most *Downingia* species, it is almost impossible to identify to species without flowers.

This species is largely restricted to wetlands with a strict endemic of the vernal pool hydrologic cycle. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively 'flashy' hydrology (CNDDB 2014). The species will also frequently occupy ephemeral drainages and swales and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes (Baba pers. obs.). Dwarf downingia does not appear to be associated with any specific landforms or soil associations.

Dwarf downingia is documented from 127 occurrences in California's vernal wetlands, generally below 150 meters elevation (CNDDB 2014). In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern Sacramento Valley. Dwarf downingia, like some other members of the annual vernal pool flora, is also known from disjunct localities in Chile.

The nearest known occurrence of dwarf downingia is approximately 4.9 miles south-southwest from the site (CNDDB Occurrence No. 54) (CNDDB 2014). This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is till presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Dwarf downingia could be expected to occur at the site.

Boggs Lake Hedge-Hyssop

Gratiola heterosepala

© 2012 Barry Baba

Federal Listing Status: None
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.2

Boggs Lake hedge-hyssop is diminutive annual of the Plantain family (Plantaginaceae). This species grows erect with stems reaching 2 to 10 centimeters in height. The stems produce small, opposite leaves about 1 to 2 centimeters long, with the lower ones tending to be longer and leaner than the shorter and wider ones above. The upper leaves are also notably blunt at their tips. One to several tubular flowers are produced at the tips of stem, which are glandular puberulent. The flowers are pale yellow to white and only about 6 to 8 millimeters long. Blooming usually occurs in spring between April and June, depending on the specific location. This species is distinguished from the relatively common bractless hedge-hyssop (*Gratiola ebracteata*) by its more truncate leaves and yellow flowers. Boggs Lake hedge-hyssop also has shorter, unequal sepals that are fused at the base (Baldwin et. al. 2012).

Boggs Lake hedge hyssop is found in a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. This species has been reported to grown in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower. Associated species indicative of these longer inundated pools include hairy pepperwort (*Marsilia vestita*), quillwort (I*soetes* spp.), downingia (*Downingia* spp.), smooth goldfields (*Lasthenia glaberrima*), elatine (*Elatine* spp.), coyote thistle (*Eryngium castrense* and E. *vaseyi*), and bractless hedge-hyssop.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau.

The nearest known location of Boggs Lake hedge hyssop is approximately 2.5 miles of northwest of the site, at Mather Field (CNDDB Occurrence No. 84) (CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes ponds at the site are considered potential habitat for the species. Considering its wide distribution and relatively close proximity of nearby populations, Boggs Lake hedge hyssop could be expected to occur within the Project site.

Ahart's Dwarf Rush

Juncus leiospermus var*. ahartii*

© 2012 Barry Baba

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.2

Ahart's dwarf rush is an inconspicuous annual member of the Rush family (Juncaceae). Ahart's dwarf rush is a green to reddish grass-like plant reaching 2 to 10 centimeters tall. Each plant may produces one to several, erect, thread-like stems from a basal cluster of grass-like leaves. Each stem produces a single, tiny flower at the tip. The flowers are small (less than 0.5 centimeters) and consist of 6 to 10 dark brown, pointed scales, three stamens, and an ovary with a long three-branched style. Flowering generally occurs from late-March through May. Other small, common annual rushes that may co-exist with Ahart's dwarf rush include toad rush (*Juncus bufonius*), leafy-bracted rush (*Juncus capitatus*), and inch-high rush (*Juncus uncialis*). Ahart's dwarf rush is most easily distinguished from the others by its comparatively long style (very short in inch-high rush), simple stem (branched in toad rush), single terminal flower (axillary in toad rush and clustered at tip in leafy-bracted rush) and relatively short inflorescence bract (much longer in leafy-bracted rush).

Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to by restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions are more "flashy." In addition, this species is also known to occur on gopher mounds along the margins of these wetlands (CDFG 2014).

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 30 to 90 meters (CDFG 2014). Most occurrences are from Butte and Sacramento County.

The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast of the site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in in shallow vernal pools and along vernal swales and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site.

Legenere

Legenere limosa

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.1

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Legenere is an inconspicuous, annual member of the Bellflower family (Campanulaceae). This plant grows with sprawling stems that reach 10 to 30 centimeters in length. Its slender stems, which are produced underwater, often form roots along the lower nodes and eventually rise out of water or are left growing entangled within a mass of other vegetation. Due to its cryptic, delicate stature, the plant is notoriously overlooked and difficult to detect. Probably the most distinguishing feature of this plant is its cylindrical fruit capsule (about ½ to 1 centimeter long) that is present at the end of each elongated flower stalk, which may be as long as 3 centimeters. Most plants do not have any petals and are generally observed with just their narrowly, triangular-shaped sepals at the tip of each fruit capsule. Sometimes, however, tiny flowers are present and resemble other flowers in its family. If present, the flowers are white with a greenish-yellow center and are fused into a bilaterally symmetrical lobed corolla about 3 to 4 millimeters long. Flowering typically occurs from April to June.

Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*).

This species' range includes the northern Central Valley from Shasta to San Joaquin Counties and the Inland Coast Range from Lake to Santa Clara County. Populations are reported 78 occurrences, ranging in elevation from less than 950 meters. (CNDDB 2014) The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties (Holland 1983; Platenkamp 1998; CNDDB 2014).

The nearest known occurrence of Legenere is approximately 1.4 miles south of the site (CNDDB Occurrence No. 29) (CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the Project site.

Pincushion Navarretia

Navarretia myersii subsp. *myersii*

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.1

Pincushion navarretia is an annual member of the Phlox family (Polemoniaceae). This plant has a distinctive characteristic in that it grows very prostrate, often appearing almost mat-like without stems. Although present, stems are typically less than 2 centimeters long. It produces long, thread-like leaves (4 to 8 centimeters) that radiate from the base of the inflorescence. The inflorescence is a cluster of numerous white, sessile, tubular flowers, each about 1 to 2 centimeters long. The species is may be seen flowering from mid-April through May (Dittes and Guardino 2001, CNPS 2014). Pincushion navarretia is most readily distinguished from the more common white-headed navarretia (*Navarretia leucocephala* subsp. *leucocephala*) by its low-growing stems and longer, tubular flowers.

Pincusion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils (CNPS 2014). Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations (Dittes and Guardino 2001). Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may be more 'flashy.' Associated species in these shallower pools or margins include annual hairgrass (*Deschampsia danthonioides*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool popcornflower (*Plagiobothrys stipitatus*), coyote thistle (*Eryngium* spp.), wooly marbles (*Psilocarphus* spp.), and Sacramento Valley pogogyne (*Pogogyne zizyphoroides*).

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 20 and 330 meters elevation (CNPS 2014). A more rare subspecies, small pincushion navarretia (*Navarretia myersii* supbsp. *deminuta*), is also known from the Coast Range in Lake County.

The nearest known location of this species is approximately 10.6 miles northeast of the site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3) (CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within the Project site.

Slender Orcutt Grass

Orcuttia tenuis

Federal Listing Status: Threatened
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.1

Slender Orcutt grass is an annual member of the distincitive Orcuttieae Tribe in the grass family (Poaceae). This plant grows loosely tufted with slender, erect stems reaching approximately 5 to 15 centimeters. The leaves grow to be about 1.5 to 2 millimeters wide and may appear bluish-green in color. The stems are sparsely hairy and covered with droplets of a sticky, highly aromatic exudate. This feature is common in other members of the Orcutt grasses. Individual spikelets of slender Orcutt grass are evenly spaced along the inflorescence axis, which comprises more than half the plant's height. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses. Other distinguishing characteristics are its equally five-toothed lemmas and stems that are frequently branching from its upper nodes. This species is also less hairy than most other Orcutt grasses.

Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic orgin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range (CNDDB 2014). The lowest reported elevation is 27 meters in Sacramento County and the highest is 1,756 meters in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region.

The nearest documented occurrence of Slender Orcutt grass is approximately 2 south of the site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek (CNDDB 2014). The population is till presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX.

Sacramento Orcutt Grass

Orcuttia viscida

© 2012 Barry Baba

Federal Listing Status: Endangered
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.1

Sacramento Orcutt grass is an annual member of the unique Orcuttieae Tribe in the grass family (Poaceae). As with other members of the tribe, Sacramento Orcutt grass is a relatively small-stature, densely tufted plant that grows 3 to 10 centimeters tall. This species appears almost bluish-green and is covered in dense, sticky hairs. As with the majority of the Orcuttieae grasses, this species produces aromatic resinous exudates at majority. Flowering typically occurs in May and June. Although the plant resembles other members of its tribe, Sacramento Orcutt grass is distinguished from the other species by its relatively long and unequal lemma teeth.

Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grown in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses.

Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences, most of which are still presumed extant (CNDDB 2014). The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south.

The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the site (CNDDB Occurrence No. 20); however, this population is presumed extirpated (CNDDB 2014). This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery (CNDDB 2014). The nearest possible extant location is approximately 3.6 miles northeast of the site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard (CNDDB 2014). The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX.

Sanford's Arrowhead

Sagittaria sandfordii

© 2014 Barry Baba

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.2

Sanford's arrowhead is an aquatic perennial member in the water-plantain family (Alismataceae). This emergent plant possesses linear to narrowly ovate leaves and typically grows 15 to 30 centimeters tall. Plants often grow densely and spread by underground rhizomes, which produce small spherical tubers at their tips. Separate male and female flowers are produced in three-whorled clusters, with the female clusters located basally. Relatively conspicuous, white petals (0.5 to 1 centimeter) are produced from May through August. The pedicels are also recurved rather than straight when in fruit (Baldwin et. al. 2012). Sanford's arrowhead is distinguished from its close relatives in that it does not possess sagittate (arrowhead-shaped) leaves.

Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Most populations appear to have established by seeds, with existing colonies spreading mainly from rhizomes and tubers.

This species occupies a variety of freshwater marsh habitats and is widely distributed throughout the Central Valley between 0 and 650 meters. Sanford's arrowhead documented from 93 occurrences and is presently known from Shasta to Kern Counties, with the majority of records occurring in Sacramento County (CNDDB 2014). A disjunct population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura Counties).

The nearest known occurrence of Sanford's arrowhead is approximately 1.8 miles northwest of the site (CNDDB Occurrence No. 25) (CNDDB 2014). These populations occur in two ponds at the Cordova Golf Course, just north of Jackson Road (Highway 16), and are still presumed extant. Existing ponds, irrigations ditches, marshes, and portions of Elder Creek are considered potential habitats for the species. Considering the close proximity of nearby populations and wide geographical range, Sanford's arrowhead could be expected to occur at the site.

APPENDIX C

Teichert – Aspen VIII & IX Rare Plant Survey
Flora Inventory

PERKINS – ASPEN VIII & IX
SACRAMENTO COUNTY

Flora Inventory
Spring/Summer 2013-14

LYCOPHYTES

ISOETACEAE (QUILLWORT FAMILY)

Isoetes orcuttii	Orcutt's quillwort

FERNS

AZOLLACEAE (MOSQUITO FERN FAMILY)

Azolla filiculoides	Water fern, Mosquito fern

MARSILEACEAE (MARSILEA FAMILY)

Marsilea vestita subsp. *vestita*	Hairy water-clover, Hairy pepperwort
Pilularia americana	American pillwort

GYMNOSPERMS

CUPRESSACEAE (CYPRESS)

*Calocedrus decurrens***	Incense cedar
*Sequoia semperivirens***	Redwood

PINACEAE (PINE FAMILY)

Pinus sp.**	Pine

MAGNOLIDS

LAURACEAE (LAUREL FAMILY)

*Cinnamomum camphora***	Camphor tree

ANGIOSPERMS, EUDICOTS

AMARANTHACEAE (AMARANTH FAMILY)

*Amaranthus albus**	Tumbleweed
*Amaranthus blitoides**	Procumbent pigweed
*Amaranthus retroflexus**	Redroot pigweed

ANACARDIACEAE (SUMAC OR CASHEW FAMILY)

*Pistacia atlantica**	Mt. Atlas mastic tree
Toxicodendron diversilobum	Western poison oak

APIACEAE (CARROT FAMILY)

*Conium maculatum**	Poison hemlock-thistle

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

Eryngium castrense	Great Valley coyote thistle

APOCYNACEAE (DOGBANE FAMILY)

Asclepias eriocarpa	Kotolo
Asclepias fascicularis	Narrow-leaf milkweed

ASTERACEAE (SUNFLOWER FAMILY)

*Anthemis cotula**	Dog-fennel
Carduus pycnocephalus subsp. *pycnocephalus**	Italian thistle
*Centaurea calcitrapa**	Purple star-thistle
*Centaurea solstitialis**	Yellow star-thistle
Centromadia fitchii	Fitch's spikeweed
*Cichorium intybus**	Chicory
*Cirsium vulgare**	Bull thistle
*Cotula coronopifolia**	Brass-buttons
*Dittrichia graveolens**	Stinkwort
Erigeron sp.	Horseweed
Gnaphalium palustre	Western marsh cudweed
*Helminthotheca echioides**	Bristly ox-tongue
Heterotheca grandiflora	Telegraph weed
Holocarpha virgata subsp. *virgata*	Sticky tarweed
*Hypochaeris glabra**	Smooth cat's-ear
*Lactuca serriola**	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
Lasthenia fremontii	Fremont's goldfields
Leontodon saxatilis subsp. *longirostris**	Common hawkbit
*Logfia gallica**	Daggerleaf cottonweed
Micropus californicus var. *californicus*	Cottontop
*Matricaria discoidea**	Pineapple weed
*Pseudognaphalium luteoalbum**	Common cudweed
Psilocarphus brevissimus var. *brevissimus*	Dwarf woolly-marbles
Psilocarphus tenellus	Slender woolly-marbles
*Senecio vulgaris**	Common groundsel
*Silybum marianum**	Milk thistle
*Soliva sessilis**	Common soliva, Field burrweed
Sonchus asper subsp. *asper**	Prickly sow thistle
*Sonchus oleraceus**	Common sow thistle
Wyethia angustifolia	Narrow-leaved mule's ear
*Xanthium spinosum**	Spiny cocklebur
Xanthium strumarium	Cocklebur

BETULACEAE (BIRCH FAMILY)

*Betula pendula***	European white birch

BIGNONIACEAE (TRUMPET-CREEPER FAMILY)

*Catalpa bignonioides***	Catalpa

BORAGINACEAE (BORAGE FAMILY)

Amsinckia intermedia	Common fiddleneck
Amsinckia menziesii	Small-flowered fiddleneck
Plagiobothrys greenei	Greene's popcornflower
Plagiobothrys stipitatus var. *micranthus*	Common vernal pool popcornflower

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** Ornamental, planted as landscape tree/shrub

BRASSICACEAE (MUSTARD FAMILY)

*Brassica rapa**	Field mustard, Turnip
*Capsella bursa-pastoris**	Shepherd's purse
Cardamine oligosperma	Western bittercress
*Hirschfeldia incana**	Perennial mustard
Lepidium nitidum	Shining peppergrass
Lepidium strictum	Prostrate peppergrass
*Raphanus raphanistrum**	Jointed charlock
*Raphanus sativus**	Radish
Rorippa curvisiliqua	Western yellow cress, Curvepod yellow cress
Rorippa palustris	Bog yellow cress
*Sisymbrium officinale**	Hedge mustard

CAMPANULACEAE (BELLFLOWER FAMILY)

Downingia bicornuta var. *picta*	Doublehorn downingia
Downingia ornatissima var. *ornatissima*	Folded downingia

CANNABACEAE (HEMP FAMILY)

*Celtis sinensis***	Chinese hackberry

CARYOPHYLLACEAE (PINK FAMILY)

*Cerastium glomeratum**	Sticky mouse-ear chickweed
*Petrorhagia dubia**	Hairy pink
*Silene gallica**	Small-flower catchfly, Windmill pink
*Spergula arvensis**	Stickwort, Starwort
*Spergularia bocconi**	Boccone's sand-spurrey
*Spergularia rubra**	Red sand-spurrey
*Stellaria media**	Common chickweed

CHENOPODIACEAE (GOOSEFOOT FAMILY)

*Chenopodium album**	Lamb's quarters
*Chenopodium murale**	Nettleleaf goosefoot
*Salsola tragus**	Russian thistle, Tumbleweed

CONVOLVULACEAE (MORNING-GLORY FAMILY)

*Convolvulus arvensis**	Bindweed
Cuscuta howelliana	Vernal pool dodder

CRASSULACEAE (STONECROP FAMILY)

Crassula aquatica	Water pygmy-weed
*Crassula tillaea**	Moss pygmy-weed, Mediterranean pygmy-weed

ELATINACEAE (WATERWORT FAMILY)

Elatine brachysperma	Shortseed waterwort

EUPHORBIACEAE (SPURGE FAMILY)

Croton setigerus	Turkey-mullein, Doveweed

FABACEAE (LEGUME FAMILY)

Acacia sp.**	*Acacia*
Acmispon americanus var. *americanus*	Spanish clover
*Lotus corniculatus**	Bird's-foot trefoil

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** Ornamental, planted as landscape tree/shrub

Lupinus bicolor	Miniature lupine
*Medicago polymorpha**	Common burclover
*Melilotus indicus**	Sourclover
Trifolium depauperatum var. *depauperatum*	Dwarf sack clover
*Trifolium dubium**	Shamrock
*Trifolium glomeratum**	Clustered clover
Trifolium gracilentum	Pinpoint clover
*Trifolium campestre**	Hop clover
*Trifolium hirtum**	Rose clover
Trifolium microcephalum	Small-head clover
*Trifolium repens**	White clover
Trifolium variegatum var. *variegatum*	Variegated clover, White-tipped clover
Vicia sativa subsp. *nigra**	Smaller spring vetch
Vicia sativa subsp. *sativa**	Spring vetch
Vicia villosa var. *varia**	Winter vetch

FAGACEAE (OAK FAMILY)

Quercus lobata	Valley oak
Quercus wislizenii var. *wislizenii*	Interior live oak

GENTIANACEAE (GENTIAN FAMILY)

*Centaurium tenuiflorum**	Slender centaury
Cicendia quadrangularis	Timwort

GERANIACEAE (GERANIUM FAMILY)

*Erodium botrys**	Longbeak filaree, Broadleaf filaree
*Erodium brachycarpum**	Short-fruit filaree, Whitestem filaree
*Erodium cicutarium**	Redstem filaree
*Erodium moschatum**	Greenstem filaree
*Geranium dissectum**	Cut-leaved geranium
*Geranium molle**	Dove's-foot geranium

HYPERICACEAE (ST. JOHN'S WORT FAMILY)

Hypericum perforatum subsp. *perforatum**	Klamathweed

JUGLANDACEAE (WALNUT FAMILY)

Juglans hindsii	Northern California black walnut

LAMIACEAE (MINT FAMILY)

Lycopus americanus	American bugleweed
*Marrubium vulgare**	Horehound
*Mentha pulegium**	Pennyroyal
Pogogyne zizyphoroides	Sacramento mesa mint
Trichostema lanceolatum	Vinegar weed

LIMNANTHACEAE (MEADOWFOAM FAMILY)

Limnanthes douglasii ssp. *rosea*	Rosy Douglas' meadowfoam

LINACEAE (FLAX FAMILY)

*Linum bienne**	Pale flax

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** Ornamental, planted as landscape tree/shrub

LYTHRACEAE (LOOSESTRIFE FAMILY)

*Lagerstroemia indica***	Crape myrtle
*Lythrum hyssopifolia**	Hyssop loosestrife
*Lythrum portula**	Spatulaleaf loosestrife

MAGNOLIACEAE (MAGNOLIA FAMILY)

Magnolia sp.***	

MALVACEAE (MALLOW FAMILY)

*Malva nicaeensis**	Bull mallow
*Malva parviflora**	Cheeseweed

MONTIACEAE (MINER'S LETTUCE FAMILY)

Calandrinia ciliata	Red maids
Claytonia perfoliata subsp. *perfoliata*	Miner's lettuce
Montia fontana	Water chickweed, Blinks

MORACEAE (MULBERRY FAMILY)

*Ficus carica**	Edible fig
*Morus alba***	White mulberry

MYRSINACEAE (MYRSINE FAMILY)

*Anagallis arvensis**	Scarlet pimpernel

MYRTACEAE (MYRTLE FAMILY)

*Eucalyptus camaldulensis***	Red gum

OLEACEAE (OLIVE FAMILY)

Fraxinus 'Modesto'***	Modesto ash
Ligustrum sp.***	Privet
*Olea europaea***	Olive

ONAGRACEAE (EVENING PRIMROSE FAMILY)

Epilobium brachycarpum	Annual willowherb
Epilobium campestre	Smooth willowherb
Epilobium ciliatum ssp. *ciliatum*	Fringed willowherb, Northern willowherb
Epilobium torreyi	Torrey's willowherb
Ludwigia peploides subsp. *peploides**	Creeping water primrose

OROBANCHACEAE (BROOMRAPE FAMILY)

Castilleja attenuata	Valley tassels
Castilleja exserta subsp. *exserta*	Purple owl's-clover
*Parentucellia viscosa**	Yellow glandweed
Triphysaria eriantha subsp. *eriantha*	Butter-and-eggs, Johnny-tuck
Triphysaria pusilla	Dwarf owl's-clover
Triphysaria versicolor subsp. *faucibarbata*	Yellow owl's-clover

OXALIDACEAE (OXALIS FAMILY)

Oxalis pes-caprae	Bermuda buttercup

PAPAVERACEAE (POPPY FAMILY)

Eschscholzia californica	California poppy

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** Ornamental, planted as landscape tree/shrub

PHRYMACEAE (LOPSEED FAMILY)

Mimulus guttatus	Common yellow monkeyflower
Mimulus tricolor	Tricolor monkeyflower

PLANTAGINACEAE (PLANTAIN FAMILY)

Callitriche heterophylla var. *heterophylla*	Varied leaved water starwort
Callitriche marginata	Winged water starwort
*Plantago lanceolata**	English plantain
*Veronica anagallis-aquatica**	Water speedwell
*Veronica persica**	Persian speedwell
Veronica peregrina subsp. *xalapensis*	Purslane speedwell

PLATANACEAE (PLANE-TREE FAMILY)

Platanus x. *acerifolia***	London plane-tree

POLEMONIACEAE (PHLOX FAMILY)

Navarretia leucocephala ssp. *leucocephala*	White-flowered navarretia

POLYGONACEAE (BUCKWHEAT FAMILY)

Polygonum aviculare subsp. *depressum**	Common knotweed
*Persicaria hydropiper**	Waterpepper
Persicaria lapathifolia	Willow weed
*Persicaria maculosa**	Lady's thumb
Persicaria punctata	Dotted smartweed
*Rumex acetosella**	Sheep sorrel
*Rumex conglomeratus**	Clustered dock
*Rumex crispus**	Curly dock
*Rumex pulcher**	Fiddle dock

RANUNCULACEAE (BUTTERCUP FAMILY)

Ranunculus aquatilus var. *hispidulus*	Fern-leaf water buttercup
Ranunculus bonariensis var. *trisepalus*	Vernal pool buttercup
*Ranunculus muricatus**	Spiny-fruit buttercup
Ranunculus sceleratus var. *sceleratus**	Cursed buttercup

ROSACEAE (ROSE FAMILY)

Malus sp.**	Apple
Prunus sp.**	Fruit tree
Pyrus sp.**	Pear
Rosa californica	California wild rose
*Rosa eglanteria**	Sweet-brier
*Rubus armeniacus**	Himalayan blackberry

RUBIACEAE (MADDER FAMILY)

Galium aparine	Goose grass
*Galium parisiense**	Wall bedstraw

RUTACEAE (CITRUS FAMILY)

Citrus sp.**	Citrus

SALICACEAE (WILLOW FAMILY)

Populus fremontii subsp. *fremontii*	Fremont cottonwood

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

*Salix babylonica***	Weeping willow
Salix gooddingii	Goodding's black willow

SAPINDACEAE (SOAPBERRY FAMILY)

*Acer saccharinum***	Silver maple

SCROPHULARIACEAE (FIGWORT FAMILY)

Limosella acaulis	Owyhee mudwort

SOLANACEAE (NIGHTSHADE FAMILY)

Solanum americanum	White nightshade

ULMACEAE (ELM FAMILY)

*Ulmus americana***	American elm

VERBENACEAE (VERVAIN FAMILY)

Phyla nodiflora	Common lippia

VITACEAE (GRAPE FAMILY)

Vitis sp.	Grape

ZYGOPHYLLACEAE (CALTROP FAMILY)

*Tribulus terrestris**	Puncture vine

ANGIOSPERMS, MONOCOTS

AGAVACEAE (CENTURY PLANT FAMILY)

Chlorogalum sp.	Soap plant

ALISMATACEAE (WATER-PLANTAIN FAMILY)

*Alisma lanceolatum**	Lance-leaved water plantain
Alisma triviale	Northern water plantain
Damasonium californicum	Fringed water-plantain
Sagittaria sanfordii [1]	Sanford's arrowhead

ARACEAE (ARUM FAMILY)

Lemna minor	Common duckweed
Wolffia brasiliensis	Brazilian watermeal

CYPERACEAE (SEDGE FAMILY)

Carex densa	Dense sedge
Carex praegracilis	Field sedge
Cyperus eragrostis	Tall nutsedge
Eleocharis acicularis	Least spikerush
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. *occidentalis*	Common tule

JUNCACEAE (RUSH FAMILY)

Juncus acuminatus	Tapered rush

[1] California Native Plant Society CRPR List 1B.2

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

Juncus balticus	Baltic rush
Juncus bufonius var. *bufonius*	Common toad rush
*Juncus capitatus**	Leafybract dwarf rush
Juncus uncialis	Inch-high rush
*Juncus usitatus**	Australian rush
Juncus xiphioides	Iris-leaved rush

JUNCAGINACEAE (ARROW-GRASS FAMILY)

Triglochin scilloides	Flowering-quillwort

LILIACEAE (LILY FAMILY)

Chlorogalum sp.	Soap plant

POACEAE (GRASS FAMILY)

*Agrostis avenacea**	Pacific bentgrass
*Aira caryophyllea**	Silver European hairgrass
Alopecurus saccatus	Vernal pool foxtail
*Anthoxanthum odoratum**	Sweet vernal grass
*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
*Briza minor**	Little quaking grass
*Bromus diandrus**	Ripgut grass
*Bromus hordeaceus**	Soft-chess brome
*Crypsis schoenoides**	Swamp grass
*Cynodon dactylon**	Bermuda grass
*Dactylis glomerata**	Orchard grass
Deschampsia danthonioides	Annual hairgrass
*Echinochloa crus-galli**	Barnyard grass
*Elymus caput-medusae**	Medusa head
*Festuca arundinacea**	Tall fescue
*Festuca bromoides**	Brome fescue
*Festuca myuros**	Six-weeks fescue, Rattail fescue
*Festuca perennis**	Ryegrass
*Festuca pratensis**	Meadow fescue
*Glyceria declinata**	Waxy mannagrass
*Holcus lanatus**	Common velvet grass
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley
Hordeum murinum ssp. *leporinum**	Hare barley
Hordeum murinum subsp. *murinum**	Wall barley
Leersia oryzoides	Rice cutgrass
*Paspalum dilatatum**	Dallis grass
Paspalum distichum	Knotgrass
*Phalaris aquatica**	Harding grass
*Poa annua**	Annual blue grass
*Poa bulbosa**	Bulbous blue grass
Poa pratensis subsp. *pratensis**	Kentucky blue grass
*Poa trivialis**	Rough blue grass
*Polypogon maritimus**	Mediterranean beard grass
*Polypogon monspeliensis**	Annual beard grass
*Sporobolus indicus**	Smut grass

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** Ornamental, planted as landscape tree/shrub

POTAMOGETONACEAE (PONDWEED FAMILY)

Potamogeton sp.	Pondweed

THEMIDACEAE (BRODIAEA FAMILY)

Brodiaea coronaria subsp. *coronaria*	Harvest brodiaea
Brodiaea elegans subsp. *elegans*	Elegant brodiaea
Dichelostemma capitatum ssp. *capitatum*	Blue dicks
Dichelostemma multiflorum	Wild hyacinth
Triteleia laxa	Ithuriel's spear
Triteleia hyacinthina	White brodiaea

TYPHACEAE (CATTAIL FAMILY)

Typha domingensis	Southern cattail
Typha latifolia	Broad-leaved cattail

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** Ornamental, planted as landscape tree/shrub

APPENDIX D

Teichert – Aspen VIII & IX Rare Plant Survey
Representative Photos

Photo 1

15 August 2014

Aspen VIII & IX
Irrigated Pasture in Summer
after Harvesting

Photo 2

28 March 2014

Aspen VIII & IX
Annual Grassland

Photo 3

06 June 2014

Aspen VIII & IX
Elder Creek

Photo 4

14 April 2014

Aspen VIII & IX
Vernal Pools

Photo 5

28 March 2014

Aspen VIII & IX
Seasonal Wetlands and Swales

Photo 6

19 June 2014

Aspen VIII & IX
Irrigated Seasonal Wetland

Photo 7

15 August 2014

Aspen VIII & IX
Irrigated Season Swale

Photo 8

15 August 2014

Aspen VIII & IX
Freshwater Marsh along Ditch

Photo 9

15 August 2014

Aspen VIII & IX
Irrigation Pond

Photo 10

15 August 2014

Aspen VIII & IX
Irrigation Ditch

Photo 11

06 June 2014

Aspen VIII & IX
Riparian Woodland Bordering Expansion Pond along Elder Creek

Photo 12

28 March 2014

Aspen VIII & IX
Residential Home Surrounded by Ornamental Trees and Ruderal Vegetation

Photo 13

30 June 2014

Aspen VIII & IX
Sanford's Arrowhead
Growing in Ditch

Photo 14

30 June 2014

Aspen VIII & IX
Sanford's Arrowhead

APPENDIX E

Teichert – Aspen VIII & IX Rare Plant Survey
CNDDB California Native Species Field Survey Form

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 07/14/2014

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Sagittaria sanfordii*

Common Name: Sanford's Arrowhead

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2,000+ Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Barry Baba
Address: PO Box 15002
Sacramento, CA 95851
E-mail Address: bbaba@teichert.com
Phone: (916) 480-5505

Plant Information

Phenology: 90 % vegetative, 50 % flowering, 50 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Sacramento Landowner / Mgr.: Teichert - Triangle Properties
Quad Name: Carmichael Elevation: 20 meters
T 8N R 6E Sec 28, SW ¼ of SE ¼, Meridian: H☐ M☑ S☐
T 8N R 6E Sec 28, NW ¼ of SE ¼, Meridian: H☐ M☑ S☐
Source of Coordinates (GPS, topo. map & type): GPS
GPS Make & Model Trimble ProXRT
DATUM: NAD27 ☐ NAD83 ☑ WGS84 ☐
Horizontal Accuracy 0.2 feet meters/feet
Coordinate System: UTM Zone 10 ☑ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 646172.118, 4264282.443 (meters)

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Population occurring in a routinely maintained irrigation ditch. Growing in association with Ludwigia peploides, Leersia oryzioides, Cyperus eragrostis, Eleocharis macrostachya, and Glyceria declinata.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Irrigated pasture, grazing

Visible disturbances: Ditch maintenance, but appears to prefer regular maintenance of ditch

Threats: Proposed mine site

Comments:

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____ BR-1-145

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☑

May we obtain duplicates at our expense? yes ☑ no ☐

ATTACHMENT C

Teichert's Aspen VIII & IX Biological Resources Assessment
Arborist Survey Report

ASPEN VIII & IX

ARBORIST REPORT

Teichert Aggregates – Sacramento County

Prepared For:

Sacramento County
Planning and Environmental Review Division
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Date:

~~December 2014~~
Revised: July 2015

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ASPEN VIII & IX

TEICHERT – SACRAMENTO COUNTY

Arborist Report

July 2015

1.0 INTRODUCTION

This Arborist Report has been prepared for Teichert Aggregates, Inc.'s (Teichert's) Aspen VIII and IX site (Property) in Sacramento County, California. The Property is located approximately 0.5 mile south of Jackson Road (Highway 16) and 0.5 mile east of Bradshaw Road, and is bisected by Elder Creek Road (Figure 1). The purpose of this report is to present the results of a tree survey conducted for the Property, including information about the species, size, condition, and location of the trees on the property. This information will be used to evaluate project impacts and create appropriate mitigation pursuant to Sacramento County Code (Chapter 19.12 *Tree Preservation and Protection*) and policies of the Sacramento General Plan Conservation Element.

1.1 Project Overview

The Property is an approximately 682-acre site within unincorporated Sacramento County, of which Teichert proposes to mine approximately 357.3 acres for aggregate resources (Project) (Figure 2). Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will extend into the neighboring Aspen V-South Property to the north, before eventually connecting to an existing conveyor system on a permitted mining area on Aspen V-South. This portion of conveyor between Aspen VIII and Aspen V-South has been included as part of the Project (Figure 2). The Project also includes a conveyor tunnel that will be constructed underneath Elder Creek Road (Figure 2). In addition to mining activities, Teichert proposes to improve an existing culvert that connects Elder Creek between Aspen VIII and IX from underneath Elder Creek Road (Figure 2). All ancillary elements and construction activities, including conveyor between Aspen VIII and Aspen V-South, tunnel under Elder Creek Road, and culvert replacement in Elder Creek, have been included as part of the Project and, together with mining, amount to a total disturbance area of approximately 384.44 acres (Figure 2).

1.2 Regulatory Context

The Sacramento County Tree Preservation Ordinance and policies within the General Plan Conservation Element afford various protections to native vegetation and the urban forest. Requirements for the protection of native oak trees are found in Sacramento County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any "tree," as defined, with the urban

area of the unincorporated area of Sacramento County, or any property, public or private. The ordinance defines "trees" as follows:

> "Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground (dbh)."

In addition to protection of oak trees, the Conservation Element of the Sacramento County General Plan includes policies that build on Sacramento County's Tree Preservation and Protection Ordinance. Specifically, CO-138 and CO-139 require that other native trees (California sycamore and California black walnut) also be protected or otherwise mitigated for in accordance with existing tree replacement policies and standards for native oaks (i.e., on an inch-by-inch basis). Sacramento General Plan Policy CO-140 further expands on native tree protections by addressing tree canopy and other mitigation requirements for native oak woodlands, oak savannah and mixed riparian areas. Impacts to non-native tree canopy are addressed in the Urban Forest Management section of the General Plan under policies CO-145 and CO-146, which require mitigation for loss of non-native tree canopy as a result of development.

For projects that will substantially impact or remove on-site or off-site trees, an arborist report is typically required as part of the Planning Application. Impacted trees are defined as all on-site and off-site trees meeting the County's criteria of a 'protected' tree that have canopies overhanging the site or that may be impacted by off-site project-related construction.

1.3 Existing Conditions

The Aspen VIII property (Sacramento Co. Assessor's Parcel Numbers [APNs] 063-0180-005,-006 and 063-0160-001) is an approximately 319-acre site bounded by Elder Creek Road to the south, Bellevue and Arlington Cemeteries to the west, and agricultural land (grazing) to the north and east (Figure 2). The Aspen IX property (APNs 066-0020-006, 066-0030-001 and 066-0050-003) is an approximately 363-acre site located immediately south of Elder Creek Road, 0.5 mile east of Bradshaw Road, 0.25 mile north of Florin Road and 0.5 west of Excelsior Road (Figure 2). Current land uses surrounding the site include rural residential, agricultural cropland, and rangeland. The topography of the site is generally flat with a few moderate rolling hills.

Several different biological communities occur on the Property, including irrigated pasture, annual grassland and wetland communities (Figure 3). Irrigated pasture habitat occurs over the majority of the site, totaling approximately 331.1 acres. A network of ditches and ponds are associated with the irrigated pastures. Common plant species include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

Much of the remaining Property consists of annual grasslands, totaling approximately 308.5 acres. These areas consist of relatively flat to moderately rolling hills dominated by soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wall barley (*Hordeum murinum*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), brome fescue (*Festuca bromioides*), ryegrass, longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes.

Trees are largely absent on the Property except along borders where other features exist (i.e., homes, roads, ditches, ponds, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. Himalayan blackberry (*Rubus armeniacus*) and sweet briar (*Rosa rubiginosa*) brambles are also interspersed with trees throughout the site along fencelines, irrigation ditches/ponds, and portions of Elder Creek.

Wetlands identified and mapped on the Property include vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, stock pond and ditch (Figure 3). In addition, Elder Creek occurs on both Aspen VIII and IX, whereby it enters at the southeast corner of Aspen VIII and exits at the western boundary of Aspen IX (Figure 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized. The creek is essentially a perennial drainage that is hydrologically supported by irrigation runoff during the dry (summer) season.

Other features on the Property include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the Property.

2.0 TREE SURVEY REPORT- IDENTIFICATION, INVENTORY AND ASSESSMENT

2.1 Survey Methods

An aerial photo of the site was used to determine potential tree locations and to develop field survey maps. Trees were then surveyed on foot by Teichert biologists B. Baba and J. Greer (ISA Certified Arborist, Cert. #WE-10104A) on 23 April, 01 May, and 07 October 2014 to verify and map all trees located within and immediately adjacent to the proposed limits of disturbance. In general, surveys were focused to areas within the project boundary and roughly 150 feet of the proposed limits of disturbance. Adjacent private properties were not inventoried if their trees were determined to be well outside of potential impacts.

All trees with trunks equal to or greater than four inches in diameter were inventoried and mapped using a Trimble Juno global positioning system (GPS) unit with sub-meter accuracy. All recorded trees were closely examined to determine species type and their diameter at breast height (DBH). To determine DBH, a diameter tape was used to verify each trunk diameter at the industry standard of 54 inches above grade. In addition, dripline radius was assessed based upon the measurement from the trunk to the end of the longest lateral limb, which defines the protection zone of the tree.

The overall vigor of each tree was rated according to Table 1 (below). Vigor consists of a combined assessment of the health and structure of a tree. The health rating component considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and insect infestation. The structural rating component reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure.

TABLE 1. ASPEN VIII & IX ARBORIST REPORT (2014) - TREE VIGOR RATING SYSTEM

Vigor Rating	Tree Health	Tree Structure
4	Healthy tree or shrub, free of signs and symptoms of disease. Leaf size, color, and density are typical for the species; buds are normal size, viable and abundant; current and past growth increments are better than average.	No wounds, cavities, decay, or indication of hollowness evident in the root crown, trunk, or primary and secondary limbs; no anchor roots exposed; no dead primary or secondary limbs present; there have been no major limb failures; limbs are not overburdened; branching structure appropriate for species.
3	Tree with moderate vigor, with very little evidence of stress or disease. Some thinning of crown and somewhat poor leaf color; buds are normal size and viable; current and past growth increments are generally average.	Average amount of deadwood/dieback with respect to the tree's size and growing environment; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any callusing is vigorous; any decay is limited to small dead branches/stubs.
2	Tree in decline, with moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation; epicormic growth evident; current and past growth increments below average; buds small and few; tree may be slow to callus around old wounds.	Dieback of medium to large branches; limbs slightly overburdened; branching structure and/or canopy balance moderately altered by the tree's growing environment; small to moderate wounds, cavities, decay, and indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed.
1	Tree in severe decline; most of the foliage is from epicormic growth; major evidence of stress, disease, nutrient deficiency and/or insect infestation; poor leaf color; buds unviable.	Dieback of scaffold branches and/or trunk; significant wounds, cavities, decay, and/or indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots exposed; limbs may be severely overburdened.
0	Tree is dead; no living tissue evident.	Extensive dieback evident, with branches completely dry and breaking easily; trunk and major limbs hollow; tree has lost all anchorage.

Data Collected

1. Tree tag number;
2. Species identification;
3. Location;
4. Trunk diameter at breast height (DBH);
5. Visual estimate of dripline radius ; and
6. Visual assessment for health and structural condition using a 0-4 scale, defined in Table 1.

2.2 Survey Results

A total of 102 trees, representing 17 species, were surveyed. The numbers and types of trees surveyed are shown in Table 2. Demographic data for each tree can be found in Appendix A, and the number and locations of each tree can be found in Figure 4.

TABLE 2. ASPEN VIII & IX ARBORIST REPORT (2014) TREE SPECIES SURVEYED

Common Name	Scientific Name	No. of Trees Surveyed
Goodding's black willow	*Salix gooddingii*	21
California black walnut	*Juglans hindsii*	9
Valley oak	*Quercus lobata*	5
Modesto ash	*Fraxinus velutina*	21
Fremont cottonwood	*Populus fremontii*	9
Red gum	*Eucalyptus camaldulensis*	10
Fruitless mulberry	*Morus alba*	13
Weeping willow	*Salix babylonica*	1
Chinese tallowtree*	*Triadica sebifera*	1
London plane tree	*Plantanus x hispanica*	1
Edible fig*	*Ficus carica*	2
Mount Atlas Mastic Tree	*Pistacia atlantica*	1
Camphortree	*Cinnamomum camphora*	1
Chinese pistache	*Pistacia chinensis*	3
Lemon	*Citrus x limon*	1
Prunus tree	*Prunus spp.*	2
Silver Maple	*Acer saccharinum*	1

*The California Invasive Plant Council classifies this tree as a "Not-Native Invasive" species with moderate status regarding potential impact to local native ecosystems.

Trees were scattered throughout the survey area, commonly along fencelines, roads, irrigation ditches, ponds and residential landscapes (Figure 4). The most frequently occurring species were Goodding's black willow and Modesto ash. Goodding's black willow trees are common California native trees that are usual colonizers of disturbed sites with a continuous water supply. All surveyed black willows exist adjacent to irrigation water sources, with the majority concentrated along an irrigation pond and connected ditches in the northwestern portion of Aspen VIII. Modesto ash trees, regularly planted as ornamental landscape/shade trees, are common along driveways/fencelines and around residential homes.

Other commonly occurring trees were red gum eucalyptus, fruitless mulberry, and Fremont cottonwood. Both the red gum and mulberry trees are not native and were most likely planted as landscape trees. The red gum trees form two large clumps in the northwest corner of the study area, near the Bellvue Cemetery. Mulberry trees were found scattered throughout the site along fencelines and around homes. Fremont cottonwood trees were also distributed throughout the site, usually in association with water sources. Similar to the black willow, Fremont cottonwood trees are native to the area and tend to behave as fast-growing, primary colonizers in areas with a constant water supply.

Both cottonwood and black willow trees will often form riparian scrub or forest habitat along the perimeters of riparian areas, usually in association with other species (such as black walnut and valley oak). Within the Aspen VIII and IX survey area, riparian forest tree canopy is generally lacking, represented only by small patches along an irrigation pond in the northwest corner of the study area and along various ditches and Elder Creek (totaling approximately 0.469 acre) (Figure 5). Additional riparian forest scrub was observed within the Elder Creek channel in the southeast portion of Aspen VIII. This was probably the largest riparian stand on the Property, but was not mapped due to its location well outside of the survey area. The riparian habitat in this area is generally dominated by Himalayan blackberry/sweet briar brambles interspersed with willow and cottonwood trees.

Outside of landscape and riparian areas, other frequently-encountered tree species were Northern California black walnut and valley oak. Black walnut trees were generally found to be growing as individuals along various fencelines, with the exception of one small stand mapped as part of riparian habitat just north of the intersection of Elder Creek and Elder Creek Road in Aspen VIII. Several valley oak trees were also found scattered within the survey area but did not form oak woodland canopy, existing instead either as isolated individuals or as understory saplings within riparian scrub habitat.

In general, trees surveyed within the Aspen VIII and IX property represent a random collection of species, the majority of which are considered ornamental landscape trees. The highest concentrations of trees were found in association with residential landscapes and generally constitute planted assemblages of ornamental species. Most surveyed trees were large, mature individuals of overall decent health but with poor structure, as is typical of older trees. In addition to age, a combination of neglect, ground disturbance and heavy browsing by livestock has likely contributed to poor structure. Notably, two caged trees (#42 and #76) were severely stressed and altered by browsing activity. Overall, the majority of large trees exhibited overburdened limbs, limb dieback and various forms of decay. Additionally, more than half (62) of the surveyed trees were multi-stemmed, with many trees showing evidence of included bark. One tree (#43) was found to be dead and was recorded as a standing dead snag.

Additional ornamental and landscape trees were observed within adjacent private properties to the west, south and east of the Project boundary, but were not accessible and thus not mapped. These trees are well outside of potential impacts and are protected by required setbacks.

2.3 General Recommendations

The proposed mining boundary and limits of disturbance include a total of approximately 383.68 acres. Of the 102 trees surveyed on the Property, 74 were found to be within or immediately adjacent to (i.e., with overhanging canopies) the proposed limits of disturbance and may be removed or otherwise disrupted as a result of Project activities (Figure 4).

A total of 14 protected trees (5 valley oak and 9 California black walnut) were found onsite to be of a sufficient size to be protected and regulated by the Sacramento County Tree Preservation Ordinance, 12 of which exist within the proposed limits of disturbance and may be impacted as a result of the project. For valley oak and black walnut trees that would be removed or indirectly impacted (i.e., ground disturbance within existing driplines), Teichert will comply with the Sacramento Tree Preservation Ordinance and Sacramento General Plan Policy CO-139 by replacing these trees on an inch-by-inch basis. Table 3 summarizes the total potential impacts to native protected trees by the proposed Project.

TABLE 3. POTENTIAL IMPACTS TO NATIVE PROTECTED TREES – ASPEN VIII AND IX (2014)

Common Name	Scientific Name	No. Trees	Total Inches DBH
California Black Walnut	*Juglans hindsii*	9	156.3
Valley Oak	*Quercus lobata*	3	22.3
		TOTAL:	**178.6**

Several patches of riparian forest scrub habitat were found sporadically distributed near water sources within the survey area, totaling approximately 0.469 acre (Figure 5). The total remaining native and non-native tree canopy—excluding invasive species—potentially impacted by the proposed project is approximately 1.345 acres (Figure 5). The removal of non-native invasive trees (i.e., Chinese tallow and edible fig) (Cal-IPC 2006) could be considered a benefit to future reclamation goals and the surrounding ecosystem. Sacramento General Plan Policies address losses to mixed riparian forest canopy (Policy CO-140) and other tree canopy (Policies CO-145 and CO-146) by requiring the creation of an on-site mitigation area equal in size to the acreage of canopy lost. Mitigation planting will be carried out on-site within preserved portions of Elder Creek. Table 4 summarizes the total potential impacts to tree canopy by the proposed project.

TABLE 4. POTENTIAL IMPACTS TO TREE CANOPY – ASPEN VIII AND IX (2014)

Canopy	Total Canopy of Surveyed Trees (Acres)	Total Canopy Potentially Impacted (Acres)
Riparian Forest/ Scrub Canopy	0.469	0.229
Other Canopy	1.345	1.345
GRAND TOTAL:	**1.814**	**1.574**

3.0 SUMMARY

A total of 74 trees, representing 1.574 acres of tree canopy, will be potentially impacted by the Project. Of these impacts, 12 are native trees (valley oak and Northern California black walnut), totaling 178.6 inches DBH, that are protected by the Sacramento County Tree Preservation Ordnance. Prior to Project impacts, Teichert will prepare a detailed mitigation plan addressing impacts to native protected trees (i.e., valley oak and black walnut) and other tree canopy loss (excluding invasive species), developed in accordance with County Ordinance, General Plan policies and final mitigation measures for the Project. The Mitigation Plan will include species to be planted, planting locations and densities, planting methods, a maintenance plan (e.g., for irrigation, weeds, and herbivory), and monitoring and performance requirements.

4.0 REFERENCES

California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Published by the California Invasive Plant Council, February 2006.

LIST OF FIGURES

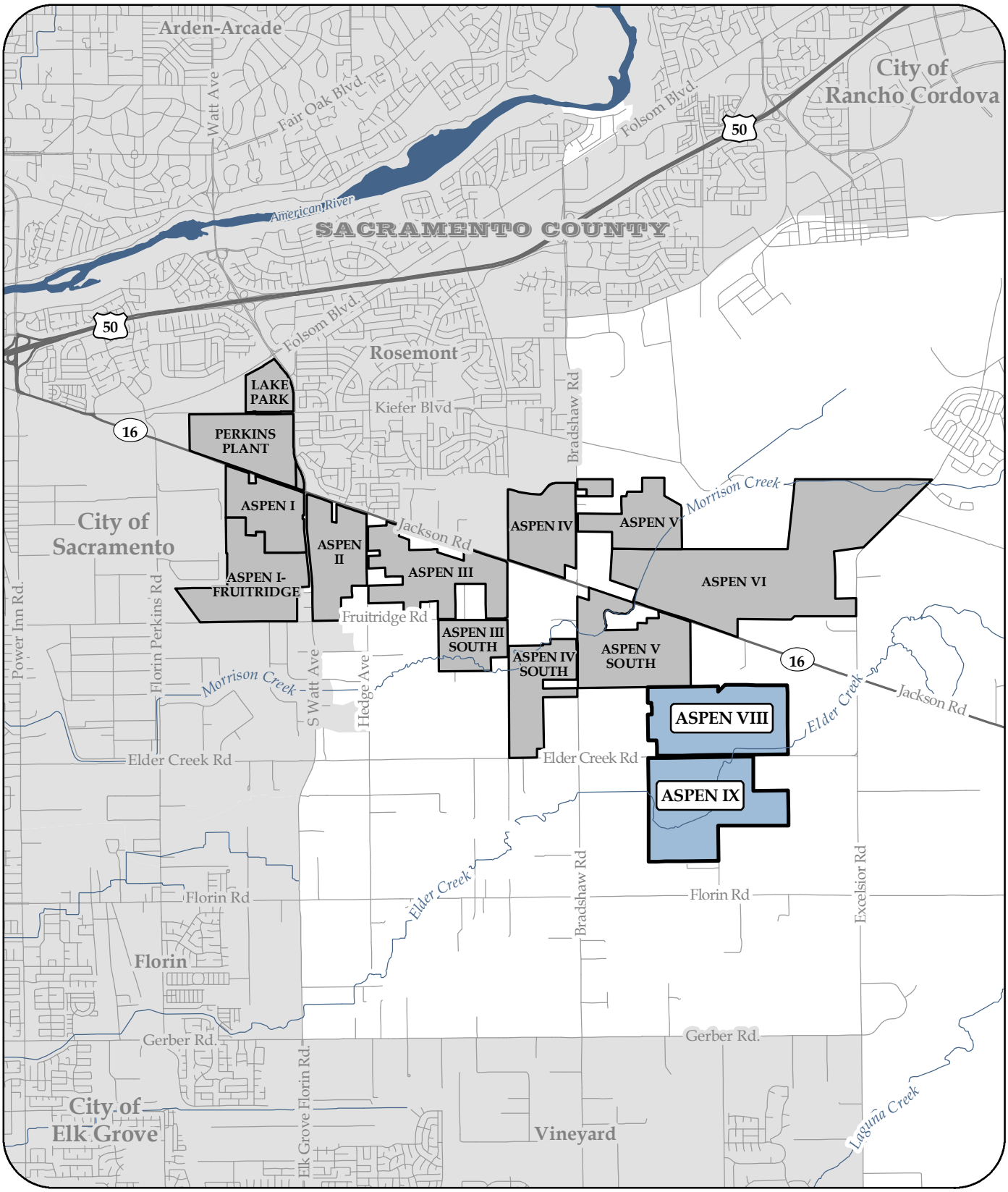
Figure 1 – Site Vicinity Map

Figure 2 – Property and Project Site Map

Figure 3 – Existing habitat Communities

Figure 4 – Tree Survey Results

Figure 5 – Tree Canopy



TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

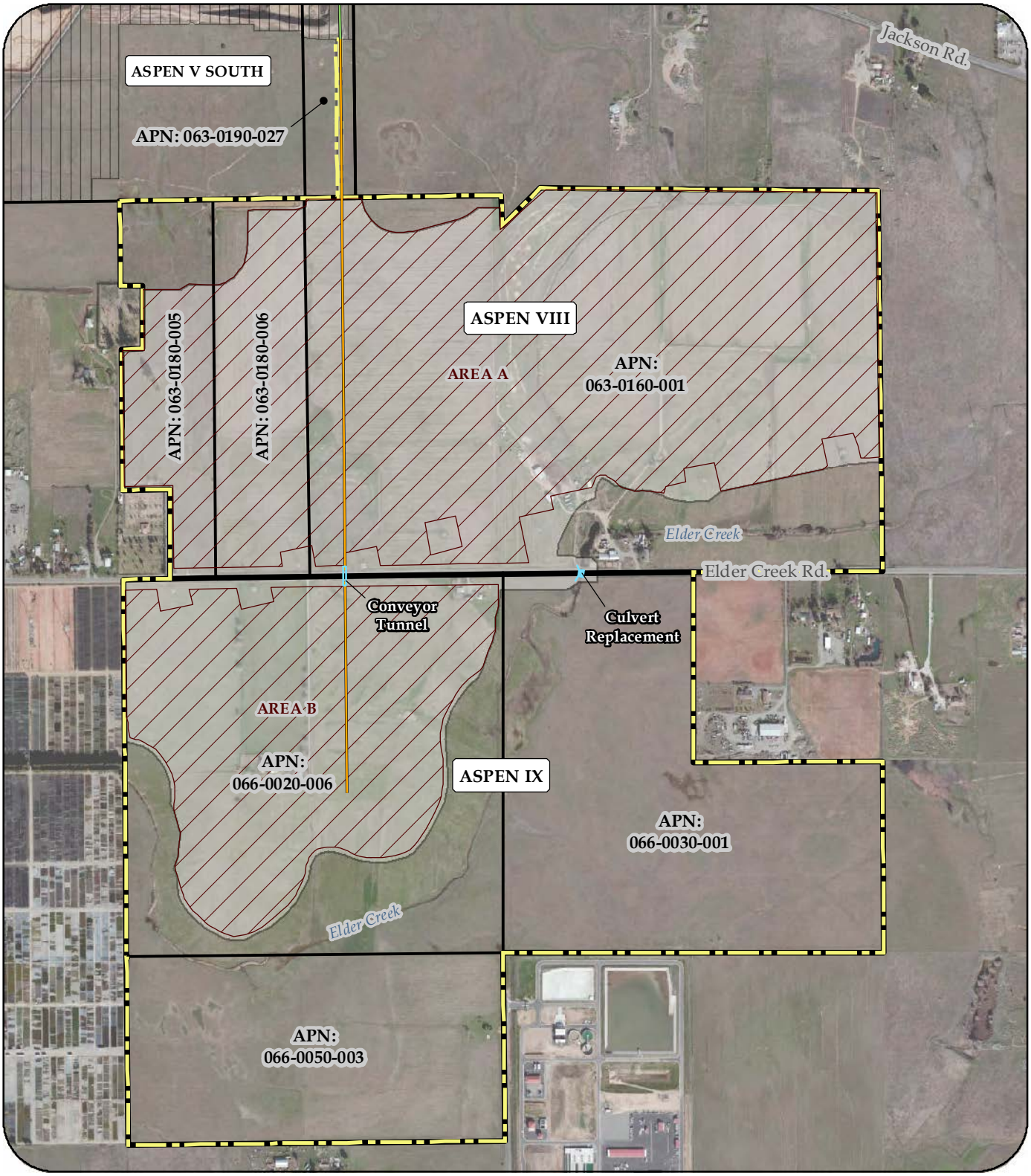
FIGURE 1

SITE VICINITY MAP

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/23/2014 AS8_AS9_Arborist_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel & Culvert Replacement
- Proposed Mining Boundary
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

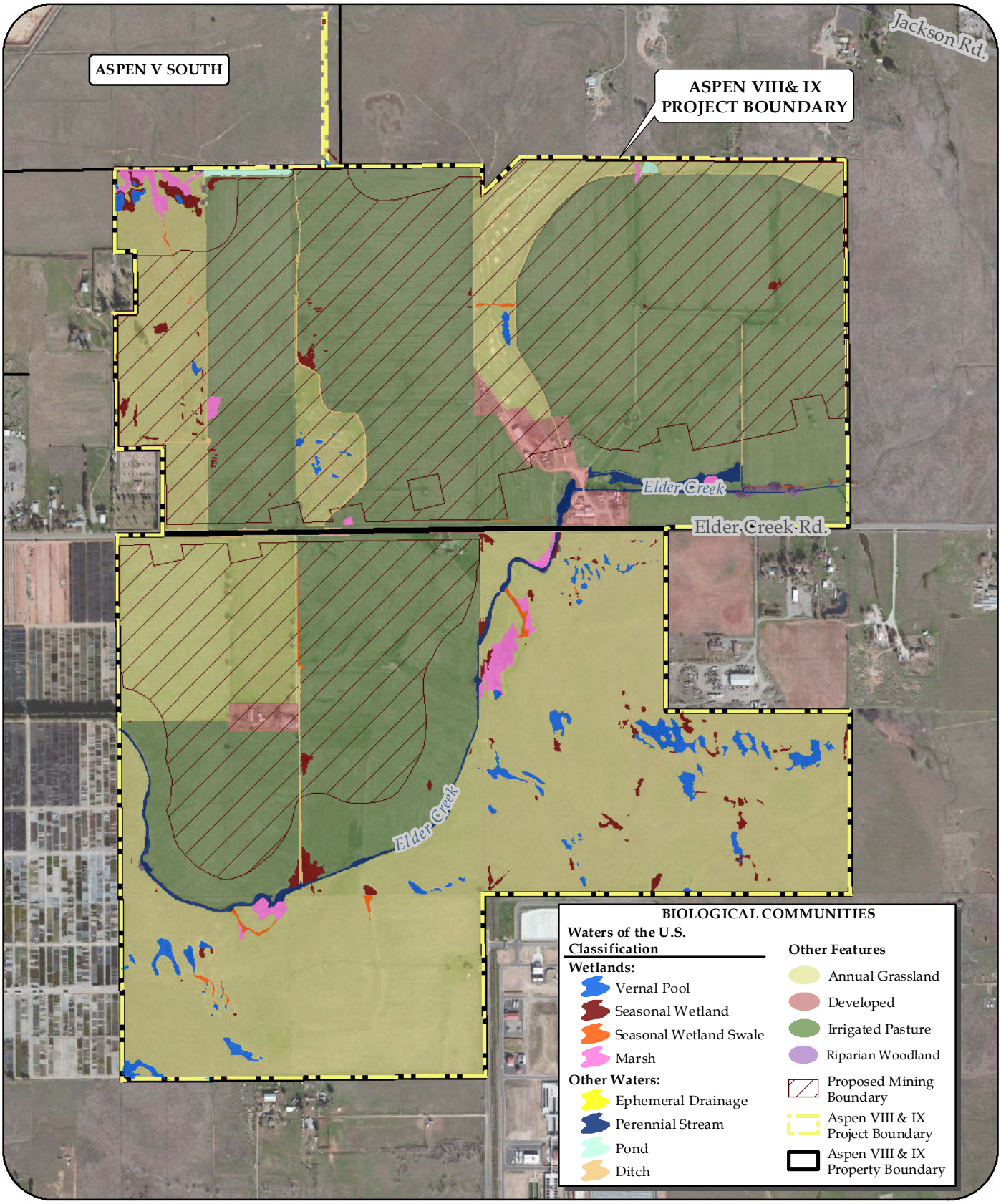
FIGURE 2

PROPERTY & PROJECT SITE MAP

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/10/2015 AS8_AS9_Arborist_Fig2_Site_201506.mxd



TEICHERT MATERIALS

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

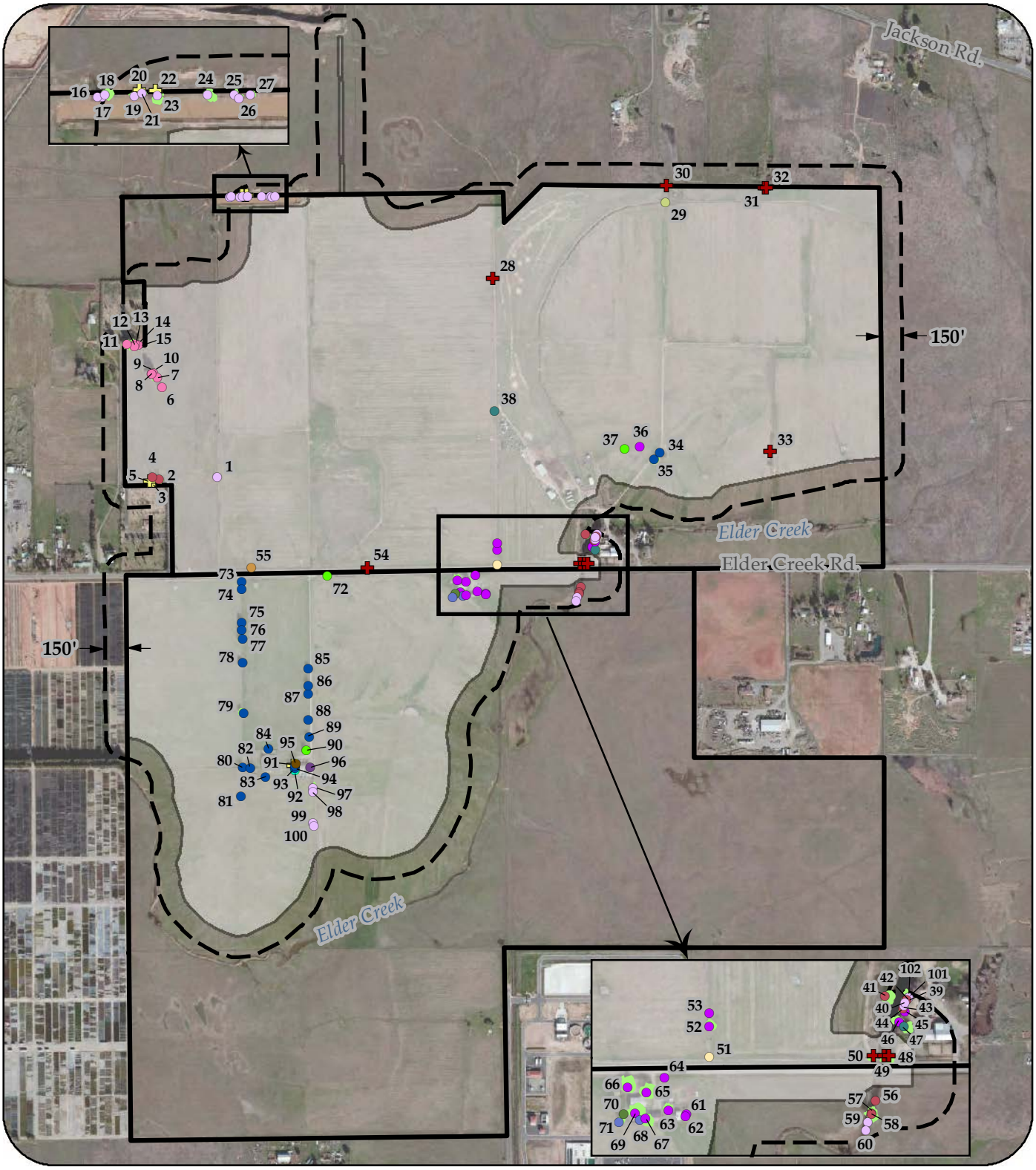
0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 3
HABITATS AND WETLANDS
ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 12/5/2014 AS8_AS9_Arborist_Fig3_Bio_201412.mxd



LEGEND:

Native Protected Species:
- Northern CA Black Walnut
- Valley Oak

Other Species:
- Acacia
- Camphortree
- Chinese Pistache
- Chinese Tallowtree
- Citrus
- Edible Fig
- Fremont Cottonwood
- Goodding's Black Willow
- Lemon
- London Plane
- Modesto Ash
- Mt Atlas Mastic Tree
- Mulberry
- Prunus
- Red Gum
- Silver Maple
- Weeping Willow
- Tree Canopy
- Arborist Survey Area
- Limits of Disturbance
- Aspen VIII & IX Property Boundary

0 500 1,000 Feet

SOURCE:
- Arborist Survey GPS (April-Oct. 2014)
- Orthophoto Provided by Digital Globe (February 2012)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

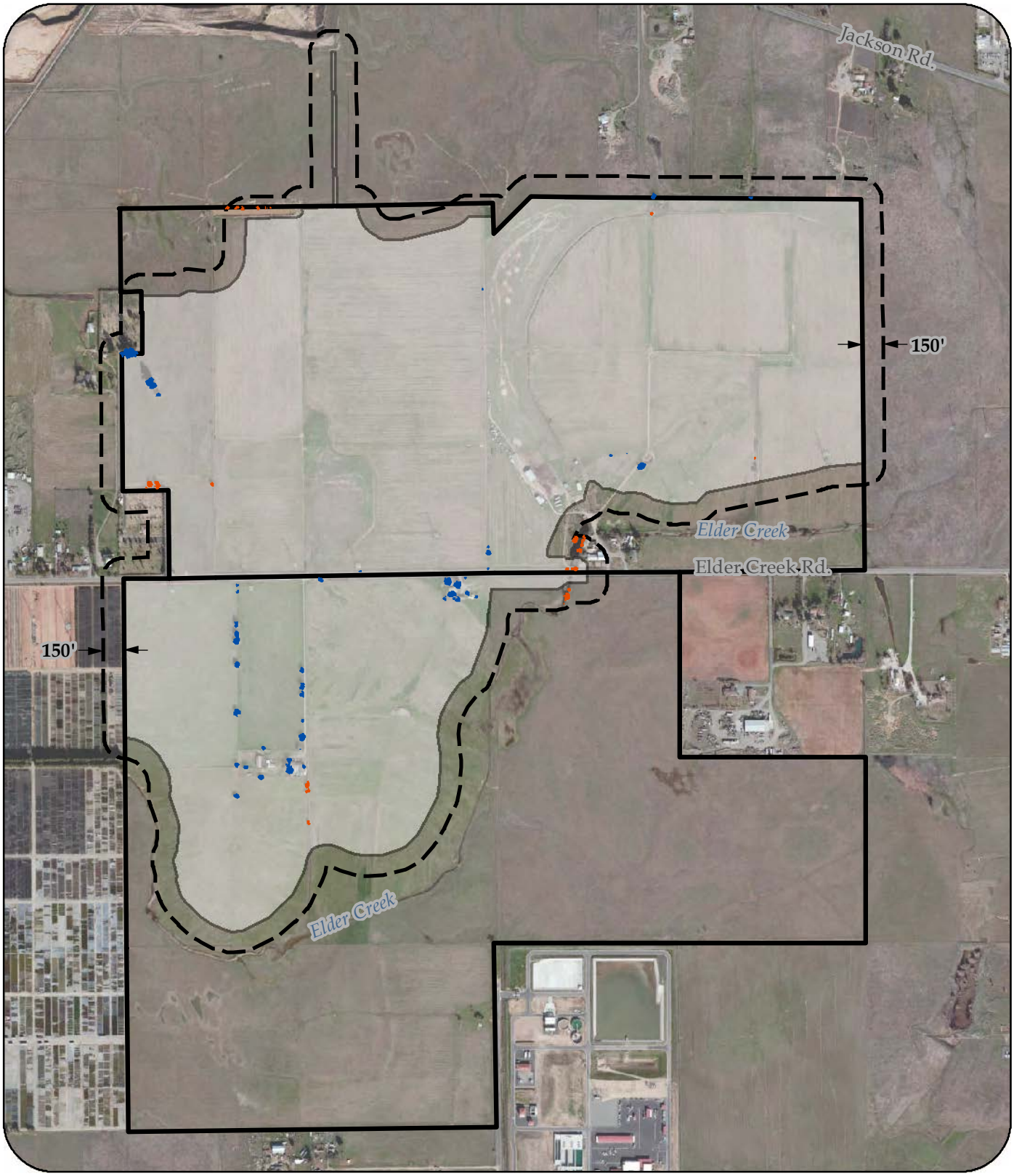
FIGURE 4

TREE SURVEY

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo Rev. by R. Enes 6/11/2015 AS8_AS9_Arborist_Fig4_TreeSurveyArea_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Riparian Forest/Scrub Canopy: ± 0.469 Acres
- Other Canopy: ± 1.345 Acres
- Arborist Survey Area
- Limits of Disturbance
- Aspen VIII & IX Property Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (February 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 5

TREE CANOPY

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/11/2015 AS8_AS9_Arborist_Fig5_TreeCanopy_201506.mxd

APPENDIX A

Teichert Aggregates – Aspen VIII and IX
Tree Survey Data

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
1	Goodding's Black Willow	*Salix gooddingii*	3.0	20.2	1	20.0	Yes
2	Fremont Cottonwood	*Populus fremontii*	2.0	32.9	1	25.0	Yes
3	Valley Oak	*Quercus lobata*	4.0	5.2	1	4.0	Yes
4	Fremont Cottonwood	*Populus fremontii*	2.0	28.2	1	20.0	Yes
5	Valley Oak	*Quercus lobata*	3.0	13.0	3	4.0	Yes
6	Red Gum	*Eucalyptus camaldulensis*	2.0	34.5	1	20.0	Yes
7	Red Gum	*Eucalyptus camaldulensis*	3.0	46.7	2	30.0	Yes
8	Red Gum	*Eucalyptus camaldulensis*	3.0	31.1	1	30.0	Yes
9	Red Gum	*Eucalyptus camaldulensis*	4.0	34.8	2	30.0	Yes
10	Red Gum	*Eucalyptus camaldulensis*	4.0	48.5	2	20.0	Yes
11	Red Gum	*Eucalyptus camaldulensis*	3.0	24.5	1	30.0	Yes
12	Red Gum	*Eucalyptus camaldulensis*	3.0	14.2	1	20.0	Yes
13	Red Gum	*Eucalyptus camaldulensis*	4.0	21.6	2	10.0	Yes
14	Red Gum	*Eucalyptus camaldulensis*	3.0	10.1	1	6.0	Yes
15	Red Gum	*Eucalyptus camaldulensis*	3.0	20.5	1	12.0	Yes
16	Goodding's Black Willow	*Salix gooddingii*	1.0	8.0	1	6.0	No
17	Goodding's Black Willow	*Salix gooddingii*	3.0	30.0	4	10.0	No
18	Goodding's Black Willow	*Salix gooddingii*	2.0	13.0	2	5.0	No
19	Goodding’s Black Willow	*Salix gooddingii*	2.0	13.0	2	5.0	No
20	Valley Oak	*Quercus lobata*	4.0	9.1	1	8.0	No
21	Goodding's Black Willow	*Salix gooddingii*	3.0	11.0	2	6.0	No
22	Valley Oak	*Quercus lobata*	4.0	4.0	1	5.0	No
23	Goodding's Black Willow	*Salix gooddingii*	4.0	40.0	5	15.0	No
24	Goodding's Black Willow	*Salix gooddingii*	2.0	25.0	3	10.0	No
25	Goodding's Black Willow	*Salix gooddingii*	3.0	8.0	1	5.0	No
26	Goodding's Black Willow	*Salix gooddingii*	4.0	10.0	1	6.0	No
27	Goodding's Black Willow	*Salix gooddingii*	4.0	10.0	1	6.0	No
28	Northern CA Black Walnut	*Juglans hindsii*	3.0	7.1	1	7.0	Yes
29	Weeping Willow	*Salix babylonica*	3.0	16.6	1	10.0	Yes
30	Northern CA Black Walnut	*Juglans hindsii*	4.0	34.8	2	25.0	Yes
31	Northern CA Black Walnut	*Juglans hindsii*	3.0	8.0	1	6.0	Yes
32	Northern CA Black Walnut	*Juglans hindsii*	3.0	12.0	1	10.0	Yes
33	Northern CA Black Walnut	*Juglans hindsii*	4.0	11.7	2	10.0	Yes
34	Modesto Ash	*Fraxinus velutina*	0.0	0.0	1	0.0	Yes
35	Modesto Ash	*Fraxinus velutina*	1.0	59.5	2	30.0	Yes
36	Mulberry	*Morus alba*	1.0	12.5	4	5.0	Yes
37	Chinese Pistache	*Pistacia chinensis*	4.0	14.0	2	10.0	Yes
38	Edible Fig*	*Ficus carica*	4.0	13.0	3	8.0	Yes

*The California Invasive Plant Council classifies this tree as a “Not-Native Invasive” species with moderate status regarding potential impact to local native ecosystems.

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA (CONTINUED)							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
39	Fremont Cottonowood	*Populus fremontii*	2.0	60.0	3	15.0	No
40	Goodding's Black Willow	*Salix gooddingii*	2.0	14.7	5	8.0	No
41	Fremont Cottonwood	*Populus fremontii*	3.0	46.0	3	35.0	No
42	Fremont Cottonwood	*Populus fremontii*	2.0	64.0	3	30.0	No
43	Goodding's Black Willow	*Salix gooddingii*	3.0	13.0	5	8.0	No
44	Fremont Cottonwood	*Populus fremontii*	2.0	16.0	3	12.0	No
45	Mulberry	*Morus alba*	3.0	15.0	2	15.0	No
46	Mulberry	*Morus alba*	3.0	32.0	4	15.0	No
47	Edible Fig*	*Ficus carica*	3.0	46.0	4	25.0	No
48	Northern CA Black Walnut	*Juglans hindsii*	2.0	34.0	2	20.0	Yes
49	Northern CA Black Walnut	*Juglans hindsii*	2.0	23.5	3	18.0	Yes
50	Northern CA Black Walnut	*Juglans hindsii*	3.0	19.0	3	18.0	Yes
51	Mt Atlas Mastic Tree	*Pistacia atlantica*	3.0	26.0	4	10.0	Yes
52	Mulberry	*Morus alba*	4.0	45.0	9	15.0	Yes
53	Mulberry	*Morus alba*	4.0	17.0	5	10.0	Yes
54	Northern CA Black Walnut	*Juglans hindsii*	3.0	6.2	1	5.0	Yes
55	Chinese Tallowtree*	*Triadica sebifera*	2.0	9.2	2	4.0	Yes
56	Fremont Cottonwood	*Populus fremontii*	2.0	31.0	4	22.0	No
57	Fremont Cottonwood	*Populus fremontii*	2.0	24.0	1	20.0	No
58	Fremont Cottonwood	*Populus fremontii*	2.0	52.0	2	35.0	No
59	Goodding's Black Willow	*Salix gooddingii*	2.0	7.0	1	6.0	No
60	Goodding's Black Willow	*Salix gooddingii*	2.0	14.0	1	8.0	No
61	Mulberry	*Morus alba*	2.0	17.0	6	10.0	Yes
62	Mulberry	*Morus alba*	2.0	11.7	4	12.0	Yes
63	Mulberry	*Morus alba*	3.0	16.2	1	20.0	Yes
64	Mulberry	*Morus alba*	2.0	7.5	3	10.0	Yes
65	Mulberry	*Morus alba*	4.0	33.0	1	25.0	Yes
66	Mulberry	*Morus alba*	4.0	62.0	3	30.0	Yes
67	Mulberry	*Morus alba*	2.0	23.5	1	25.0	Yes
68	Prunus	*Prunus spp.*	2.0	15.4	2	15.0	Yes
69	Mulberry	*Morus alba*	4.0	21.7	1	30.0	Yes
70	Lemon	*Citrus x limon*	2.0	8.0	2	5.0	Yes
71	Prunus	*Prunus spp.*	3.0	20.0	2	15.0	Yes
72	Chinese Pistache	*Pistacia chinensis*	3.0	38.0	1	20.0	Yes
73	Modesto Ash	*Fraxinus velutina*	2.0	30.5	2	10.0	Yes
74	Modesto Ash	*Fraxinus velutina*	2.0	33.0	2	10.0	Yes
75	Modesto Ash	*Fraxinus velutina*	2.0	28.3	1	30.0	Yes
76	Modesto Ash	*Fraxinus velutina*	3.0	29.7	1	35.0	Yes

*The California Invasive Plant Council classifies this tree as a "Not-Native Invasive" species with moderate status regarding potential impact to local native ecosystems.

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA (CONTINUED)							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
77	Modesto Ash	*Fraxinus velutina*	2.0	40.7	2	35.0	Yes
78	Modesto Ash	*Fraxinus velutina*	3.0	25.2	1	25.0	Yes
79	Modesto Ash	*Fraxinus velutina*	2.0	26.4	1	35.0	Yes
80	Modesto Ash	*Fraxinus velutina*	1.0	21.6	1	20.0	Yes
81	Modesto Ash	*Fraxinus velutina*	2.0	18.0	1	15.0	Yes
82	Modesto Ash	*Fraxinus velutina*	1.0	34.9	2	15.0	Yes
83	Modesto Ash	*Fraxinus velutina*	2.0	23.0	1	25.0	Yes
84	Modesto Ash	*Fraxinus velutina*	1.0	18.4	1	15.0	Yes
85	Modesto Ash	*Fraxinus velutina*	3.0	26.3	1	30.0	Yes
86	Modesto Ash	*Fraxinus velutina*	3.0	28.3	1	20.0	Yes
87	Modesto Ash	*Fraxinus velutina*	3.0	37.6	2	25.0	Yes
88	Modesto Ash	*Fraxinus velutina*	1.0	25.0	1	15.0	Yes
89	Modesto Ash	*Fraxinus velutina*	2.0	28.9	1	35.0	Yes
90	Chinese Pistache	*Pistacia chinensis*	3.0	4.4	1	10.0	Yes
91	Valley Oak	*Quercus lobata*	3.0	4.1	1	4.0	Yes
92	London Plane	*Platanus x hispanica*	4.0	45.0	1	40.0	Yes
93	Modesto Ash	*Fraxinus velutina*	2.0	47.0	3	30.0	Yes
94	Modesto Ash	*Fraxinus velutina*	1.0	59.2	4	30.0	Yes
95	Silver Maple	*Acer saccarinum*	1.0	52.3	2	35.0	Yes
96	Camphortree	*Cinnamomum camphora*	1.0	34.9	2	25.0	Yes
97	Goodding's Black Willow	*Salix gooddingii*	2.0	89.0	5	25.0	Yes
98	Goodding's Black Willow	*Salix gooddingii*	2.0	27.9	3	30.0	Yes
99	Goodding's Black Willow	*Salix gooddingii*	1.0	21.0	4	20.0	Yes
100	Goodding's Black Willow	*Salix gooddingii*	1.0	28.7	3	15.0	Yes
101	Goodding’s Black Willow	*Salix gooddingii*	2.0	8.0	1	15.0	No
102	Goodding’s Black Willow	*Salix gooddingii*	2.0	22.0	2	20.0	No

DETERMINATION OF ELIGIBILITY AND EFFECT FOR THE ASPEN XIII AND ASPEN IX PROJECTS SACRAMENTO COUNTY, CALIFORNIA

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(Job #14-016)

INTRODUCTION

The project areas proposed for quarrying are located in central Sacramento County, California. The Aspen XIII project area is located on the north side of Elder Creek Road, between Bradshaw Road and Excelsior Road. The Aspen IX project area is located adjacent to it on the south side of Elder Creek Road. Aspen VIII is 319 acres in size, Aspen IX is 363 acres.

The Aspen VIII project area is located in a portion of the Rancho Rio de los Americanos land grant and in portions of sections 27 and 28, Township 8 North Range 6 East, mapped on the Carmichael USGS topographic quadrangle (Figure 1). The Aspen IX project area is located in portions of sections 33 and 34, Township 8 North Range 6 East, mapped on the Carmichael USGS topographic quadrangle (Figure 2).

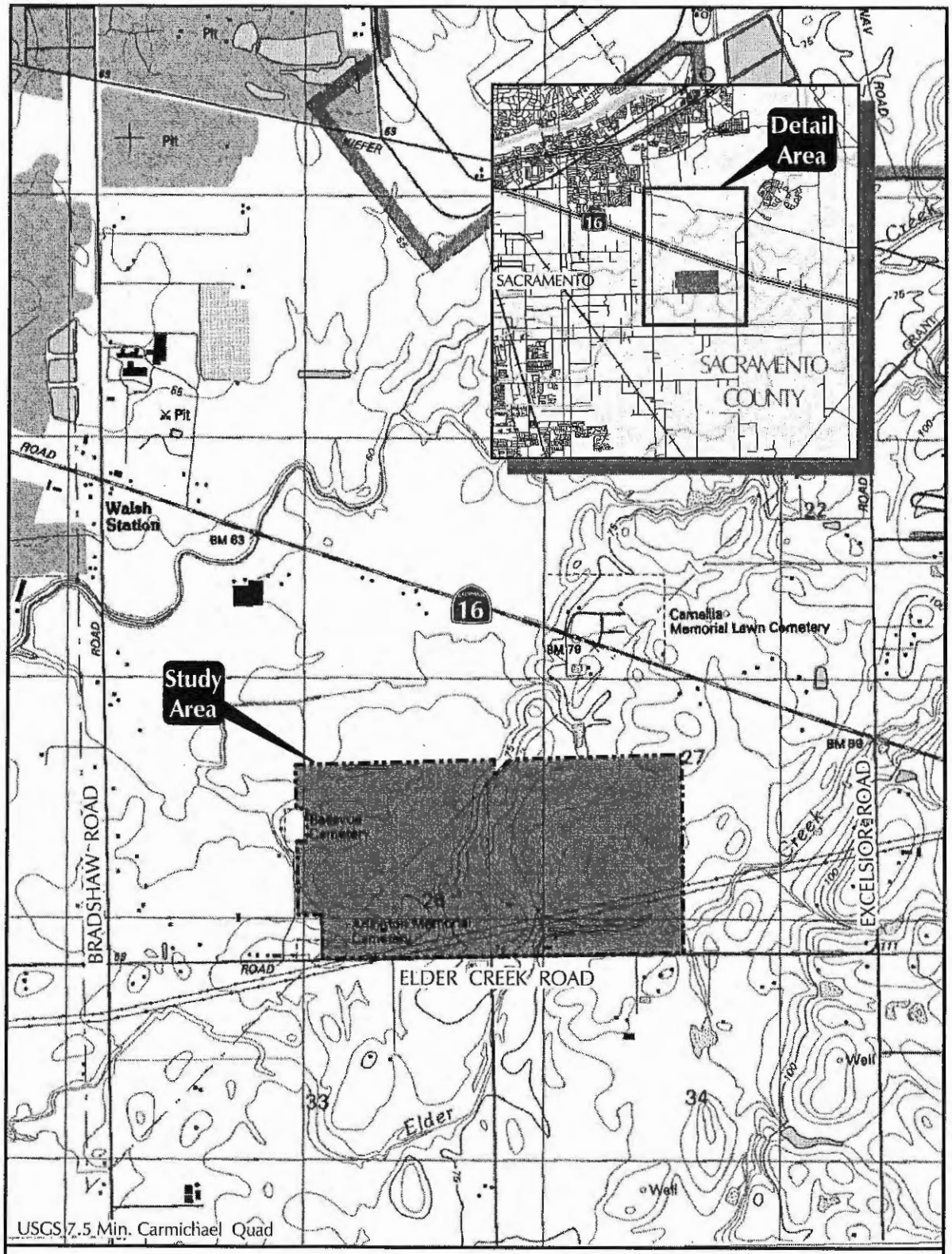
Because the proposed work will require Clean Water Act (CWA) permitting from the United States Army Corps of Engineers, the applicant will participate as a consulting party to assist the federal agency in demonstrating compliance with Section 106 of the NHPA (16 U.S.C. 470f; regulations codified at 36 CPR § 800). The bulk of the work was done in 2006 and 2007, but due to the slow pace of the construction industry at the time, it did not procede to permitting. The current study is to update the previous work. This report incorporates both phases.

Melinda A. Peak served as principal investigator for the study and served as team leader for the field trenching phase, and also prepared the Phase 1 report. Technicians Marvin Marine and Mike Lawson assisted in the trenching effort. Ann Peak led the field team in Phase 1, consisting of technicians Mike Lawson, Sue Merritt and Terry Peak (Peak & Associates, Inc. 2007). Mike Lawson returned in Phase II to perform the field check of of current conditions. Robert Gerry prepared the site forms for newly recorded resources (resumes, Appendix 1) and updated the report.

REGULATORY CONTEXT

The Section 106 review process is implemented using a five step procedure: 1) identification and evaluation of historic properties; 2) assessment of the effects of the undertaking on properties that are eligible for the National Register; 3) consultation with the State Historic Preservation Office (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties; 4) receipt of Advisory Council on Historic Preservation comments on the MOA or results of consultation; and 5) the project implementation according to the conditions of the MOA.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

N

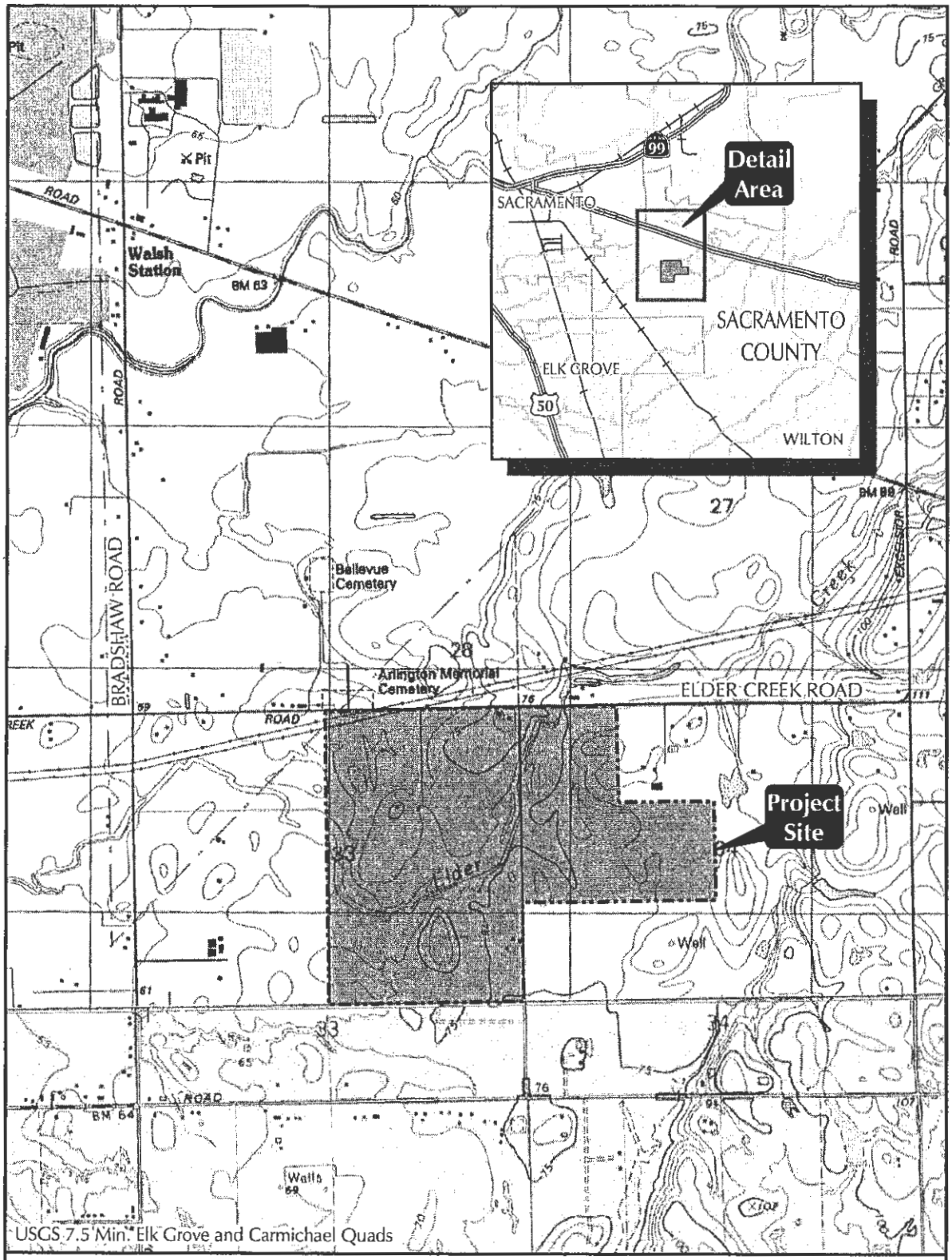
0 1000 2000
SCALE IN FEET

Drawn By: HMK
Date: 09/30/04

FIGURE 1

ASPEN VIII

site_and_vicinity.mxd
© 2004



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

N

0 1000 2000
SCALE IN FEET

Drawn By: AH
Date: 09/29/04

FIGURE 2

ASPEN IX

site_and_vicinity_v9.mxd
© 2004

FRAMEWORK FOR EVALUATION

Decisions regarding management of cultural resources hinge on determinations of their significance (36 CFR 60.2). As part of this decision-making process the National Park Service has identified components which must be considered in the evaluation process, including:

- criteria for significance;
- historic context; and
- integrity.

Criteria for Significance

Significance of cultural resources is measured against the National Register criteria for evaluation:

> *The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and,*
>
> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *(b) that are associated with the lives of persons significant in our past; or*
>
> *(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *(d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).*

Historic Context

The historic context is a narrative statement "that groups information about a series of historic properties based on a shared theme, specific time period, and geographical area." To evaluate resources in accordance with federal guidelines, these sites must be examined to determine whether they are examples of a defined "property type". The property type is a "grouping of individual properties based on shared physical or associative characteristics" Through this evaluation, each site is viewed as a representative of a class of similar properties rather than as a unique phenomenon.

A well-developed historical context helps determine the association between property types and broad patterns of American history. Once this linkage is established, each resource's potential to address specific research issues can be explicated.

Integrity

For a property to be eligible for listing in the National Register it must meet one of the criteria for significance (36 CFR 60.4 [a , b, c, or d]) and retain integrity. Integrity is defined as "the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period".

The following discussion is derived from National Register Bulletin 15 ("How to Apply the National Register Criteria for Evaluation").

> *Within the concept of integrity , there are seven aspects or qualities that define integrity in various combinations. The seven aspects are: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property will possess several or usually most of these aspects. The retention of specific aspects is necessary for a property to convey this significance. Determining which of the seven aspects are important involves knowing why, where and when the property is significant.*

The prescribed steps in assessing integrity are as follows:

- define the essential physical features that must be present for a property to represent its significance;
- determine whether the essential physical features are visible enough to convey their significance;
- determine whether the property needs to be compared with similar properties; and,
- determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the property being nominated and if they are present.

Ultimately, the question of integrity is answered by whether or not the property retains the identity for which it is significant.

All properties change over time. It is not necessary for a property to retain all its historic physical features or characteristics. However, the property must retain the essential physical features that enable it to convey its historic identity. The essential physical features are those features that define why a property is significant.

A property's historic significance depends on certain aspects of integrity. Determining which of the aspects is most important to a particular property requires an understanding of the property's significance and its essential physical features. For example, a property's historic significance can be related to its association with an important event, historical pattern or person. A property that is significant for its historic association is eligible for listing if it retains the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person.

A property important for association with an event, historical pattern, or person ideally might retain some features of all seven aspects of integrity. Integrity of design and workmanship, however, might not be as important to the significance, and would not be relevant if the property were an archeological site. A basic integrity test for a property associated with an important event

or person is whether a historical contemporary would recognize the property as it exists today. For archeological sites that are eligible under Criteria a and b, the seven aspects of integrity can be applied in much the same way as they are to buildings, structures, or objects.

In sum, the assessment of a resource's National Register eligibility hinges on meeting two conditions:

- the site must possess the potential to be eligible for listing in the National Register under one of the evaluation criteria either individually or as a contributing element of a district based on the historic context that is established; and

- the site must possess sufficient integrity, i.e. it must retain the qualities that make it eligible for the National Register.

For the National Register, "a district possesses a significant concentration, linkage, or continuity of "... objects united historically or aesthetically by plan or physical development." The identity of a district derives from the relationship of its resources, which can be an arrangement of functionally related properties.

CEQA Standards of Significance

For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources. When a project will impact an archeological site, it needs to be determined whether the site is an historical resource, which is defined as any site which:

(A.) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational,. social, political or cultural annals of California; and

(B) Meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

CULTURAL HISTORY

Archeological Background

The Sacramento Delta was one of the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, avocational archeologist J. A. Barr excavated many prehistoric mounds in the Stockton area. He collected nearly 2000 artifacts during the course of his investigations. H. C. Meredith was another avocational archeologist of the period who pursued collecting in the same Stockton locality. Meredith (1899, 1900) did publish a compilation of his own and Barr's findings, and these appear to constitute the earliest accounts of delta archeology. Holmes (1902), from the Smithsonian Institution, further elaborated on the delta or "Stockton District" archeology, presenting illustrations of artifacts collected by Meredith and Barr.

It was Elmer J. Dawson who first recognized culture changes through time in delta archeology. Though he was an amateur archeologist, Dawson understood the necessity of keeping accurate notes on grave associations and provenience of artifacts. He collaborated with W. E. Schenck to produce an overview of northern San Joaquin Valley archeology (Schenck and Dawson 1929). The overview contained information on more than 90 prehistoric sites as well as data on previous collectors.

By 1931, the focus of archeological work was directed toward the Cosumnes River locality, where survey and exploration were conducted by Sacramento Junior College (Lillard and Purves 1936). Excavations, especially at the stratified Windmiller mound (CA-SAC-107), suggested three temporally distinct cultural traditions: Early, Transitional, and Late. Information grew as a result of excavations at other mounds in the delta and lower Sacramento Valley by Sacramento Junior College and the University of California, Berkeley.

Previous investigations in the project region have focused upon very detailed archival research of Spanish sources (Bennyhoff 1977), reexamination of earlier work (Ragir 1972; Schulz 1981; Doran 1980) and archeological investigations at a number of small sites (Schulz et al. 1979; Schulz and Simons 1973; Soule 1976). Several of the previously investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practiced are varied, but detailed studies on the faunal collection suggest seasonality of occupation and a focus on fish species other than the main channel varieties.

Writing the definitive summary of California archeology, Moratto (1984: 529-547) devoted an entire chapter to linguistic prehistory. For the Central Valley region, Moratto points out that some Early Horizon and Middle Horizon central California archeological sites appear at least in part, contemporaneous, based on existing radiocarbon dates. Cultural materials recovered from CA-SJ0-68, an Early Horizon site, are thought to relate to date to 4350 ± 250 B.P or 2350 B.C. On the other hand, a Middle Horizon component at CA-CC0-308 dates to 4450 ± 400 B.P. or 2450 B.C. The antiquity of other Early and Middle Horizon sites demonstrate an overlap of the two horizons by a millennium or more.

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay Area. The Early Horizon may represent older Yokuts settlements or perhaps the speakers of a Utian language who were somehow replaced by a shift ofpopulation(s) from the bay.

Ethnological Background

The Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family (Levy 1978:398). The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Cosumnes and Sacramento Rivers including the area of central Sacramento County surrounding the project area. Linguistic studies and the application of a lexicostatistic model for language divergence suggests that Plains Miwok was a distinct linguistic entity for the last 2000 years (Levy 1970). This result led researchers such as Richard Levy (1978:398) to conclude that the Plains Miwok inhabited the Sacramento Delta for a considerable period of time.

The political organization of the Plains Miwok centered on the tribelet. Tribelets were comprised of 300 to 500 individuals (Levy 1978:410). Each tribelet was thought to control a specific area of resources and usually consisted of several villages or hamlets. Each tribelet also was divided along lineages. These lineages were apparently localized to a specific geographic setting and most likely represented a village site and their associated satellite sites where the seasonal collection of resources occurred (Levy 1978:398-399). Each settlement apparently contained roughly 21 individuals according to data collected by Gifford (Cook 1955:35).

The diet of the Plains Miwok emphasized the collection of floral resources such as acorns, buckeye, digger pine nuts, seeds from the native grasses and various fresh greens. Faunal resources such as tule elk, pronghorn antelope, deer, jackrabbits, cottontails, beaver, gray squirrels, woodrats, quail and waterfowl were hunted. Fishing, particularly salmon and sturgeon, contributed significantly to the Plains Miwok diet (Levy 1978:402-403). The primary method of collecting fish was by nets, but the use of bone hooks, harpoons and obsidian-tipped spears is also known ethnographically (Levy 1978:404).

Both twined and coiled basketry were manufactured by the Eastern Miwok. The uses of baskets included the collection and storage of seeds, basketry cradles and gaming (Levy 1978:406). Tule mats were also known to have been used by the Plains Miwok primarily as a floor covering. Other uses of tule included the manufacture of the tule balsa, a water craft in which native people navigated and exploited adjacent delta and major river systems.

Four main types of structures were known among the Eastern Miwok, depending on the environmental setting. In the mountains, the primary structure was a conical structure of bark slabs. At lower elevations the structures consisted of thatched structures, semi-subterranean earth-covered dwellings and two types of assembly houses used for ceremonial purposes (Levy 1978:408-409).

Bennyhoff (1977:11) characterized the Plains Miwok as intensive hunter-gatherers, with an emphasis upon gathering. The seasonal availability of floral resources defined the limits of the group's economic pursuits. Hunting and fishing subsistence pursuits apparently accommodated the given distribution of resources. The Plains Miwok territory covered six seasonally productive biotic communities and as such native people could apparently afford to pick and choose the resources they ranked highest from each of these zones. The subsequent storage of floral resources (such as acorns in granaries) allowed for a more stable use of the resource base (Bennyhoff 1977:10). The acorn was apparently the subsistence base needed to provide an unusually prod uctive environment as earlier non-acorn using peoples who resided in the same geographic setting apparently suffered some seasonal deprivation (Schulz 1981). Such an emphasis upon the gathering of acorns is consistent with the population increase evident during the Upper Emergent Period in California (Doran 1980).

The study of piscine (fish) remains from both CA-SAC-65 (Schulz *et al.* 1979) and CA-SAC-145 (Schulz and Simons 1973) indicates that small villages away from the major rivers appear to concentrate on the collection of piscine species (particularly the Sacramento perch) that inhabited slow-moving waters.

Historical Context

The project area lies in pa rt on lands of the Rancho Rio de los Americanos, a grant of over 35,500 acres on the south side of the American River, made to William Leidesdorff by the Mexican governor. Leidesdorff died in San Francisco in 1848, and Joseph L. Folsom, who had come to California as assistant quartermaster of Stevenson's New York Volunteers, purchased the estate from the heirs at a low price, becoming one of the wealthiest men in California. The town of Folsom was laid out on the rancho in 1855 as the terminus of the Sacramento Valley Railroad, and named in his honor (Hoover, Rensch and Rensch 1970:300).

There is no indication that any important events or activities occurred in the early history of the region. Bradshaw Road follows roughly the route of an early roadway that led from the Cosumnes River to the American River (General Land Office plat of T8NR6E 1866).

It was not long after the initial gold rush of the late 1840s-early 1850s, however, when the agricultural potential of the excellent farmlands of the Sacramento Valley was recognized. The first lands taken up were the rich bottomlands along the major watercourses. By the mid-1860s, the prime farmland had been claimed and the later settlers began to discover the potential of lands such as the project area with poorer soil and less available water. In the 1860s and 1870s, virtually all land in the region was taken up by the later settlers for agricultural purposes. The project area lies within the boundaries of the Brighton Township (Thompson & West 1880).

Examination of the General Land Office Plat of 1866 indicates that within the Aspen VIII project area, there were two early houses present: Joseph Downing's and Daniel Webber's were both located on the north side of the section line which is now marked by Elder Creek Road. Joseph Downing's was located along the line of the Rio de los Americanos grant, and Daniel Webber's house was located in the southwest quarter of the southwest quarter of section 27. The 1911 USGS map shows houses at both locations, but Webber’s house is gone by the 1954 USGS. Downings house, in the area of the Wuiet Haven Cemetery, was destroyed with development of the cemetery.

Within the Aspen IX project area, there were two other residences: W.H. Ellis' house and John S. Downing's house. The Ellis house was located just south of the section 28/33 line, in the northeast quarter of the northeast quarter of section 33. This area continues to be occupied, but there is no building on the property that dates to 1866 or anything near it. Downing's house was located in the northeast quarter of the southeast quarter of section 33. (General Land Office Plat of T8NR6E, 1866). This corresponds to the ruins recorded as 5070 Knox Road (see below).

Belleview Cemetery started in the early 1860s for the local population of farmers who settled the region in this time period. Arlington Cemetery developed first as the Garden of Good Shepard #1, but a later business venture named it "Arlington Memorial Cemetery" (Bayless and Mello1982). The Arlington Cemetery is now known as the Quiet Haven Cemetery.

NATIVE AMERICAN CONSULTATION

In the course of the 2006-2007 project, a letter was sent to the Native American Heritage Commission (NAHC) requesting a check of the Sacred Lands files. The check failed to reveal any properties listed as Sacred Lands. The NAHC did provide a list of individuals and groups to contact regarding the property. Letters were sent to Billie Blue Elliston, Leland Daniels; Matthew Franklin, Glen Villa Jr., and Frank Navarette of the lone Band of Miwok Indians; Mary Daniels-Tarango of the Miwok Indian Community of the Wilton Rancheria; and Dwight Dutschke, Sierra Native American Council. No responses were received.

In March of 2014 a new request was submitted to the NAHC, with similar results as far as the Sacred Lands file. A new lists of contacts was provided and letters were sent to:

Organization	**Individual**
Buena Vista Rancheria	Rhonda Morningstar Pope
Shingle Springs Band of Miwok Indians	Hermo Olanio, Vice-Chairperson
Shingle Springs Band of Miwok Indians	Daniel Fonseca, Cultural Resource Director
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson
United Auburn Indian Community Of the Auburn Rancheria	Marcos Guerrero, Tribal Preservation Committee
"	Gene Whitehouse, Chairperson
"	Jason Camp, THPO
Ione Band of Miwok Indians	Yvonne Miller, Chairperson
Ione Band of Miwok Indians	Anthony Burrus, Cultural Committee
Wilton Rancheria	Raymond Hitchcock, Chairperson
Wilton Rancheria	Steven Hutchason

Copies of the current communication may be found in Appendix 2. No replies have been received to date.

RESEARCH

A record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System on August 8, 2006 (NCIC File No.: SAC-06-138, A follow-up record search was conducted on March 19, 2014 (NCIC File No. SAC-14-35). The Information Center Indicated no additional work in the area since our original survey. The three sites we recorded at that time remain the only recorded resources within the APE, though they have now been assigned permanent numbers.

A portion of the northeast corner of the Aspen IX project area was the subject of surveys in 2006 and 2008 by Jones and Stokes. That study area extended much farther than the current APE. The results of a 1974 survey by Johnson were summarized in the Morrison Creek Mining Reach Downstream (South) of Jackson Highway EIR/EIS prepared by the County of Sacramento Department of Environmental Review and Assessment in conjunction with the Corps of Engineers for a Section 404 Permit Application (1997).

The recent record search results are presented in Appendix 3.

FIELD STUDIES

Field Survey

Peak & Associates undertook the re-survey of the entire property in August 2006, with a team of archeologists led by Ann S. Peak. The survey coverage was complete in nature with transects of no more than 15 meters in width. Where necessary, small holes and scrapes were made to examine the sediments. Three new historic period sites were recorded during the survey (site forms, Appendix 4). Each is described below.

A follow-up survey was conducted on April 4, 2014 to examine the current condition of recorded resources and to do spot checks to ensure the accuracy of the original survey. The investigator examined the recorded building complexes, finding minimal change since they were recorded. An additional complex, 9990 Elder Creek Road, was identified and recorded (see discussion below). The cemetery areas were re-examined and there was still no indication of any features within the APE. The remainder of the area was spot checked in areas where quarrying is contemplated (Figure 3)

10000 Elder Creek Road (P-34-1865)

The residential complex is located about half way between Bradshaw Road and Excelsior Road on the south side of Elder Creek Road. Just east of the buildings a private road leading south intersects Elder Creek. The complex is located within APN: 066-0020-006.

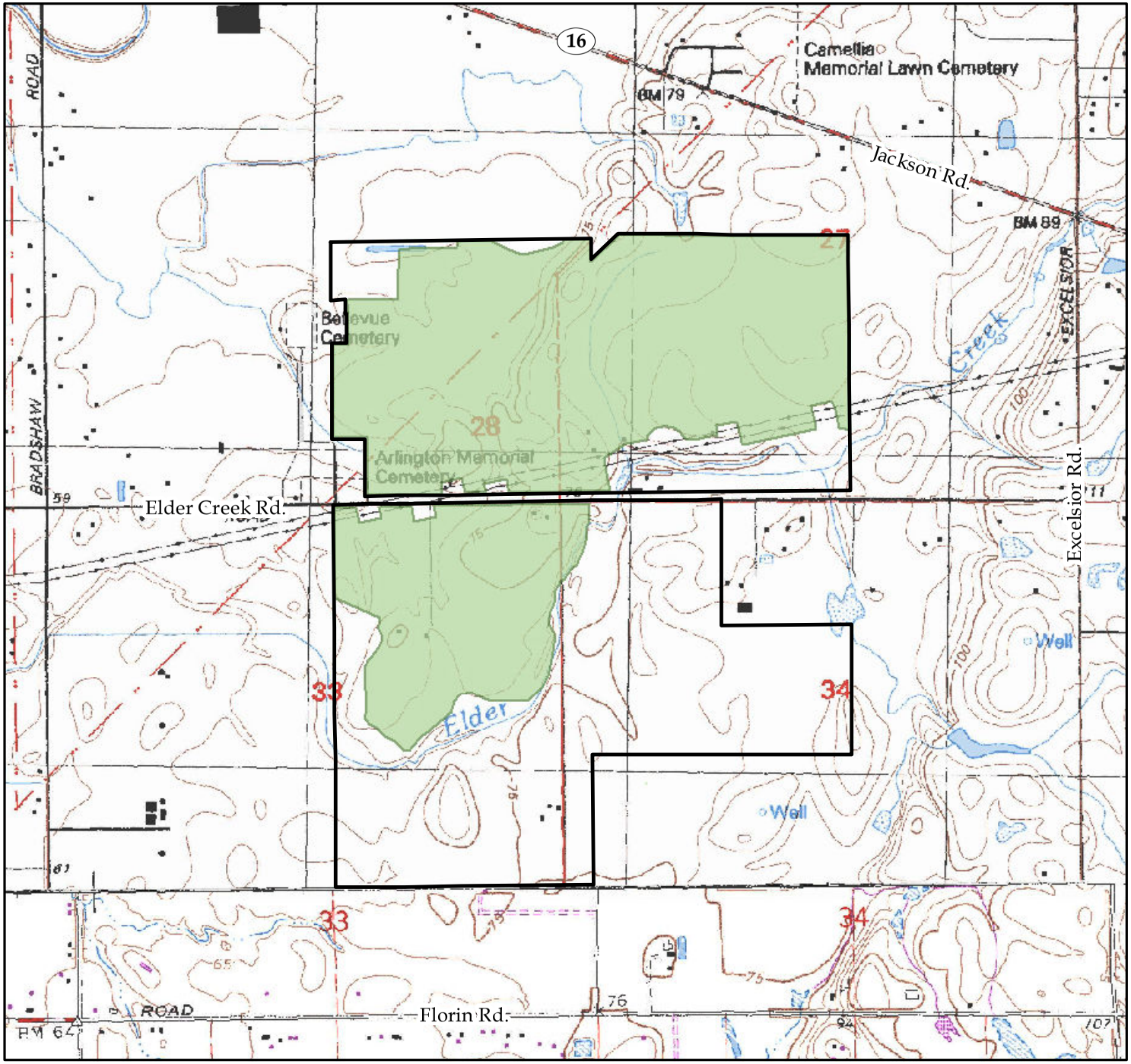
The complex consists of a group of three buildings, two of them modern. The larger residence dates to about 1970 and there is a garage/shed of cinder block construction. The smaller residence is the only one of the buildings that might have any historical importance, and it does not appear to be significant either. It is a circa 1940s Minimal Traditional one story frame residence. It has stucco siding and a composite roof. The only real clues to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west that is clearly later than the bulk of the house.

10151 Elder Creek Road (P-34-1866)

The site is located on the north side of Elder Creek Road . The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branch of Elder Creek and Elder Creek Road . APN: 063-0160-001

The only building that is fifty years old among the several buildings located at this farm headquarters is a quonset hut being used for a residence. There are several other buildings in the area , all modern. The building is oriented with the long axis east-west and it is entered from the east, via a modern aluminum door under a tacked-on porch roof. There is an addition, clearly later than the bulk of the structure, on the west end. This has lapped siding and includes another entrance from the north. The addition, entrances and a couple of aluminum framed slider windows that have been added on detract from the original appearance of the structure.

No doubt the building was built during World War II, and possibly moved from Mather Field. It was very common for these mass-produced, prefabricated structures to be sold by the military after the war. They have been used , and many are still in use, throughout the country.



TENTATIVE MINING AREA

ASPEN VIII & IX
TEICHERT AGGREGATES

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

Tentative Mining Area

Aspen VIII & IX Property Boundaries

FIGURE 3

0 750 1,500 Feet

1 inch = 1,500 feet

SOURCE:

USGS Topo Quad: Carmichael (1997)

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

TEICHERT AGGREGATES

C. Cornejo 03/04/2014 AS89_TentativeMiningArea_201403.mxd

7050 Knox Road (P-34-1867)

Knox Road is a small access road running north from Florin Road half way between Bradshaw and Excelsior (one mile from each.) The site is on the west side about 900 feet north of Florin. APN: 066-0050-012

The site is the location of a former farm headquarters. It is now only foundation pads and some minor structural features. It is not clear when the structures were built, but there are only modern artifacts (trash) in the area now.

Features now present in the area are:

1 Wood fence
2 Brick pile (stoop?)
3 Concrete slab #1
4 Raised area indicating building location
5 Stock tank
6 Water tank
7 Pump house (?) foundation = concrete slab
8 Concrete slab #2
9 Building site = flattened area and concrete walk.

9990 Elder Creek Road

This property was not recorded as a resource during the first survey. It was recorded when the follow-up survey was completed on April 4, 2014. Originally it was not recorded because the field team felt the age of the residence at this farm/ranch headquarters made the complex too young for consideration as a resource. It is true that the residence is not old, 1972 according to County Assessor's records, but the barn and other outbuildings are older.

The four buildings other than the residence include a chicken coop, two equipment sheds and a large barn. All of the buildings are plain, utilitarian structures with no architectural features of note and no unusual structural techniques or materials in evidence.

The garage/equipment shed is on south side of the complex. It has 1940s--50s-style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950s electrical fixtures. It is in fair condition. There is a modern roll up door on the west half. The one-over-one sash windows could be original. The west half of the structure, an equipment shed, appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor and features the same construction style and general appearance as the garage. There is a large industrial scale bolted to floor.

The chicken coop is similar in construction style and materials as the above, but with plexiglass replacement windows. It is in fair condition..

The barn is the most imposing structure of the complex. It is 40 feet wide by 80 feet long and is about 22 feet high. There are sliding doors on north end, but the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand out of weather and feed. Roofing is rusted corrugated steel.

Aside from the damaged doors, good overall condition. The fencing for a corral and pen extends behind and west of the barn.

Ground Penetrating Radar Survey

Due to the proximity of two cemeteries to the APE, and the known occurrence of graves outside fence lines in older cemeteries, Peak & Associates recommended that a ground penetrating radar study be undertaken to determine if there were graves within the project area near both the Arlington and Belleview Cemeteries.

Using historic aerial photographs, maps and older editions of the USGS topographic quadrangles for the project area, the potential maximum extent of the cemeteries beyond the current fence lines was determined. This is the zone selected for the ground penetrating radar study.

NORCAL Geophysical Consultants, Inc. conducted the study within the Aspen VIII project area adjacent to the cemeteries in September 2006. The survey team checked an area measuring about 300 feet north to south and about 400 feet wide on the east side of the Quiet Haven Cemetery. A second area to the north was also tested, a strip along the south side of Belleview Cemetery and a strip of land along the east side of that cemetery.

The NORCAL crew identified 11 subsurface anomalies (irregularities or deviations in readings) in the zone tested near the Quiet Haven Cemetery. There were also 16 anomalies identified in the zones surrounding Belleview Cemetery (NORCAL Geophysical Consultants, Inc. 2006).

Field Trenching

Peak & Associates returned to the project site to excavate each of the identified anomalies in May 2007. The anomaly locations had been marked with stakes. Each of the anomalies was opened with a backhoe trench. Excavated materials were observed, and samples screened from the trenches. Side walls of trenches were carefully checked from evidence of disturbance.

Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the study area.

CONCLUSIONS

The trenching of the anomalies revealed that there are no graves or buried features of concern in the tested portions of the project area adjacent to the known cemeteries. There are no human remains present within the project area.

9990 Elder Creek Road (P-34-1865 ?)

The Information Center record search indicated that this complex is part of P-34-1865, even though we did not record it previously. Until this can be cleared up, we are applying the tentative designation, but describing the resources separately.

The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of the USGS map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

10000 Elder Creek Road (P-34-1865)

The older building in the complex is not associated with any known person or event of historic significance. The architectural style is very plain and there has been a major addition as well.

There is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or the California Register.

10151 Elder Creek Road (P-34-1866)

The quonset hut is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in quantities at WWII military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavations would return any information of significance, as there is no indication of subsurface deposits at the site. The site is not eligible for the National Register or for the California Register.

7050 Knox Road (P-34-1867, CA-SAC-1027-H)

This site is not associated with any known person or event of historic significance. There are no surviving buildings and there is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or for the California Register.

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

EFFECTS OF THE PROPOSED PROJECT

As a result of the identification and evaluation efforts, an agency official may, depending on the evidence, find that there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them as defined in Section 800.16 (i).

If the agency official finds there are historic properties that may be affected by the undertaking, the agency official shall apply the criteria of adverse effect. "An adverse effect is found when an undertaking may alter, directly or indirectly , any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the

integrity of the property's location, design, setting, materials, workmanship, feeling or association" (Section 800.5 (a)).

There are three possible findings:

- Finding of no historic properties affected: There is no effect of any kind on the historic properties.
- Finding of no adverse effect: There could be an effect, but the effect would not be harmful to the characteristics that qualify the property for inclusion in the National Register; or
- Adverse effect: There could be an effect, and that effect could diminish the integrity of such characteristics.

There are no significant resources present within the project area. With regard to Section 106 of the NHPA, it is recommended that agency seek concurrence from the California SHPO with a finding of "no historic properties affected " per § 800.4(d) (1).

Similarly, we believe that there are no properties of significance within the project area under the criteria of the California Register of Historical Resources.

RECOMMENDATIONS

There is always a possibility that a site may exist in the project area and be obscured by vegetation or historic activities, leaving no surface evidence. If artifacts, exotic rock, or unusual amounts of shell or bone are uncovered during the construction, work should stop in that area immediately and a qualified archeologist should be contacted to evaluate the deposit. If the bone appears to be human, the Sacramento County Coroner and Native American Heritage Commission must be contacted.

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APPENDIX 1

Resumés

PEAK & ASSOCIATES, INC.
RESUME

MELINDA A. PEAK **January, 2013**

Senior Historian/Archeologist
3941 Park Drive, Suite 20 #329
El Dorado Hills, CA 95762
(916) 939-2405

PROFESSIONAL EXPERIENCE

Ms. Peak has served as the principal investigator on a wide range of prehistoric and historic excavations throughout California. She has directed laboratory analyses of archeological materials, including the historic period. She has also conducted a wide variety of cultural resource assessments in California, including documentary research, field survey, Native American consultation and report preparation. Ms. Peak has completed over 2,500 projects in her career, spread throughout California from Shasta County on the north to Imperial County in the south.

In addition, Ms. Peak has developed a second field of expertise in applied history, specializing in site-specific research for historic period resources. She is a registered professional historian and has completed a number of historical research projects for a wide variety of site types.

Through her education and experience, Ms. Peak meets the Secretary of Interior Standards for historian, architectural historian, prehistoric archeologist and historic archeologist.

EDUCATION

M.A. - History - California State University, Sacramento, 1989
Thesis: *The Bellevue Mine: A Historical Resources Management Site Study in Plumas and Sierra Counties, California*
B.A. - Anthropology - University of California, Berkeley

RECENT PROJECTS

Ms. Peak has had extensive experience working on coastal, lacustrine and riverine environments over the years. Some of the projects have involved identification of resources through field surveys as well as testing sites, and determining significance of resources in proposed impact areas.

Ms. Peak participated in the Pine Creek Boat Ramp Repair Project, completing historical research for the site and assisting in report preparation. A few other representative projects Ms. Peak has completed include: a field recordation and evaluation of a farm complex on Sherman Island for DWR; a survey of Lake Britton in Shasta County for Pacific Gas and Electric Company; a record search and historical map review for the Bureau of Land Management for the entire Sacramento River and a number of other existing reservoirs; the Folsom Lake Reoperation study that involved archival research to identify locations of historic and prehistoric sites inundated when the reservoir filled; and a study of river landing sites within the City of Napa for the Corps of Engineers.

Ms. Peak completed the cultural resource research and contributed to the text prepared for the DeSabla-Centerville PAD for the initial stage of the FERC relicensing. She also served cultural

resource project manager for the FERC relicensing of the Beardsley-Donnells Project for the South Feather Power Project and the Woodleaf-Palermo and Sly Creek Transmission Lines, with her team completing the technical work for the project.

Ms. Peak has completed a number of determinations of eligibility and effect documents in coordination with the Corps of Engineers for projects requiring federal permits, assessing the eligibility of a number of sites for the National Register of Historic Places. She has also completed historical research projects on a wide variety of topics for a number of projects including the Red Bluff Diversion Dam, farm complexes dating to the 1860s-1900s, bridges, an early roadhouse, Folsom Dam, Rocklin City Hall and a section of an electric railway line.

In recent years, Ms. Peak has prepared a number of cultural resource overviews and predictive models for blocks of land proposed for future development for general and specific plans. She has been able to direct a number of surveys of these areas, allowing the model to be tested.

She served as principal investigator for the multi-phase Twelve Bridges Golf Club project in Placer County. She served as liaison with the various agencies, helped prepare the historic properties treatment plan, managed the various phases of test and data recovery excavations, and completed the final report on the analysis of the test phase excavations of a number of prehistoric sites. She is currently involved as the principal investigator for the Clover Valley Lakes project adjacent to Twelve Bridges in the City of Rocklin, coordinating contacts with Native Americans, the Corps of Engineers and the Office of Historic Preservation.

Ms. Peak has served as project manager for a number of major survey and excavation projects in recent years, including the many surveys and site definition excavations for the 172-mile-long Pacific Pipeline proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She also completed an archival study in the City of Los Angeles for the project. She also served as principal investigator for a major coaxial cable removal project for AT&T.

Additionally, she completed a number of small surveys, served as a construction monitor at several urban sites, and conducted emergency recovery excavations for sites found during monitoring. She has directed the excavations of several historic complexes in Sacramento, Placer and El Dorado Counties.

Ms. Peak is the author of a chapter and two sections of a published history (1999) of Sacramento County, *Sacramento: Gold Rush Legacy, Metropolitan Destiny*. She served as the consultant for a children's book on California, published by Capstone Press in 2003 in the land of Liberty series.

Ms. Peak conducted archival research for the Fourteen Mile House, an inn on Auburn Boulevard in Citrus Heights dating to the early 1850s. She then completed the nomination of the site as a Point of Historical Interest, with approval by the State Historical Resources Commission in May 2012.

PEAK & ASSOCIATES, INC.
RESUME

ROBERT A. GERRY **January 2013**
Senior Archeologist
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

PROFESSIONAL EXPERIENCE

Mr. Gerry has over thirty years of extensive experience in both the public and private sectors. He has directed all types of cultural resource-related projects, including field survey, test excavations, data recovery programs, intensive archival research and cultural resource management. He has completed archeological work in most cultural areas of California and in the western Great Basin.

EDUCATION

Graduate studies - Anthropology - California State University, Sacramento, 1972-1977
B.A. - Anthropology - University of Illinois, Chicago Circle, 1972

RECENT PROJECTS

Mr. Gerry was field director for a cultural resources survey of the Diamond Valley Project in Alpine County, California. The project involved an overview and survey of an extensive plan area, recording and evaluation of resources and presenting the results to local Native Americans and helping to conduct a field tour with them. He also directed field survey of the Van Vleck Ranch, a large property in Sacramento County being put into a conservation easement. He has conducted surveys throughout California related to low income housing development.

Mr. Gerry was field director for a cultural resources survey of about 18,640 acres within the Naval Petroleum Reserve No. 1, Kern County, California. The project employed a stratified random sampling strategy and resulted in the recording of 112 cultural resources, and preparation of a management plan. He also directed a subsequent excavation program for evaluation of significance. Additionally, he served as field director for archeological surveys on the Plumas, Stanislaus, El Dorado and Six Rivers National Forests.

He was field director and primary report writer on several linear surveys of considerable length -- including the San Joaquin Valley Pipeline (157 miles) for Shell Oil, the Point Arena-Dunnigan fiber optic cable (137 miles) and the Medford, Oregon, to Redding, California fiber optic cable (151 miles), the Oregon and Idaho portions of the Spokane to Boise fiber optic cable, and the San Bernardino to San Diego fiber optic cable, for American Telephone & Telegraph Company. He also assisted on the 170 mile Pacific Pipeline survey on the southern coast of California and conducted several surveys of water pipelines in southern California: La Sierra pipeline (Riverside), Perris Valley. Pico Rivera, Temecula and San Jacinto.

Mr. Gerry supervised the cultural resources assessments and participated in all field surveys for the studies of water supply facilities for seven wildlife refuges in the Sacramento and San

Joaquin Valleys. He also took a lead role in field work and report preparation for major residential developments in the Sacramento area, such as the Sunrise Douglas project and Florin Vineyard.

Mr. Gerry has developed a specialty in bridge replacement evaluations, completing five such studies in Tuolumne County, two in Santa Barbara County, two in Amador County and ten others in various areas of California.

Mr. Gerry has had extensive experience in recording mining sites in northern California and Nevada for proposed mining undertakings as well as in the course of survey for proposed subdivisions, reservoirs, and other development projects. He directed the survey of two parcels totaling 2,240 acres in the Battle Mountain Mining District in Lander County, recording a number of mining sites and features. Within the Cook Ranch Project area in El Dorado County, he completed the recordation of several gold mines and a cinnabar mine. He has completed three studies involving the American Hill Mine in Nevada City, the location where hydraulic mining began.

Mr. Gerry has directed test excavations for evaluation of significance at a number of sites, both historic and prehistoric. Examples include CA-NAP-261, twelve sites on Naval Petroleum Reserve No. 1, three sites on Russell Ranch in Sacramento County, a midden site near Guinda and a village known through ethnographic literature in Murphys.

His work has included an important role in working with Native American peoples. He has surveyed eight allotments and rancherias in the Pit River area, the Point Arena/Manchester Rancheria in Mendocino County, the Susanville Rancheria in Lassen County, the Rumsey Rancheria in Yolo County, and three rancherias in northwestern California. In each of these projects, he has been closely involved with Native American organizations and individuals, including a number of native people he has directed as surveyor trainees.

In the field of historical resources, Mr. Gerry has prepared site records and significance evaluations for numerous historical buildings throughout California. The bulk of these have been single family residences, but industrial, commercial and multi-family residences were also included. He has also directed excavations for evaluation of historical archeological potential and monitored construction work in areas of known historical sensitivity.

PEAK & ASSOCIATES, INC.
RESUME

MICHAEL D. LAWSON
6241 Brantford Way
Citrus Heights, CA 92621
916-765-2441

PROFESSIONAL EXPERIENCE

Mr. Lawson has 19 years of experience with various private agencies conducting typical fieldwork and laboratory work, as well. Major projects include Twelve Bridges Golf Club and adjacent areas, Clover Valley Lakes, and other smaller projects in several counties.

Survey work includes the following counties: Colusa, Sutter, Yuba, Sacramento, El Dorado, Sierra, Butte, Lake, Fresno, Merced, San Joaquin, Placer, Nevada, Amador, Solano, Tuolumne, Kern, Contra Costa, Sonoma, Kings and Tulare. Additional experience includes mapping and processing field notes and photography. Informal visits in an unpaid capacity include: historic and prehistoric sites in Sacramento, Amador, Placer, Sonoma, Marin, Fresno, Modoc and Lassen.

Other site visits include prehistoric sites in Nevada, Arizona, Oregon, South Dakota, Michigan, Ohio and Texas.

Sites visited in Mexico and Guatemala include: El Ray, Uxmal, Tulum, Escaret, Chitchen-Itza, Carocol, Burial Creek Caves and Tikal.

Mr. Lawson has undertaken extensive survey work throughout the San Joaquin Valley for a number of smaller projects for Peak & Associates. For over a year, he served as lead monitor during the excavations for improvements to Sutter Street in the city of Folsom. He is currently monitoring an excavation for a roadway in El Dorado County

Other recent projects include his participation as a team member on major excavations in San Francisco and Vacaville, involving the removal of Native American interments. Other projects have included historic period excavations. He assisted in an Extended Phase I test in Yuba County, checking for both prehistoric and historic period resources.

EDUCATION

B.A. Anthropology – California State University, Sacramento, 2007
A.A. General Education – American River College, 1993

CSUS field class conducted at Virginia Town, Chinese mining area, Gold Hill, CA

RELATED STUDIES

Reproduction of ancient technologies, including flint knapping, blacksmithing, bronze and copper tool and weaponry, including projectiles.

APPENDIX 2

Native American Correspondence

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY
30 Years: 1975-2005

March 19, 2014

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 288
Sacramento, CA 95814

Dear Ms. Treadway:

Peak & Associates, Inc. has contracted with Teichert Aggregates to perform a cultural resources assessment for the proposed Aspen VIII and IX gravel quarries in xouthern Sacramento County. The project involves a land parcel of about 690 acres lying on both sides of Elder Creek Road between Bradshaw Road and Excelsior Road. The project area lies in T8N, R6E, Sections 27, 28, 33 and 34 and is mapped on the Carmichael 7.5' USGS quadrangle, which is the base for the attached map.

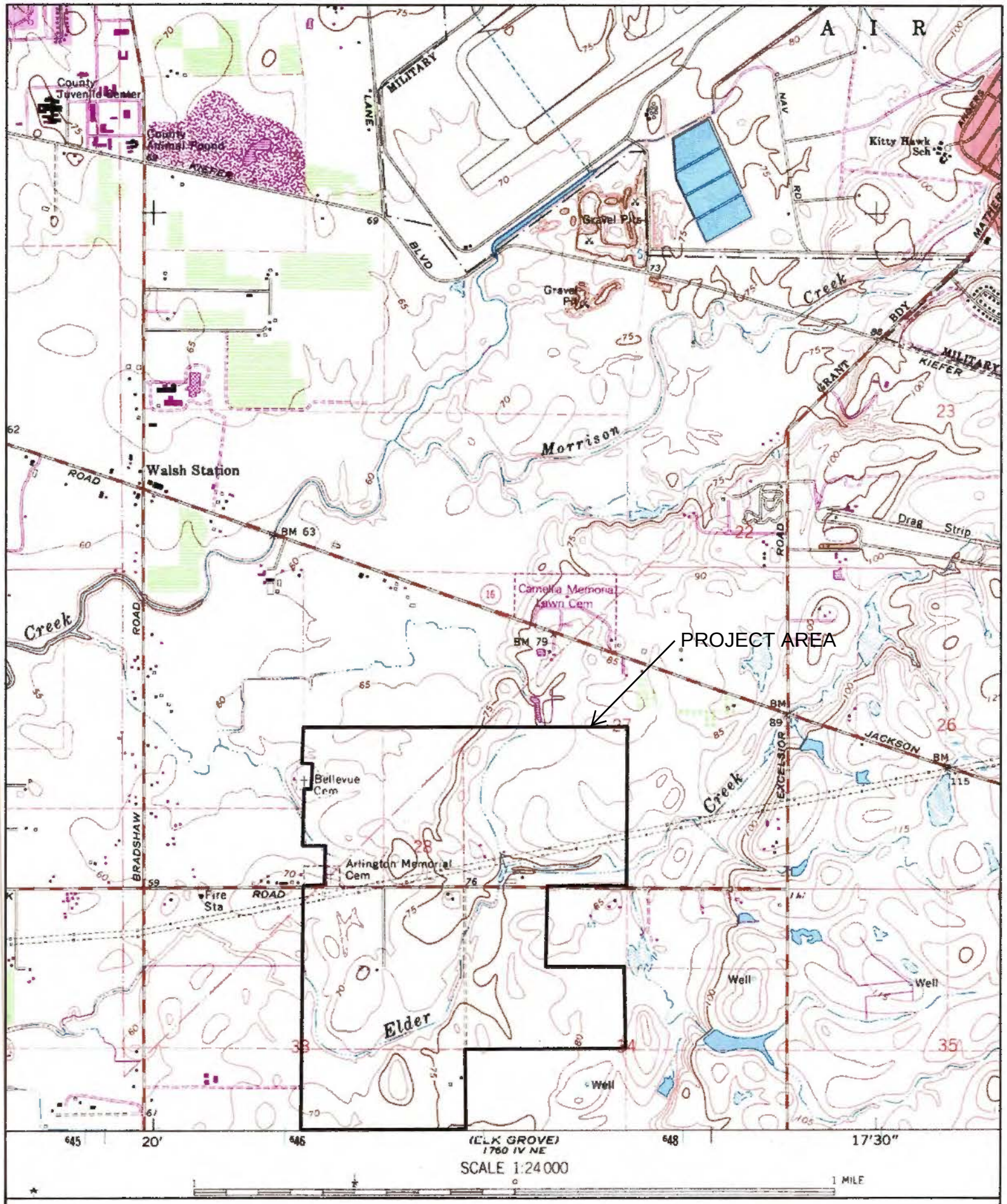
Because of wetlands issues and the need for a Section 404 permit, the project is a federal undertaking. In accordance with the Secretary of the Interior's Guidelines for implementing Section 106, we are requesting a list of appropriate Native American contacts for the project area. We also request a check of the Sacred Lands Inventory for any potential conflicts.

Thank you for your assistance.

Sincerely,

Robert A. Gerry, Consulting Archeologist
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762
(916)283-5238
FAX: (916)283-5239
peakinc@surewest.net

//RG
Encl.



Name: CARMICHAEL
Date: 3/14/2014
Scale: 1 inch equals 2000 feet

Location: 10 647049 E 4265092 N
Caption: Teichert Aggregates
Aspen VIII and IX
14-016

CR-1 - 28

MAP 1

Copyright (C) 1997, Maptech, Inc.

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

March 26, 2014

Robert Gerry
Peak and Associates, Inc
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

VIA FAX: 916-283-5239
Number of Pages: 3

Re: Aspen VIII and IX Gravel Quarries, Sacramento County

Dear Mr. Gerry:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sacramento County
March 26, 2014

Randy Yonemura
4305 - 39th Avenue — Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600
(916) 601-4069-cell

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 — Me-Wuk / Miwok
Sacramento , CA 95811
rhonda@buenavistatribe.com
916 491-0011
916 491-0012 - fax

Ione Band of Miwok Indians
Yvonne Miller, Chairperson
PO Box 699 — Miwok
Plymouth , CA 95669
administrator@ionemiwok.org
209-245-5800
209-245-3112 Fax

Ione Band of Miwok Indians Cultural Committee
Anthony Burris, Chairperson
PO Box 699 — Miwok
Plymouth , CA 95699
209-245-5800
209-245-3112 Fax

Shingle Springs Band of Miwok Indians
Hermo Olanio, Vice Chairperson
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
holanio@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
nfonseca@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Daniel Fonseca, Cultural Resource Director
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
(530) 676-8010
(530) 676-8033 Fax

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
530-883-2390
530-883-2380 - Fax

United Auburn Indian Community of the Auburn Rancheria
Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
mguerrero@auburnrancheria.com
530-883-2364
530-883-2320 - Fax

United Auburn Indian Community of the Auburn Rancheria
Jason Camp, THPO
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
jcamp@auburnrancheria.com
916-316-3772 - cell
530-883-2390
530-888-5476 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Aspen VIII and IX gravel Quarries, Sacramento County

Native American Contacts
Sacramento County
March 26, 2014

Wilton Rancheria
Raymond Hitchcock, Chairperson
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
rhitchcock@wiltonrancheria-nsn.gov
916-683-6000
916-683-6015

Wilton Rancheria
Steven Hutchason, Executive Director Environmental
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
shutchason@wiltonrancheria-nsn.gov
916-683-6000, Ext. 2006
916-683-6015, FAX
916-683-6015

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Aspen VIII and IX gravel Quarries, Sacramento County

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

April 1, 2014

Dear :

Peak & Associates, Inc. has contracted with Teichert Aggregates to perform a cultural resources assessment for the proposed Aspen VIIIand IX gravel quarries in xouthern Sacramento County. The project involves a land parcel of about 690 acres lying on both sides of Elder Creek Road between Bradshaw Road and Excelsior Road. The project area lies in T8N, R6E, Sections 27, 28, 33 and 34 and is mapped on the Carmichael 7.5' USGS quadrangle, which is the base for the attached map.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

MAILING LIST

Ione Band of Miwok Indians
Mr. Anthony Burris, Cultural Committee Chairperson
PO Box 699
Plymouth, CA 95632

Ione Band of Miwok Indians
Ms. Yvonne Miller, Chairperson
PO Box 699
Plymouth, CA 95669

Wilton Rancheria
Mr. Raymond Hitchcock, Chairperson
9300 West Stockton, Suite 200
Elk Grove, CA 95758

Wilton Rancheria
Mr. Steven Hutchason, Executive Director Environmental
9300 West Stockton, Suite 200
Elk Grove, CA 95758

Buena Vista Rancheria
Ms. Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200
Sacramento, CA 95811

Shingle Springs Band of Miwok Indians
Mr. Hermo Olanio, Vice-Chairperson
PO Box 1340
Shingle Springs, CA 95682

Shingle Springs Band of Miwok Indians
Mr. Daniel Fonseca, Cultural Resource Director
PO Box 1340
Shingle Springs, CA 95682

Shingle Springs Band of Miwok Indians
Mr. Nicholas Fonseca, Chairperson
PO Box 1340
Shingle Springs, CA 95682

United Auburn Indian Community of the Auburn Rancheria
Mr. Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road
Auburn, CA 95603

United Auburn Indian Community of the Auburn Rancheria
Mr. Gene Whitehouse, Chairperson
10720 Indian Hill Road
Auburn, CA 95603

United Auburn Indian Community of the Auburn Rancheria
Mr. Jason Camp, THPO
10720 Indian Hill Road
Auburn, CA 95603

APPENDIX 3

Information Center Record Search

California Historical Resources Information System

NORTH CENTRAL INFORMATION CENTER

AMADOR
EL DORADO
NEVADA
PLACER
SACRAMENTO
YUBA

California State University, Sacramento
6000 J Street, Folsom Hall, Suite 2042
Sacramento, California 95819-6100
phone: (916) 278-6217
fax: (916) 278-5162
email: ncic@csus.edu

3/19/2014

NCIC File No.: SAC-14-35

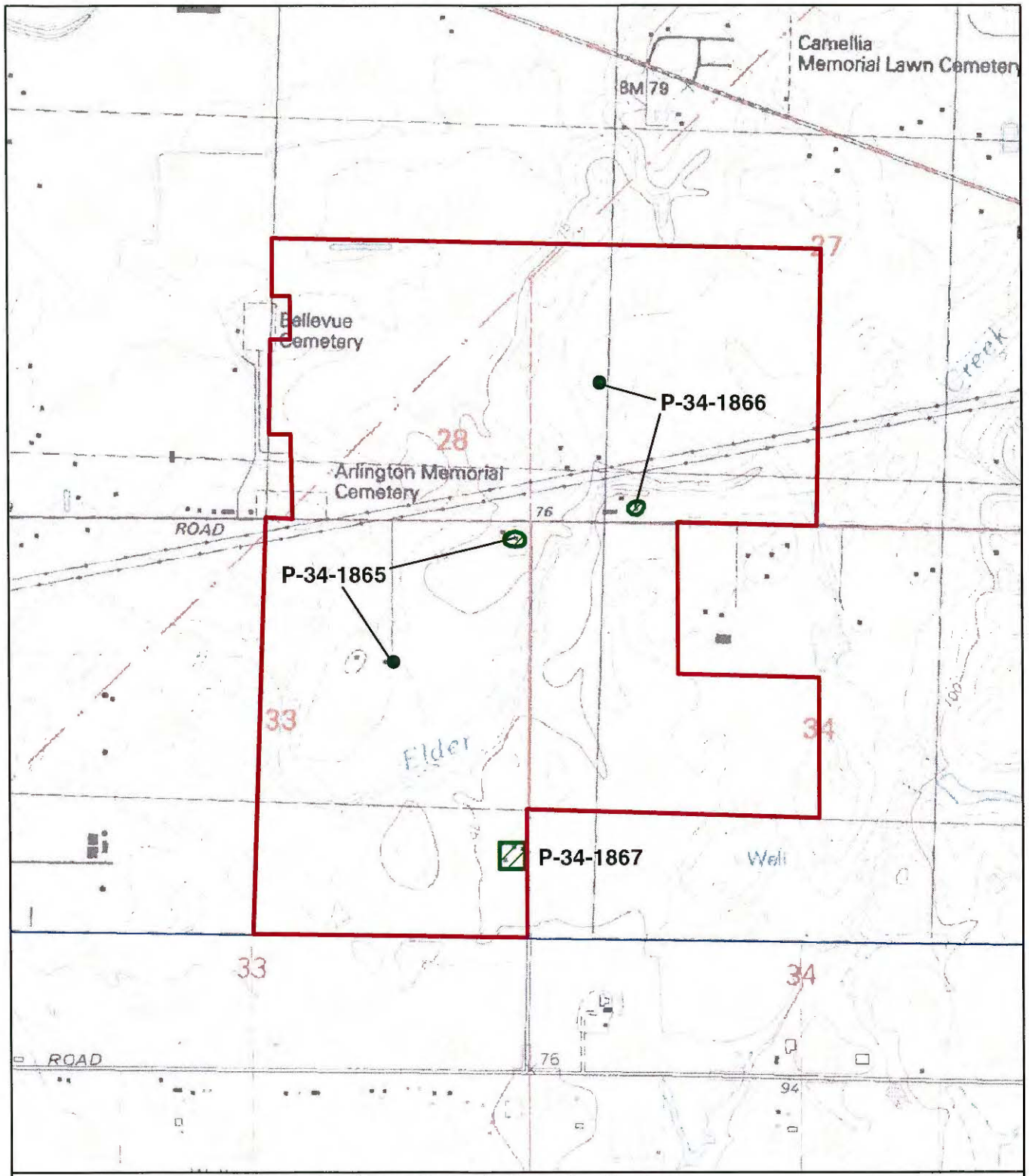
Robert A. Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762

Records Search Results for
Aspen VII and IX Quarries
T8N/R6E Section(s) 27, 28, 33, 34
USGS Carmichael 7.5' Quad, Sacramento County

- **NCIC Resources Within Search Area:**
  P-34-1865 P-34-1866 P-34-1867
- **NCIC Reports Within Search Area:**
  88 8062 8912 9989
- **OHP Historic Properties Directory:** ☐ enclosed ☐ not requested ☒ nothing listed
- **OHP Determinations of Eligibility:** ☐ enclosed ☐ not requested ☒ nothing listed
- ***CA Inventory of Historical Resources*:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Caltrans Bridge Inventory:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Ethnographic Information:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Historical Literature:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Historical Maps:** ☒ enclosed ☐ not requested ☐ nothing listed
- **Local Inventories:** ☐ enclosed ☒ not requested ☐ nothing listed
- **GLO and/or Rancho Plat Maps:** ☒ enclosed ☐ not requested ☐ nothing listed
- **Shipwreck Inventory:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Soil Survey Maps:** ☐ enclosed ☒ not requested ☐ nothing listed

Thank you for using our services. An invoice confidentiality agreement is enclosed; please sign and return a copy for our files.

Aspen VII and IX Quarries



N

0 270 540

Meters

North Central Information Center
Records Search Results

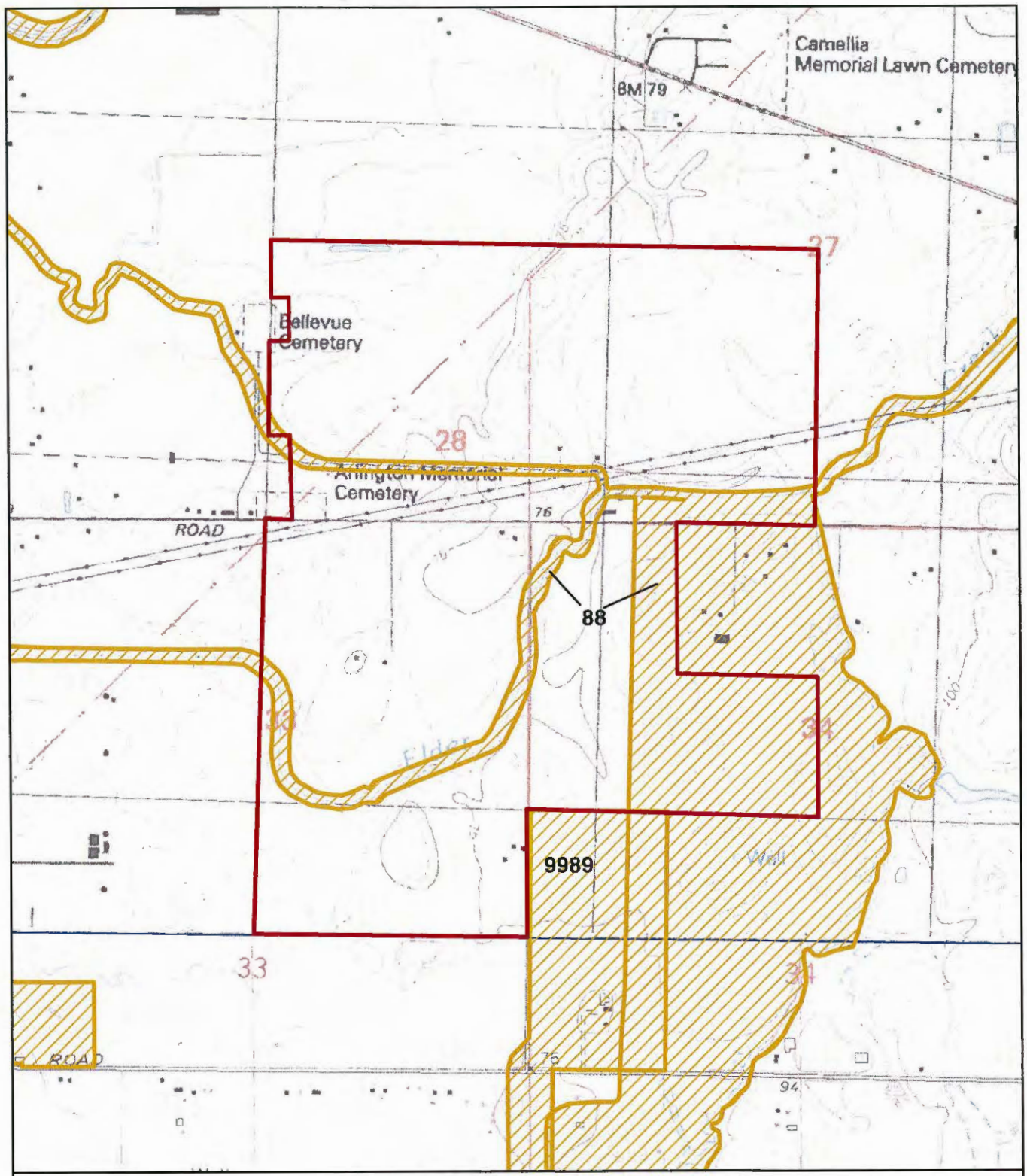
Carmichael 7.5' Quadrangle

May depict confidential cultural resource locations.
Do not redistribute.

Findings:

3 resources
5 reports

Aspen VII and IX Quarries



North Central Information Center
Records Search Results

Carmichael 7.5' Quadrangle

May depict confidential cultural resource locations.
Do not redistribute.

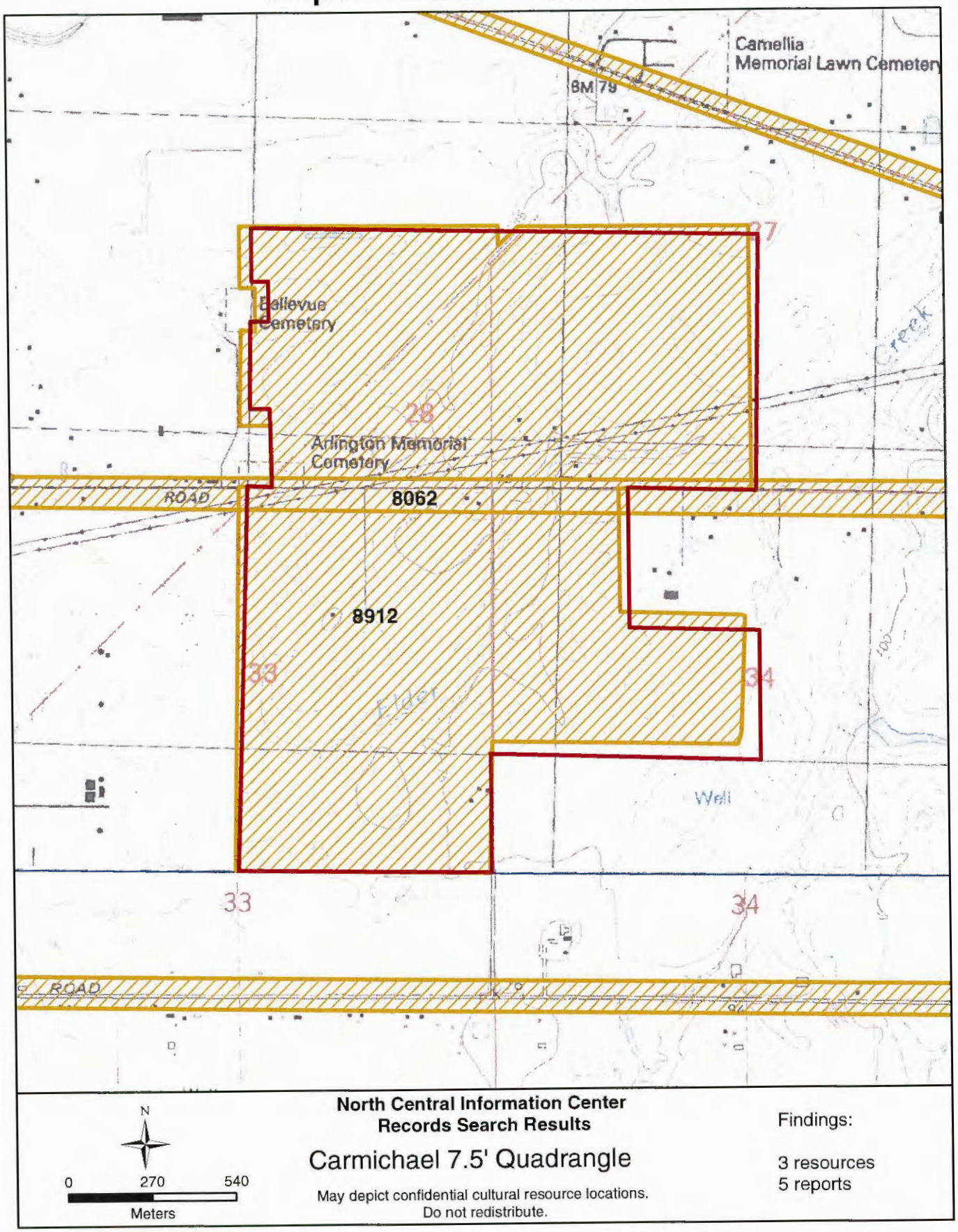
N

0 270 540
Meters

Findings:

3 resources
5 reports

Aspen VII and IX Quarries



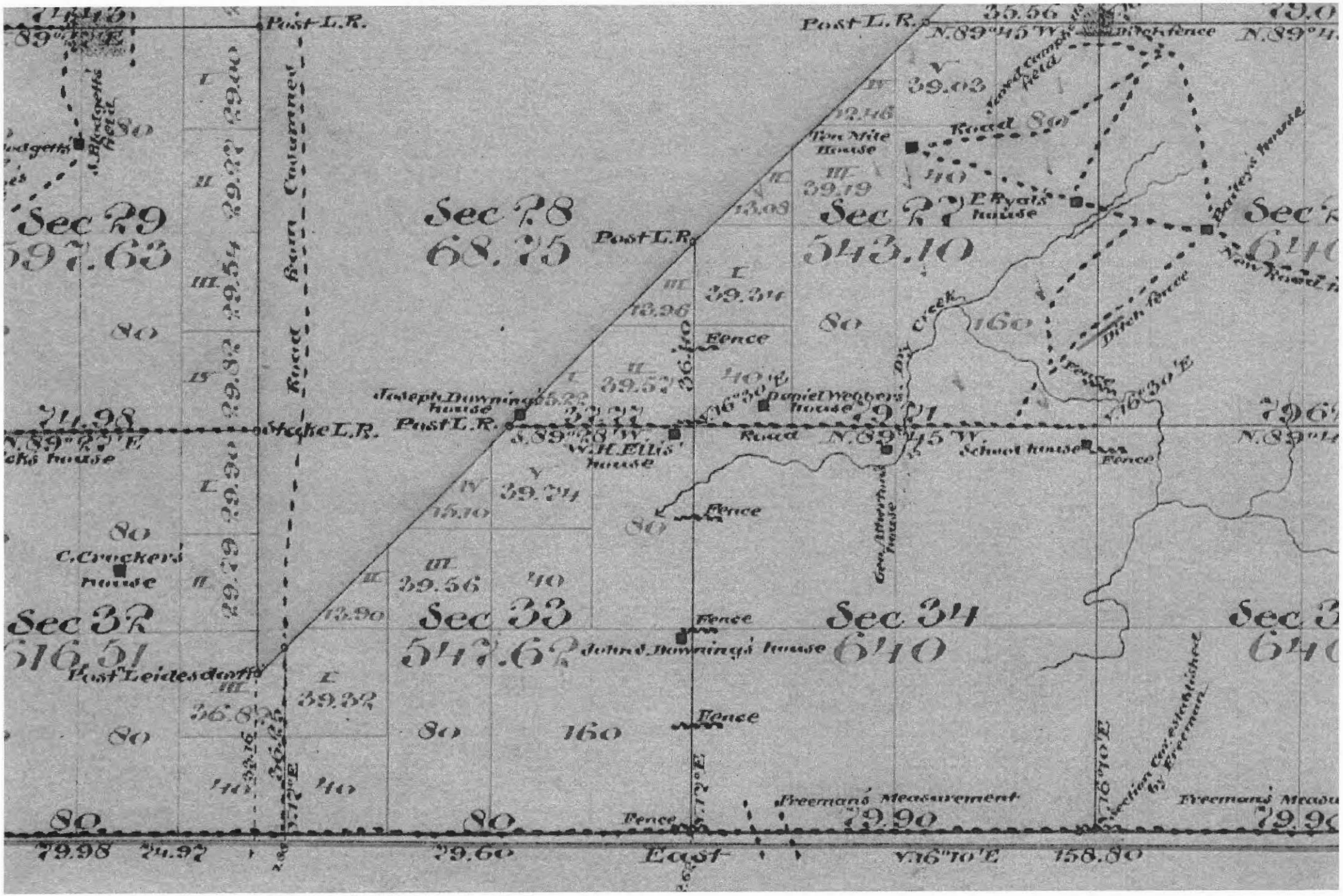
North Central Information Center Report Listing

Doc no.	Year	Author(s)	Title	Affiliation	Client
00088	1974	Johnson, Jerald J.	Reconnaissance Archeological Survey of the Morrison Stream Group in Sacramento County, California.		U.S. Army Corps of Engineers, Sacramento District, 650 Capitol Mall, Sacramento, CA 95814.
08062	2006	Ecorp Consulting	Cultural Resources Survey and Evaluation North Vineyard Station Off-Sitee (WBIG) Project	Ecorp	The West Bradshaw Implimentation Group
08912	2007	Melinda Peak	Determination of Eligibility and Effect for the Aspen XIII and Aspen IX Projects, Sacramento County, California	Peak and Associates, Inc.	Teichert Aggregates
09989	2006	Gabriel Roark	Cultural Resources Inventory and Evaluation Report for the Freeport Regional Water Project, Sacramento and San Joaquin Counties	Jones and Stokes	U.S. Bureau of Reclamation
09989	2008	Gabriel Roark	Cultural Resources Inventory Report Addendum for Modification to the Freeport Regional Water Project APE	Jones and Stokes	Freeport Regional Water Authority

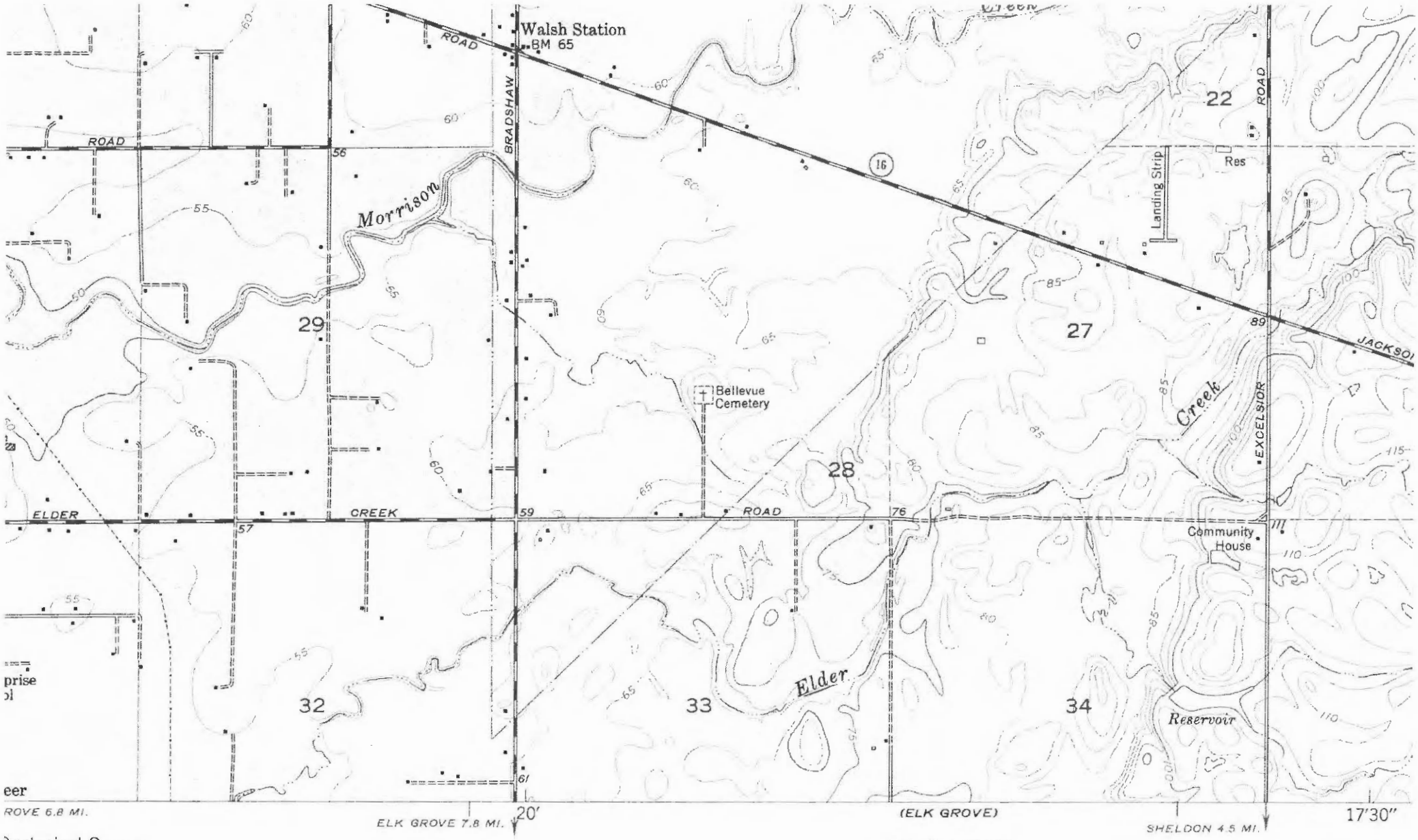
North Central Information Center Resource Listing

Primary No.	HRI No.	Trinomial	Name	Other IDs	Associated reports
P-34-001865					08912
P-34-001866					08912
P-34-001867		CA-SAC-1027H		Other 7050 Knox Road	08912

GLO PLAT FOR T8N R6E (1866)



USGS, CARMICHAEL (1954)



Geological Survey

SCALE 1:24000

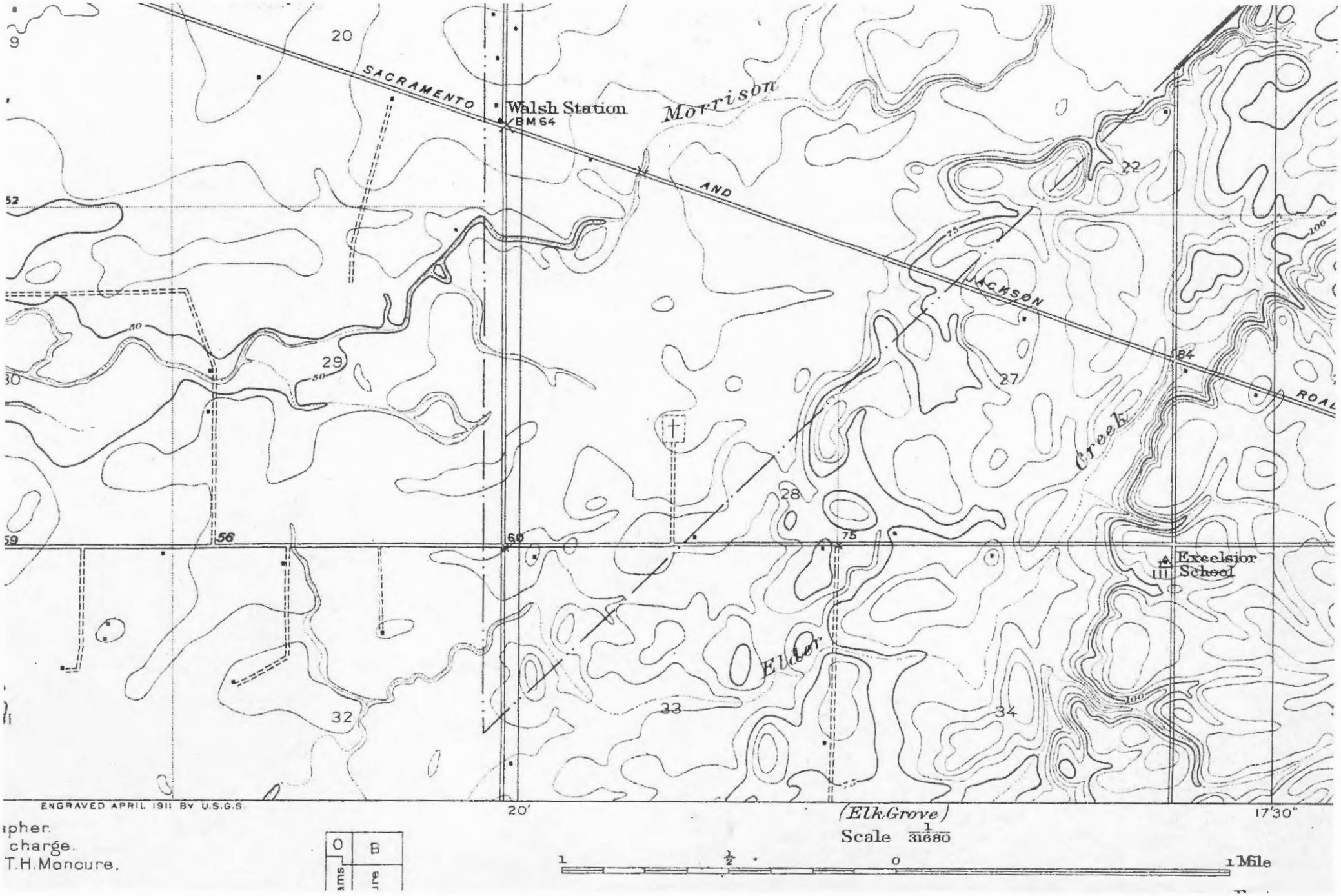
1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

18°

CR-1 - 42

USGS, MILLS (1911)



APPENDIX 4

Site Records

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1865
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 10,000 Elder Creek

P1. Other Identifier:

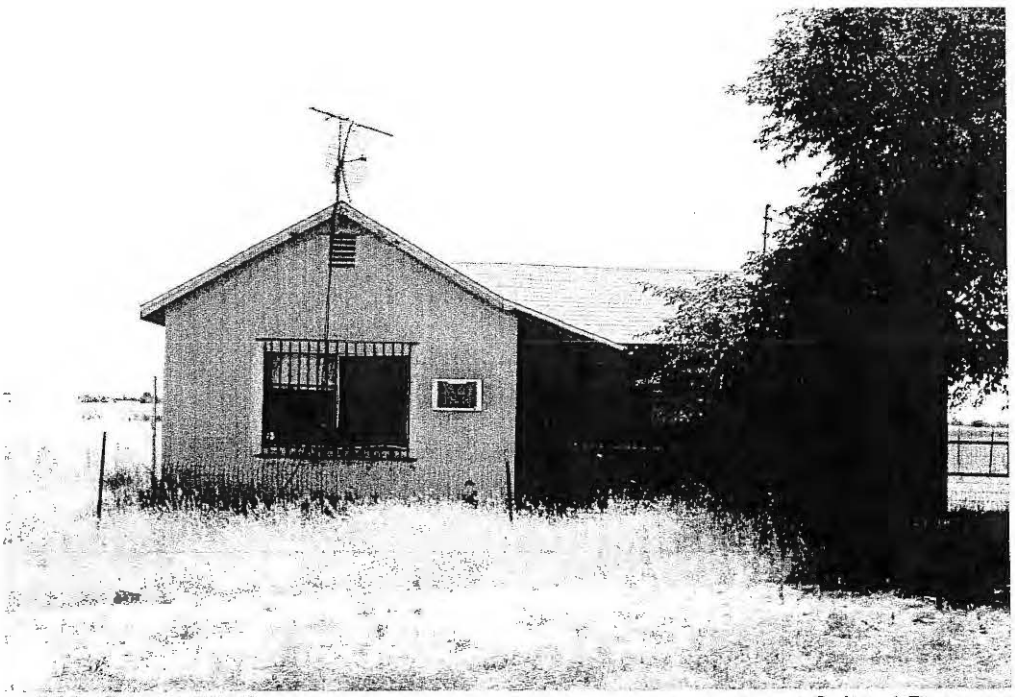
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ;R. 6E ; NE ¼ of NE ¼ of Sec. 33 ; MD B.M.
c. Address: 10,000 Elder Creek Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 46 820 mE/; 42 63 600 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
About half way between Bradshaw and Excelsior on the south side of Elder Creek Road. Just east of the buildings a private road leading south intersects Elder Creek. APN: 066-0020-006

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
A group of three buildings, tow of them modern. The larger residence dates to about 1970 and there is a garge/shed of cinder block construction. The smaller tesidence is the only one of the buildings that might have any historical importance, and it does not appear to be significant either. It is a *circa* 1940s Minimal Traditional one story frame residence. It has stucco siding and a composite roof. The only real clue to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west which is clearly later than the bulk of the house.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Looking south at north elevation of building. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
?
10,000 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: P-34-1865
HRI #:

Page 2 of 3 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 10,000 Elder Creek

B1. Historic Name:
B2. Common Name:
B3. Original Use: Residence B4. Present Use: Residence
B5. Architectural Style: Minimal Traditional
B6. Construction History: (Construction date, alterations, and date of alterations.)
Estimate of 1940s. There is an addition that is clearly later.

B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: Original Location:
B8. Related Features:
Two modern buildings: #1, a 1970s residence and #2, a cinder block shed/garage. The 1940s residence is #3 on the sketch.

B9a. Architect: Unknown b. Builder: Unknown
B10. Significance: Theme **Area**
Period of Significance **Property Type** **Applicable Criteria**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
This building is not associated with any known person or event of historic significance. The architectural style is very plain and there has been a major addition as well. There is no indication that archeological excavations would return any information of significance. The site does not satisfy any of the National Register criteria.

B11. Additional Resource Attributes: (List attributes and codes)

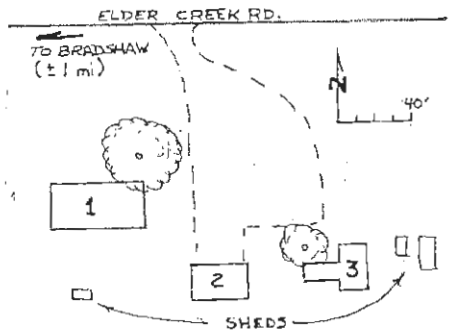
B12. References:

B13. Remarks:

B14. Evaluator: R. Gerry, Peak & Associates, Inc.

Date of Evaluation: 7/2/07

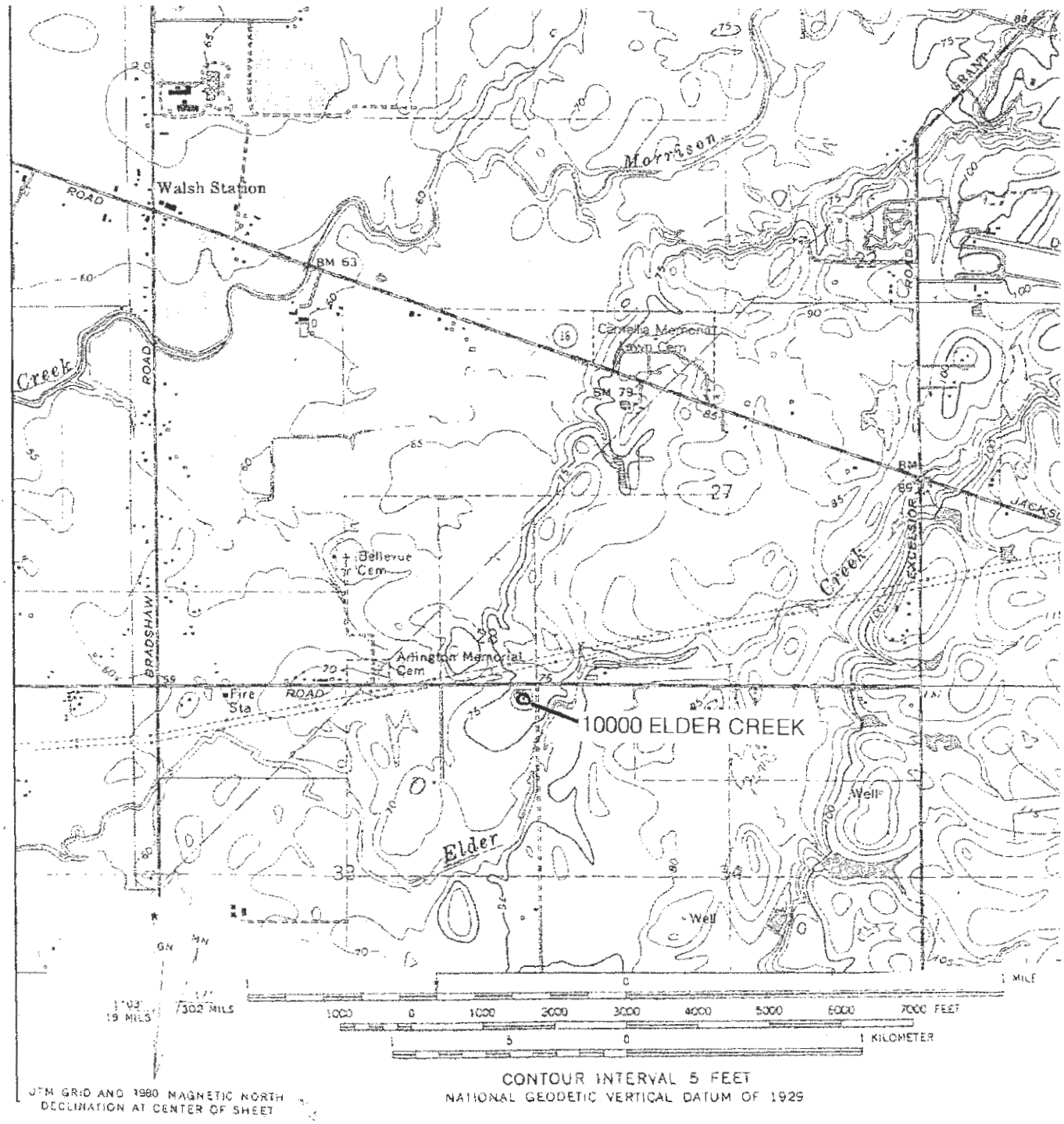
This space reserved for official comments.



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1865
HRI #:
Trinomial:

Page 3 of 3 **Resource Name or #:** (assigned by recorder) 10,000 Elder Creek
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1865
HRI #:
Trinomial:

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 10000 Elder Creek Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes in the condition of the buildings.

Easternmost building looking south

Central building looking south

Westernmost building looking southwest

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1866
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 10,151 Elder Creek

P1. Other Identifier:

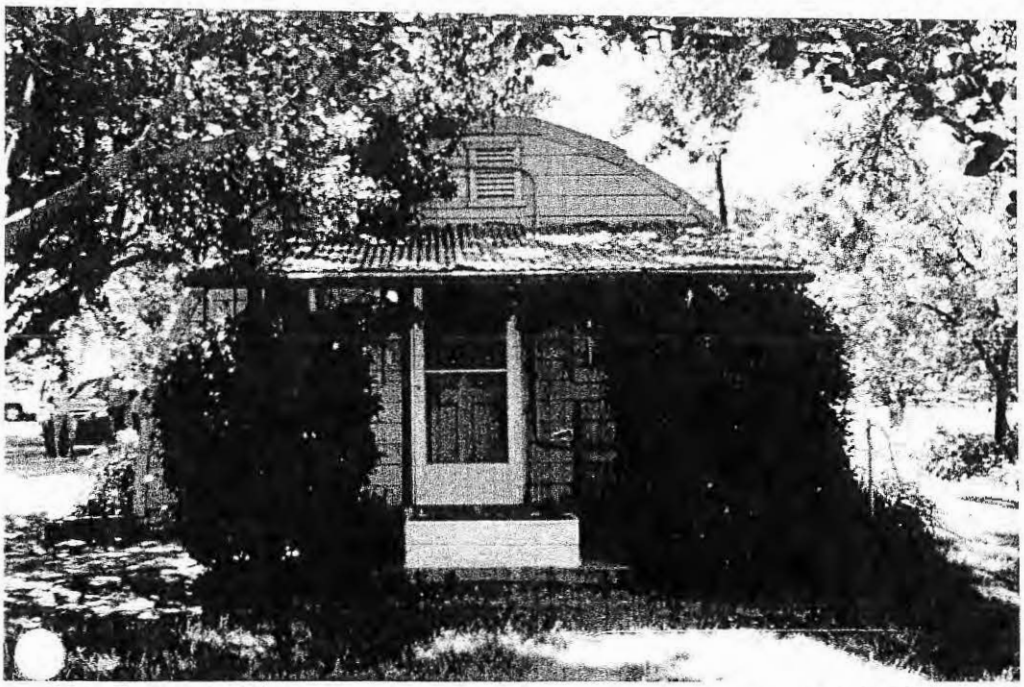
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ; R. 6E ; SW ¼ of SW ¼ of Sec. 27 ; MD B.M.
c. Address: 10,151 Elder Creek Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 47 175 mE/; 42 63 710 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
On the north side of Elder Creek Road. The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branck of Elder Creek and Elder Creek Road. APN: 063-0160-001

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
A quonset hut being used for a residence at a farm headquarters. There are several other buildings in the area, all modern. The building is oriented with the long axis east-west and it is entered from the east, via a modern aluminum door under a tacked-on porch roof. There is an addition, clearly later than the bulk of the structure, on the west end. This has lapped siding and includes another entrance from the north. The addition, entrances and a couple of aluminum framed slider windows that have been detract from the original appearance of the structure.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Looking west at eastern elevation. Because of the addition on the wet, this is the only view that shows the quonset shape. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
John Ardeto
10,151 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: P-34-1866
HRI #:

Page 2 of 3 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 10,151 Elder Creek

B1. Historic Name:
B2. Common Name:
B3. Original Use: Residence B4. Present Use: Residence
B5. Architectural Style: Quonset hut
B6. Construction History: (Construction date, alterations, and date of alterations.)
World War II, and probably moved from Mather Field. It was very common for these mass produced structures to be sold by the military after the war. They have been used, and many are still in use, throughout the country.

B7. Moved? ☐ No ☒ Yes ☐ Unknown Date: Late '40s Original Location: probably Mather Field
B8. Related Features:
Several modern buildings in the farm headquarters, including other residences.

B9a. Architect: Unknown b. Builder: Military
B10. Significance: Theme **Area**
Period of Significance **Property Type** **Applicable Criteria**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
This building is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in quantities at WWII military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavations would return any information of significance. The site does not satisfy any of the National Register criteria.

B11. Additional Resource Attributes: (List attributes and codes)

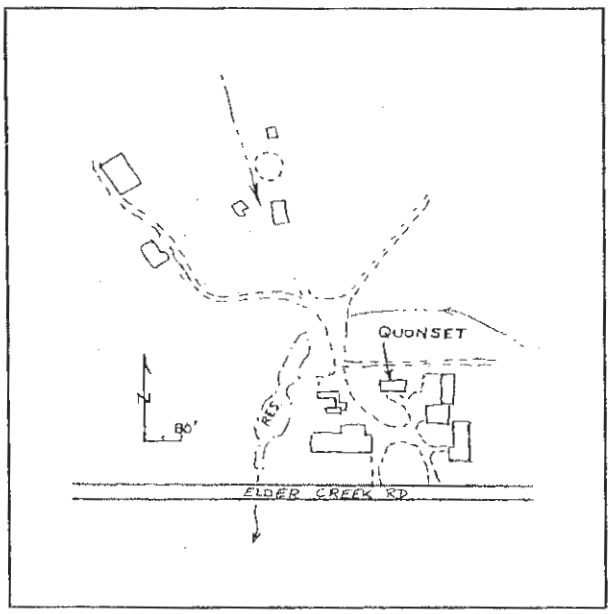
B12. References:

B13. Remarks:

B14. Evaluator: R. Gerry, Peak & Associates, Inc.

Date of Evaluation: 7/2/07

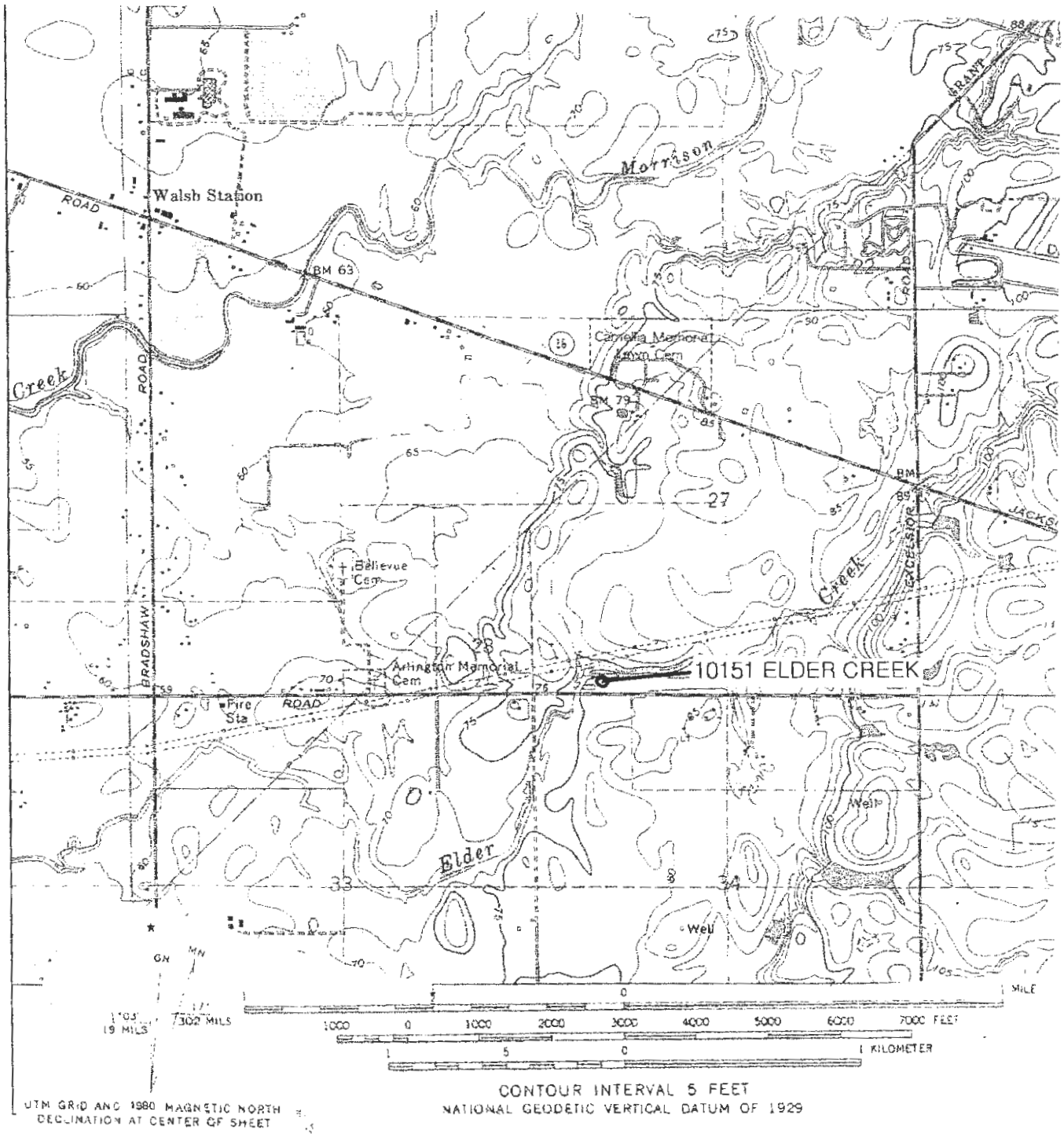
This space reserved for official comments.



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1866
HRI #:
Trinomial:

Page 3 of 3 **Resource Name or #:** (assigned by recorder) 10,151 Elder Creek
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1866
HRI #:
Trinomial:

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 10151 Elder Creek Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes to the buildings

Quonset hut looking west

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1867
HRI#
Trinomial CA-SAC-1027-H
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 7050 Knox Road

P1. Other Identifier:

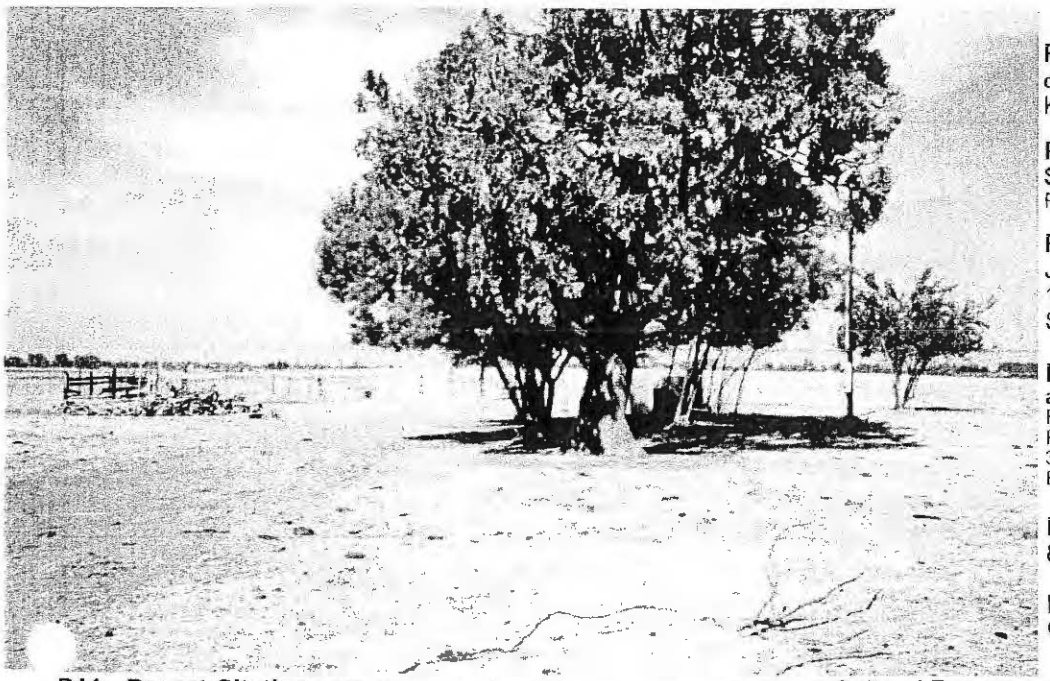
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ; R. 6E ; NE ¼ of SE ¼ of Sec. 33 ; MD B.M.
c. Address: 7050 Knox Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 48 800 mE/; 42 62 685 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
Knox Road is a small access road running north from Florin Road half way between Bradshaw and Excelsior (one mile from each.) The site is on the west side about 900 feet north of Florin. APN: 066-0050-012

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The site of a fromer farm headquarters. It is now only foundation pads and some minor structural features. It is not clear when the structures were built, but there are only modern artifacts (trash) in the area now.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☒ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Overview from Knox Road looking west. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
John Downey
10,151 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☒ Sketch Map ☐ Continuation Sheet ☐ Building, Structure, and Object Record ☒ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other:

(8912)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHAEOLOGICAL SITE RECORD

Primary #: P-34-1867
HRI #:
Trinomial:

 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 7050 Knox Road

A1. Dimensions: a. Length 280 feet (E-W) X b. Width 260 feet (N-S)
Method of Determination: ☒ Paced ☐ Taped ☐ Visual estimate ☐ Other:
Method of Determination: (Check any that apply) ☐ Artifacts ☒ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut Bank ☐ Animal Burrow ☐ Excavation ☐ Property Boundary ☐ Other (Explain):

Reliability of Determination: ☒ High ☐ Medium ☐ Low ☐ Explain: Everything else is farm land

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☐ Disturbances ☐ Vegetation ☐ Other (Explain):

A2. Depth: ☒ None ☐Unknown Method of Determination: Structural remnants only

A3. Human Remains: ☐ Present ☒ Absent ☐ Possible ☐ Unknown (Explain):

A4. Features: (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map):
1 Wood fence
2 Brick pile (stoop?)
3 Concrete pad #1
4 Raised area indicating building location
5 Stock tank
6 Water tank
7 Pump house (?) foundation = concrete slab
8 Concrete slab #2
9 Building site = flattened area and concrete walk.

A5. Cultural Constituents (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features):
Modern trash, and little of that.

A6. Were Specimens Collected? ☒ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated):

A7. Site Condition ☐ Good ☐ Fair ☒ Poor (Describe disturbances): All buildings have been razed.

.8. Nearest Water (Type, distance, and direction): Elder Creek 800 feet northwest

A9. Elevation: 77 feet

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.):
Slightly rolling grass land

A11. Historical Information:
At or near a residence appearing on the 1909 USGS map, but nothing visible today is anything close to that age.

A12. Age: ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☒ 1914-1945
☐ Post 1945 ☐ Undetermined **Describe position in regional prehistoric chronology or factual historic dates if known:**

A13. Interpretations (Discuss data potential, functions, ethnic affiliation, and other interpretations):
The site does not appear to have any data potential. It does not satisfy the National Register criteria.

A14. Remarks:

A15. References (Documents, informants, maps, and other references):

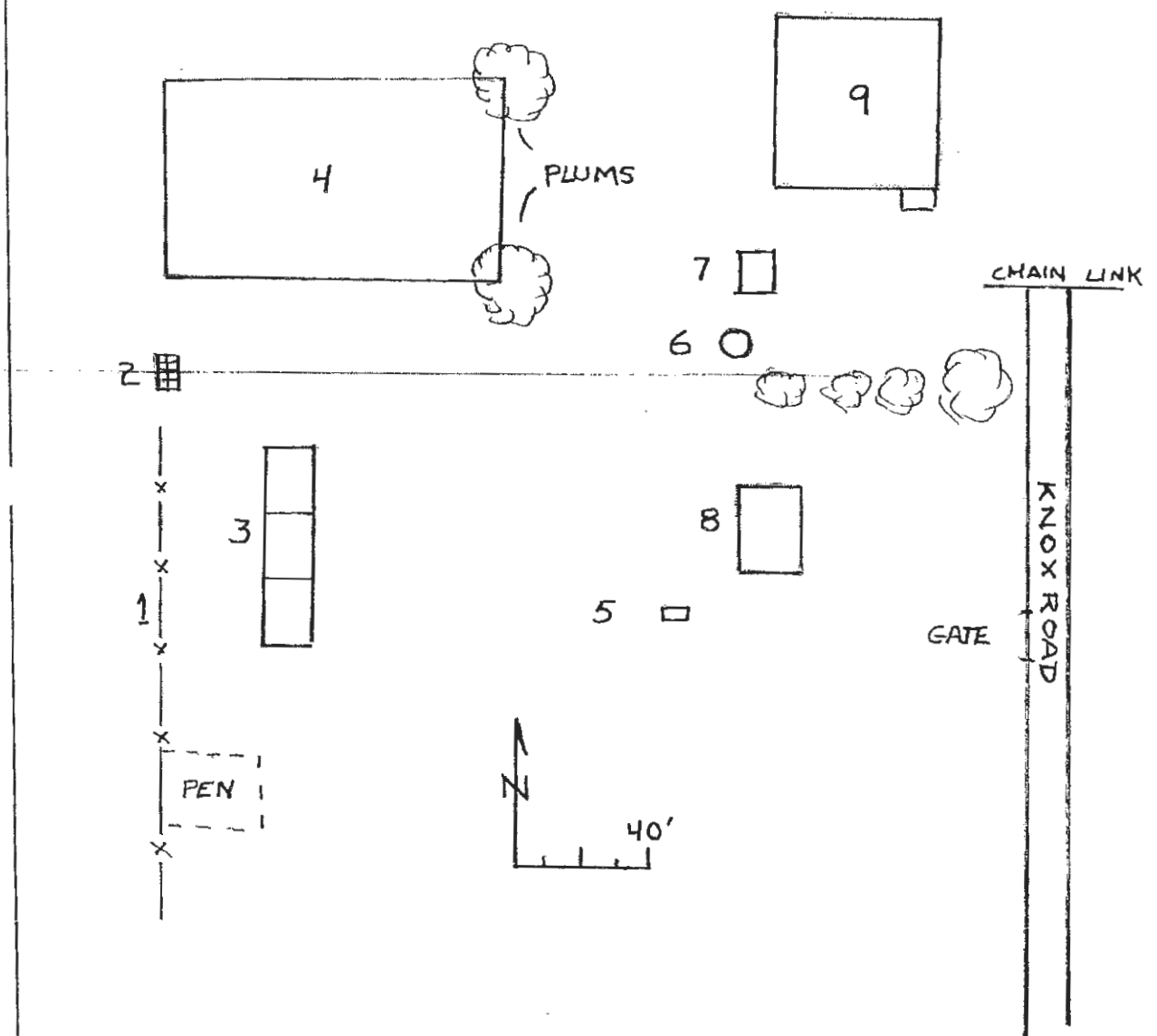
A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record)
Original Media/Negative Kept at: Peak & Associates, Inc.

A17. Form Prepared by: Robert Gerry **Date:** 7/2/07
Affiliation and Address: Peak & Associates, Inc., 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #: P-34-1867
HRI #:
Trinomial:

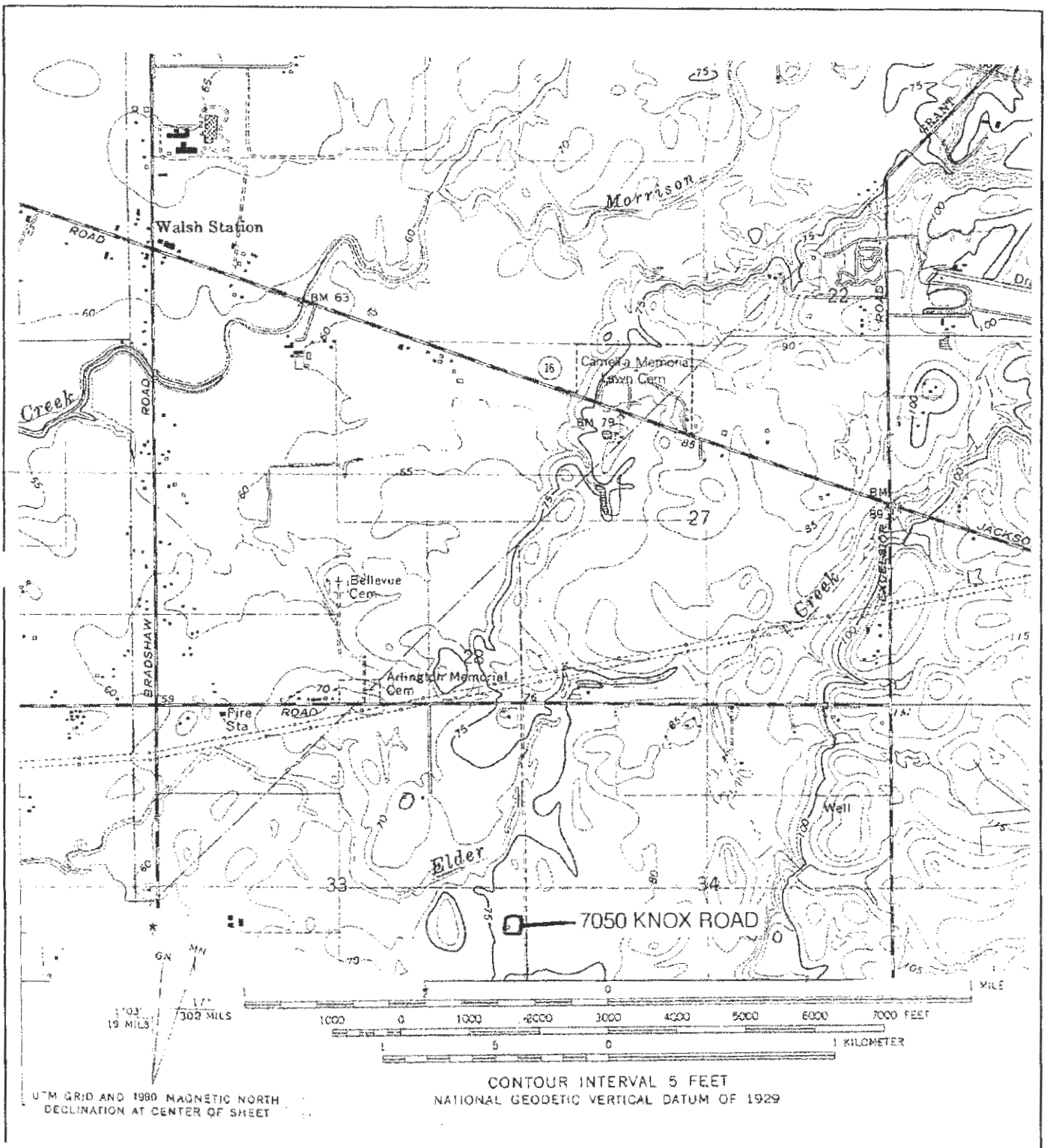
Page 3 of 4 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Drawn By: Gerry **Scale:** see graphic scale below **Date of Map:** 8/19/07



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1867
HRI #:
Trinomial:

Page 4 of 4 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1867
HRI #:
Trinomial: CA-SAC-1027-H

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes in the site. No artifacts related to the occupancy of the site were observed..

4/4/14, looking northwest

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 9990 Elder Creek

P1. Other Identifier:

P2. Location: ☐ **Not for Publication** ■ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967 (PR80) T. 8N ;R. 6E ; DW ¼ of NE ¼ of Sec. 33 ; MD B.M.
c. Address: 9990 Elder Creek Road City : Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 46 410 mE/; 42 63 240 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
APN 066-0020-006-0000. At the end of a quarter mile long access road leading south from Elder Creek Road.

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property consists of a 1972 residence (County Assessor's records) and four older buildings constituting a farm/ranch headquarters. All of the buildings are plain, utilitarian structures with no architectural features of note and no unusual structural techniques or materials in evidence.

The garage/equipment shed is on south side of the complex. It has 1940s--50s-style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950s electrical fixtures. It is in fair condition. There is a modern roll up door on the west half. The one-over-one sash windows could be original. The west half of the structure, an equipment shed, appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor and features the same construction style and general appearance as the garage. There is a large industrial scale bolted to floor.

The chicken coop is similar in construction style and materials as the above, but with plexiglass replacement windows. It is in fair condition..

The barn is the most imposing structure of the complex. It is 40 feet wide by 80 feet long and is about 22 feet high. There are sliding doors on north end, but the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand out of weather and feed. Roofing is rusted corrugated steel.

Aside from the damaged doors, it is in good overall condition. The fencing for a corral and pen extends behind and west of the barn.

P3b. Resource Attributes: (List attributes and codes) HP-2 Single Family Property

P4. Resources Present: ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects

P5b. Description of Photo: (View, date, accession #) Barn looking SE 4/4/14

P6. Date Construction/Age and Sources: Historic ■ Prehistoric ☐ Both ☐
WW II era. USGS maps

P7. Owner and Address:
Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864-5805

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry, Michael Lawson
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
4/4/2014

P10. Survey Type: (Describe)
Complete, project related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Determination of Eligibility and Effect for the Aspen VIII and Aspen IX Projects, Sacramento County, California. Peak & Associates, Inc. 2014.

ATTACHMENTS: ☐ NONE ■ Location Map ■ Sketch Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: _____
HRI #: _____

Page 2 **of** 5 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 9990 Elder Creek

B1. Historic Name: Dick Harry Ranch

B2. Common Name: _____

B3. Original Use: Farm/ranch headquarters B4. Present Use: same

B5. Architectural Style: Utilitarian agricultural buildings

B6. Construction History: (Construction date, alterations, and date of alterations.)
The residence was built in 1972 according to County Assessor's records. The other buildings are older, but all are roughly World War II or later This is based on construction materials and styles and the fact that the buildings are on the 1954 USGS, but not earlier editions.

B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: _____ Original Location: _____

B8. Related Features: Swimming pool at the residence. Various pens and fencelines.

B9a. Architect: N/A b. Builder: Unknown

B10. Significance: Theme _____ **Area** _____
Period of Significance _____ **Property Type** _____ **Applicable Criteria** _____
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of the USGS map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

B11. Additional Resource Attributes: (List attributes and codes) _____

B12. References: The renter on site stated that this was the former Dick Harry Ranch

B13. Remarks:

B14. Evaluator: Melinda A. Peak & Associates, Inc.

Date of Evaluation: _____

This space reserved for official comments.

See Attached maps

Garage/Shed looking north

Looking south at coop (left) shed (right) and garage shed (background)

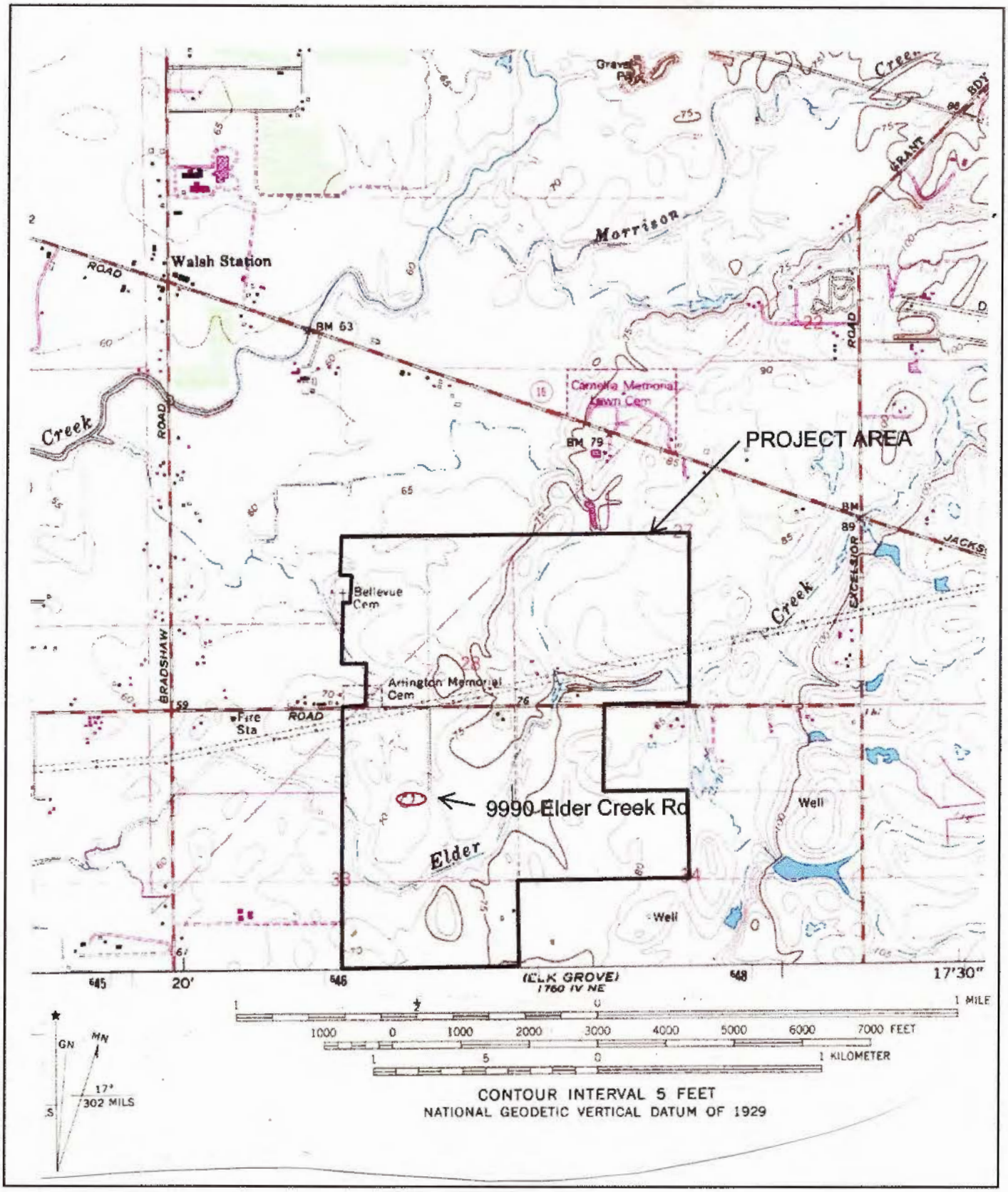
To Elder Creek Road
BARN
SHED
COOP
RESIDENCE
GARAGE
120 ft
© 2014 Google
Google earth

R

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #:
HRI #:
Trinomial:

Page 5 of 5 **Resource Name or #:** (assigned by recorder) 9990 Elder Creek Road
Map Name: Capmichael 7.5' **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



FINAL ENVIRONMENTAL IMPACT REPORT
VOLUME 1 OF 2

ASPEN VIII AND IX MINING USE PERMIT

Control Number: PLNP2014-00201
State Clearinghouse Number: 2015022062
Date: August 22, 2016

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

Board Of Supervisors

1st District: Phil Serna

2nd District: Patrick Kennedy

3rd District: Susan Peters

4th District: Roberta MacGlashan

5th District: Don Nottoli

County Executive

Nav Gill

Prepared By

Sacramento County Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento, CA 95814

FINAL ENVIRONMENTAL IMPACT REPORT

ASPEN VIII AND IX MINING USE PERMIT

Control Number PLNP2014-00201
State Clearinghouse Number: 2015022062

This Environmental Impact Report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An Environmental Impact Report is an informational document which, when this Department requires its preparation shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an Environmental Impact Report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
COUNTY OF SACRAMENTO DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

Department of
Community Development
Michael J. Penrose,
Acting Director

Divisions
Administrative Services
Building Permits & Inspection
Code Enforcement
County Engineering
Economic Development & Marketing
Planning & Environmental Review

August 22, 2016

TO: All Interested Parties

SUBJECT: FINAL ENVIRONMENTAL IMPACT REPORT FOR ASPEN VIII AND IX (CONTROL NUMBER: PLNP2014-00201)

The subject Final Environmental Impact Report (FEIR) is attached for your review. The FEIR and the proposed Project are tentatively scheduled to be heard before the Sacramento County Board of Supervisors on September 13, 2016 starting at 2:00 pm in the County Board Chambers, located at 700 H Street, Sacramento, CA 95814.

Interested parties are encouraged to monitor the Board of Supervisor's agenda at the web-link below to confirm the hearing date:
http://www.agendanet.saccounty.net/sirepub/meetresults.aspx?meettype=Board%20of%20Supervisors%20Meetings

Please contact Mark Michelini of this office at (916) 874-5648 if you have any questions concerning this FEIR.

Sincerely,

[Original Signature on File]
Catherine Hack
Environmental Coordinator

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1 EXECUTIVE SUMMARY AND MITIGATION MEASURES

The subject of this Environmental Impact Report (EIR) is a project known as Aspen VIII and Aspen IX. The Aspen VIII and Aspen IX project site is located in the Vineyard community of unincorporated Sacramento County. The project site is located approximately one-half mile east of Bradshaw Road and south of Jackson Road (Hwy-16) with Elder Creek bisecting the project area.

The following environmental impact and mitigation summary table (*Table ES-1: Executive Summary of Impacts and Mitigation on page 1-2*) briefly describes the project impacts and the mitigation measures recommended to eliminate or reduce the impacts. The residual impact after mitigation is also identified. Detailed discussions of each of the identified impacts and mitigation measures, including pertinent support data, can be found in the specific topic sections in the remainder of this report.

This report has identified project-related impacts associated with agricultural resources, aesthetics, public services, air quality, noise, hydrology, geology and soils, biology, cultural resources and hazardous materials as significant or potentially significant, which could be reduced to a less than significant level through inclusion of recommended mitigation measures.

This report identifies significant and unavoidable impacts related to aesthetics regarding an irreversible change to the landform and air quality for NOx emissions.

Impacts associated with land use, population and housing, airport compatibility, traffic/transportation, and greenhouse emissions **are considered less than significant**.

Please note that where changes have been made from the Draft EIR, those changes are shown in the Final EIR with "bold italics underline" for text added and "~~strikethrough~~" for text deleted.

Table ES-1: Executive Summary of Impacts and Mitigation

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
LAND USE/POPULATION AND HOUSING			
The project conforms to all applicable land use plans with the rezone approval and the use permit approval.	LS	None Recommended	LS
The project site contains three homes. Implementation of the project will remove two of the homes. The housing loss is not considered substantial.	LS	None Recommended	LS
There are no established communities near the project site. Hence, the project will not divide an established community.	LS	None Recommended	LS
The project does not propose any new housing nor will it remove any barriers to growth.	LS	None Recommended	LS
AGRICULTURAL RESOURCES			
The project will convert 355 acres of farmland (39 acres of prime farmland, 225 acres of farmland of	S	AG-1: Agricultural Farmland Impacts Mitigation Measure	LS

[1] PS = Potentially Significant S = Significant SU = Significant and Unavoidable LS = Less Than Significant

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
statewide importance, and 91 acres of local importance). General Plan Policy AG-5 requires mitigation for conversions of over 50 acres. Therefore, mitigation has been proposed to reduce the farmland impacts on 355 acres.		Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted on the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 34 acres of prime farmland, 166 acres of statewide importance farmland, and 54 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions: • Statement of purpose, including that the land is to remain in productive agricultural and/or open space use • List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property • Annual monitoring program • Enforcement procedures • Statement of perpetual duration ***Prior to any work south of Elder Creek Road , grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		land conservancy that is acceptable to the County, for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions: • ***Statement of purpose, including that the land is to remain in productive agricultural and/or open space use*** • ***List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property*** • ***Annual monitoring program*** • ***Enforcement procedures*** • ***Statement of perpetual duration***	
The proposed project is not in a Williamson Act contract.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project as proposed will introduce mining uses to agriculturally zoned property. The mining facility upon completion of mining will be reclaimed to open space grassland; open space grassland uses would not conflict with the surrounding agricultural uses.	LS	None Recommended	LS
AESTHETICS			
The project will degrade the visual character of the project site. The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. Therefore, the aesthetic impacts are significant.	S	AE-1: Viewsheds Mitigation Measure A. Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (Quercus lobata) and interior live oak (Quercus wislizenii); and the following shrubs; western redbud (Cercis occidentalis), toyon (Heteromeles arbutifolia), hoary coffeeberry (Rhamnus tomentella), snowdrop bush (Styrax officinalis), and Howard McMinn' manzanita (Arctostaphylus densiflora). The placement of landscaping shall be as show in Plate AE-7. The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height. B. Additional berms and landscaping, ***or***	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		an 8-foot tall solid fence, shall be placed to screen the view of the mining pit for the ***benefit of those properties located west of Aspen VIII, including the*** residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and ***the cemeteries at 9899 Elder Creek Road, on assessor parcel number 063-0180-029*** ~~west of Aspen VIII~~. This shall consist of a berm and landscaping combination, ***or a fence to visually screen***, to the satisfaction of the Department of Community Development with input from the neighboring property owners ~~resident of 9895 Elder Creek Road~~.	
The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. But nonetheless the project has the potential to impact neighboring properties.	PS	AE-2: Reducing Impacts Associated with Lighting Mitigation Measure Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		agency with regulatory oversight of the mining operation.	
The project site does not occur in the vicinity of any scenic highway, corridors, or vistas.	LS	None Recommended	LS
AIRPORT COMPATIBILITY			
Noise Pursuant to General Plan Policy NO-2, mining and quarrying are compatible uses where aircraft noise levels are less than 70 CNEL. By virtue of the project's location, the surface mining use is compatible with the airport noise standards of the General Plan.	LS	None Recommended	LS
Navigable Airspace The project does not propose to construct any structure that will exceed the height limits near an airport. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. . The project has the potential for impacts associated with bird strikes on aircraft. The net effect of the proposed project is to reduce the potential for bird	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
aircraft collisions. Therefore, the project's impacts would not result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft.			
Hazards The project site is located at the outer edge of the Overflight Zone with most of the project area completely out of the Overflight Zone. Mining is a compatible use within the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport.	LS	None Recommended	LS
Safety There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks.	LS	None Recommended	LS
PUBLIC SERVICES			

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project will not result in an increased demand for water supply at build out because the end use of the mine is open space grassland. The proposed project will utilize water from the on-site wells for the water needs.	LS	None Recommended	LS
The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities.	LS	None Recommended	LS
The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030.	LS	None Recommended	LS
The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Additionally, the Sacramento	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Area Sewer District has reviewed the proposed project and determined the project does not impact future sewer projects.			
The implementation of the proposed project will add new stormwater facilities to the project site. The applicant is proposing to construct stormwater detention ponds to serve as on-site stormwater detention basins for the mining pits. The stormwater detention basins will be approximately 14.2 acres in size and at least one stormwater detention basin will be at each of the proposed mine pits. The facilities are expected to adequately handle the drainage needs of the project without resulting in substantial adverse physical impacts.	LS	None Recommended	LS
Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project, two of the homes will be removed.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system.			
The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.	LS	None Recommended	LS
The project will not require the use of public school services.	LS	None Recommended	LS
The excavation of mining pits at the site could preclude Southgate's ability to provide a planned multi-use trail for the area. This impact is considered potentially significant. Although a trail easement is already proposed as part of the project's reclamation plans, mitigation is recommended to ensure that the easement is in place prior to any on-site excavation and that the area within the easement is structurally appropriate	PS	PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure *A.* ***Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant***	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
for future trail use after reclamation of the site.		***intends to fully comply with mitigation measure B and C below to the satisfaction of Sacramento County Department of Community Development.*** B. ~~A.~~ Prior to ~~issuance of Work Authorization Permit~~ ***sign-off of the reclamation plan,*** the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District. C. ~~B~~. Prior to signoff of the reclamation plan the applicant shall ~~install a~~ ***improve the trail easement area by constructing a trail surface*** 20-foot wide***, which will include a 12-foot wide section of*** suitably compacted base rock foundation for the multi-use trail along Elder Creek, ~~the grade and slopes of which shall be designed to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock~~	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		~~foundation shall be~~ to the satisfaction of Southgate Recreation and Park District; ***it is anticipated that the trail easement should be consistent with Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7***.	
TRANSPORTATION/TRAFFIC			
The project is a surface mining operation and no new parking facilities are required. There will be a limited number of mine employees and parking for employee vehicles may be near the temporary employee and security trailers. A purpose built permanent parking lot is not required for this project.	LS	None Recommended	LS
There are no conflicts with adopted policies, plans, or programs supporting alternative transportation that have been identified.	LS	None Recommended	LS
The project will not substantially impact public safety on the roadway. The small amount of increased employee traffic should not pose a safety threat on the public roads. The aggregate materials will be removed from the site via an electric	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
conveyor system. The heavy equipment may be brought to the site via public roads and in some cases; the heavy equipment will be transferred to the site via internal access roads and not on the public roadway. The overburden haul trucks will not operate upon the County roadway system to haul overburden.			
It is anticipated that ten employees will report to the project site for work. The new peak hour trips generated from ten employees will be less than 100, and therefore would not necessitate a traffic study. The amount of traffic generated by the ten employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips.	LS	None Recommended	LS
The excavation of the mining pits at the project site could preclude Sacramento County Department of Transportation's ability to provide a planned roadway extension (Knox/Vineyard Road). Although a roadway easement is currently shown on the project's site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation.	PS	TT-1: Knox/Vineyard Road Mitigation Measure A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by the Sacramento County Department of Transportation, that the applicant intends to fully comply with mitigation measures B and C below	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		to the satisfaction of Sacramento County Department of Transportation. B. Prior to signoff of the reclamation plans, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements, the applicant shall dedicate those easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation. ***C.*** Prior to signoff of the reclamation plan, the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Transportation. The applicant shall return-to-grade and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek Road to the satisfaction of Sacramento County Department of Transportation.	
AIR QUALITY			
Sacramento Metropolitan Air Quality Management District provides a screening methodology to determine project impacts from localized Carbon monoxide (CO) emissions. This screening methodology was utilized and the CO emissions impacts were screened out.	LS	None Recommended	LS
ROG IMPACTS The project's maximum daily emissions for ROG is 72.3 pounds per day which is over the threshold of 65 pounds per day. The average daily emission for ROG is 27.2 pounds per day which is under the threshold of 65 pounds per day. The maximum	S	AQ-1.1: Reducing ROG and NOx Mitigation Measure To mitigate construction-related ozone precursor emissions, the following shall apply:	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
daily emissions of ROG generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Mitigation will reduce the impacts to less than significant.		A. ***Prior to approval of the Work Authorization Permit, an equipment inventory must be submitted to the Sacramento Metropolitan Air Quality Management District*** ~~The project shall provide a plan for~~ **and approved** ~~approval by the District~~ demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction. B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be ***discontinued*** ~~repaired~~ immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. ***By May 1st of each year and for the duration of the project, an annual summary of all off road equipment used on the site, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the Sacramento Metropolitan Air***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Quality Management District representing the previous years use. ~~A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.~~ The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations. C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination. D. ~~To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2~~**1**~~, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.~~	
NO_x IMPACTS The project's maximum daily emissions for NOx is 861.3 pounds per day which is substantially above the 65 pound per day threshold and the average	S	Same as above	SU

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
daily emissions for NOX is 317.1 pounds per day which is also substantially above the 65 pound per day threshold. The emissions of NOx generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Even with mitigation the impacts are significant and unavoidable.			
The project's maximum daily emissions for PM_{10} are 79.6 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 32.3 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and $PM_{2.5}$ average daily emission is 14.7 pounds per day. These emissions exceed the SMAQMD significance threshold of zero emissions for both types of particulates. However, the district's significance thresholds increase to 80 pounds per day for PM_{10} and 82 pounds per day for $PM_{2.5}$ if all feasible Best Available Control Technology (BACT) and Best Management Practices (BMPs) are applied. Therefore, mitigation has been added to implement BACT and BMP's to the project.	S	AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions Mitigation Measure Implement Basic Construction Emission Control Practices to control PM emission on and off-site, including: • ***All disturbed areas on site shall be treated with appropriate dust suppressants, watered regular, vegetated or otherwise treated to minimize fugitive dust. Comply with Zoning Code Section 4.8.14.H.*** ~~Water all exposed~~	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		~~surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.~~ • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material ***off the site and onto public roadways*** ~~on the site~~. Any haul trucks that would be traveling along freeways or major roadways should be covered. • ***Visible trackout of mud or dirt onto adjacent public roads shall be prevented through the incorporation of rumble strips, gravel aprons, appropriate dust suppressant, long sinuous driveway, or a combination thereof. It these measures are not adequate the applicant shall work with the County and SMQAMD to implement additional***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		measures. If Trackout is present on public roads adjacent to the mine entrances, wet power vacuum street sweepers shall be used to remove any visible trackout mud or dirt. ~~Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.~~ Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • ~~All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.~~ • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated. Implement Enhanced Fugitive PM Dust Control Practices including: SOIL DISTURBANCE AREAS • ***All disturbed areas on site shall be treated with appropriate dust suppressants, watered regularly, vegetated, or otherwise treated to minimize fugitive dust*** ~~Water~~	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		~~exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site~~. • Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph. • ~~Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.~~ • Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established. UNPAVED ROADS (ENTRAINED ROAD DUST) • ~~Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.~~	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		• ~~Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.~~ Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.	
Because of the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, combined with the limitation on heavy equipment usage in the vicinity of nearby residences, it is not anticipated that mining related toxic air contaminant emissions would expose nearby, off-site sensitive receptors to an incremental increase in cancer, chronic, and acute risk that exceeds applicable thresholds.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Mining activities could result in odorous diesel exhaust emissions. These types of odorous emissions, however, would be temporary and would not be generated at any one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Mining activities utilizing off-road equipment will not result in the frequent exposure of objectionable odorous emissions.	LS	None Recommended	LS
NOISE			
The General Plan standard of 75 dB Lmax would be satisfied at each of the nearest residences. Furthermore, the General Plan standard of 55 dB L50 for outside areas would be satisfied at each of the nearest residences with the exception of Residence 3. Residence 3 is located 250 feet from the proposed excavation and the predicted median hourly outside noise level is 57 dB which would exceed the County's outside or exterior noise standard by 2 dB. With noise mitigation the project's impacts are less than significant.	S	NO-1: Median Noise Levels Mitigation Measure A. ~~One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time. B.~~ All internal combustion engines associated with either stationary or mobile equipment	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		shall be fitted with appropriate mufflers. B. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise. *C.* ***For excavation operations that occurs within 400 feet of the property line of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) or Residence 4 (9897 Elder Creek Road: APN 063-0180-021), the number of scrapers shall be limited to a maximum of three until the mining pit has reached a sufficient depth that the scrapers are shielded from view of these residences.*** *D.* ***An 8-foot tall earthen berm or temporary noise barrier shall be***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		***constructed at the property line between initial excavation operations and Residence 3 (9895 Elder Creek Road: APN 063-0180-022) and between initial excavation operations and Residence 4 (9897 Elder Creek Road: APN 063-0180-021) as shown in* Plate NO-1.**	
The ambient noise measurement for Site A (45-46 dB) is combined with the predicted noise level at residence 3 (57 dB), the resulting total is approximately 57 dB (existing ambient noise and project noise) which is an increase of approximately 11 dB to ambient noise. With noise mitigation the project's impacts are less than significant.	S	Same as above	LS
HYDROLOGY AND WATER QUALITY			
The elimination of existing spills on the Aspen VIII site will result in an increase in Elder Creek's peak flow downstream from the project site which may exceed 0.1 feet. Based on analysis, the proposed project ~~will not~~ ***could*** substantially alter the existing drainage patterns of	~~LS~~ ***PS***	~~None Recommended.~~ ***HW-1 Elder Creek Base Flood Elevations Mitigation Measure*** ***Prior to approval of the Work Authorization Permit, the applicant shall***	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
the project area and/or increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site.		***prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:*** ***1. The applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.*** • ***Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.*** • ***Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit. ***This mitigation measures shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to initiating work in the FEMA floodplain.***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
Although the project is in a 100-year floodplain, it does not propose any development within the floodplain.	LS	None Recommended	LS
Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, slit fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.	LS	None Recommended	LS
The mining operation will not excavate to a depth that will interfere with groundwater recharge. The proposed project will not substantially interfere with groundwater recharge. The project does not construct or propose any impervious surfaces that would limit water percolation.	LS	None Recommended	LS
The project is not proposing any type of structures that impede or redirect flood flows within the	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
floodplain.			
The mining operation will have only limited structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather.	LS	None Recommended	LS
The project would not contribute runoff to the stormwater system. The mine is a pit in the ground that would collect water and will not add to the existing stormwater system.	LS	None Recommended	LS
GEOLOGY AND SOILS			
The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are potentially significant but with mitigation the impacts are less than significant.	PS	GS-1: Reclamation Slopes and Berms Mitigation Measure A. Reclamation slopes shall be constructed at 2H:1V or flatter. B. To increase stability, reduce	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		underseepage potential, and provide a stable foundation for the embankment/berm located ***adjacent to Elder Creek*** ~~around the perimeter of the mine operation~~, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources. C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources. D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes. E. At the beginning of each year (in the month of January) a written ~~maintenance plan that specifies specific actions that ensure the slopes are in good repair, stable and safe~~ ***report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed*** shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. ***The report shall indicate whether such slopes were constructed in a manner consistent with the Geocon Seepage and Stability Evaluation.*** The report shall also include ~~an~~ ***a performance***	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		evaluation of ~~the~~ ***all slopes built adjacent to Elder Creek to date and*** ~~prior year recommended actions to ensure that the actions have gone into effect and how the actions~~ ***appropriate measures to*** correct~~ed~~ any deficiencies, ***if necessary***. This report shall be prepared by a registered and licensed civil engineer in good standing. F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.	
The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil handling measures in that plan is therefore recommended to mitigate this potentially significant	PS	GS-2: Topsoil Management Mitigation Measures Comply with the topsoil handing and stockpiling measures contained in Section	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
impact.		6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.	
The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. The mitigation for unanticipated cultural discoveries includes provisions for paleontological resources and will prevent the direct or indirect destruction of a unique paleontological resource or site.	PS	GS-3: Paleontological Resources Unanticipated Discoveries Mitigation Measures Comply with Mitigation Measure CR-2, Cultural Resources Unanticipated Discoveries	LS
There are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to know earthquake faults and seismic hazards are minimal.	LS	None Recommended	LS
The proposed project is a surface mine that will extract mineral resources from the site and will not result in a loss of mineral resources.	LS	None Recommended	LS
The proposed project has soils capable of supporting septic tanks and wastewater disposal systems and the proposed project will not construct any septic tanks or wastewater disposal systems.	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES			
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to Sanford's arrowhead.	S	BR-1.1: Sanford's Arrowhead Mitigation Measure A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a portion of Elder Creek that is within 2 miles of the project site. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants. B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		conservation easement over a known, unprotected population of the species.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to Invertebrates.	S	BR-1.2: Invertebrates Mitigation Measure Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol “Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods” (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall: A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. ~~The required Plan shall be submitted to the Sacramento County Environmental Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation~~. C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator. D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction. E. Prior to issuance of the Work Authorization Permit, the Applicant shall demonstrate to the Environmental Coordinator that all areas which are required to be preserved in perpetuity as part of the Section 404 permit are protected by, and placed within a permanent conservation easement approved by the USACE.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western spadefoot toad.	PS	BR-1.3: Western Spadefoot Toad Mitigation Measure A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat. C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western pond turtle.	PS	BR-1.4: Western Pond Turtle Mitigation Measure A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat. C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting white-tailed kite, Swainson's hawk, northern harrier, and other raptors.	PS	BR-1.5: Nesting White-Tailed Kite, Swainson's Hawk, Northern Harrier and Other Raptors Mitigation Measure A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction. B. The survey shall include a focused survey for Swainson's hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction. C. If no active nests are found in the survey area, no further mitigation is necessary. D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		construction activity. E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting or roosting burrowing owl.	PS	BR-1.6: Nesting or Roosting Burrowing Owl Mitigation Measure A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14. The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet). The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		occupied burrows. Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		(CNDDB) within ten (10) days of sighting.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting birds protected under the Migratory Bird Treaty Act.	PS	BR-1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist. B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found. C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to the loss of foraging habitat for ***tricolored blackbird,*** white-tailed kite and Swainson's hawk.	S	BR-1.8: Loss of Foraging Habitat for ***Tricolored Blackbird,*** White-Tailed Kite and Swainson's Hawk Mitigation Measure Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of ***tricolored blackbird,*** white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat. A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		the Sacramento County Code). B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of ***tricolored blackbird,*** white-tailed kite and Swainson's hawk foraging habitat. C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.	
The implementation of the proposed project will not result in impacts to the loss of winter foraging habitat for merlin and Ferruginous hawk.	LS	None Recommended	LS
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting loggerhead shrike.	PS	BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible. Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving. If nesting individuals are found prior to initiation of mining-related vegetation removal	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.	
The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to	PS	BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
nesting or roosting yellow billed magpie.		To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving. If nesting individuals are found prior to	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.	
The implementation of the proposed project would	S	BR-1.11: Disturbance to Nesting Tricolored	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
result in temporary, direct, and/or indirect impacts to nesting tricolored blackbird.		Blackbird Mitigation Measure To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible. Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		within three days prior to vegetation removal or earthmoving. If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		feet of an active nest colony once prospecting or nesting has begun.	
Implementation of the proposed project would result in temporary, direct, and/or indirect impacts to the loss of foraging habitat for tricolored blackbird.	***PS***	***BR-1.12: Loss of Foraging Habitat for Tricolored Blackbird Mitigation Measure*** ***See Mitigation Measure BR-1.8***	***LS***
The project site does not contain sensitive natural communities that may be impacted by the project being implemented. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified mostly likely due to agricultural activities and now lacks substantial amounts of trees and shrubs that make a vibrant habitat.	LS	None Recommended	LS
The proposed project will result in substantial impacts to 5.373 acres of federally jurisdictional Water of the U.S., including wetlands. The impacts will also constitute an adverse effect on Waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Mitigation will lessen the impact to less than significant.	S	BR-3: Wetlands and Water of the U.S. Mitigation Measure To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife: *A.* Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods, ~~subject to the approval of the Environmental Coordinator~~. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		required. ***Proof of mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.*** *B.* If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.	
The project site contains a total of 102 trees and there are three valley oak and nine California black walnut trees that will be removed as part of the project. In addition to the native oak and walnut trees, the Sacramento County General Plan affords	S	BR-4: Native Tree and Tree Canopy Protection Mitigation Measure The removal of 23 inches dbh of valley oak trees shall be compensated for by ~~planning~~	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
protection to a mixed riparian and non-native tree canopy. There are 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. Mitigation has been included to reduce the impact to less than significant.		***planting*** oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning in kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus), California sycamore (Platanus racemosa), California black walnut (Juglans californica, which is also a List 1B plant), Oregon ash (Fraxinus latifolia), western redbud (Cercis occidentalis), gray pine (Pinus sabiniana), California white alder (Alnus rhombifolia), boxelder (Acer negundo), California buckeye (Aesculus californica), narrowleaf willow (Salix exigua), Gooding's willow (Salix gooddingii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), shining willow (Salix lucida), Pacific willow	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		(Salix lasiandra), and dusky willow (Salix melanopsis). ~~Replacement tree planting shall be completed prior to approval of Work Authorization Permit.~~ A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation. Equivalent compensation based on the following ratio is required: • one preserved native tree < 6 inches dbh on-site = 1 inch dbh • one D-pot seedling (40 cubic inches or larger) = 1 inch dbh • one 15-gallon tree = 1 inch dbh • one 24-inch box tree = 2 inches dbh • one 36-inch box tree = 3 inches dbh Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements: 1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved 2. Method of irrigation 3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage 4. Planting, irrigation, and maintenance schedules; 5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period. 6. Designation of 20-foot root zone radius and landscaping to occur within the radius of	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		trees < 6 inches dbh to be preserved on-site. No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians. Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval. If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made. Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento County Tree Foundation).	
The proposed project does conflict with some local policies and ordinances that protect biological resources. The proposed project also conflicts with several General Plan Policies that protect biological resources. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local polices and ordinances to less than significant.	PS	BR-5: Local Policies Protecting Biological Resources Mitigation Measure Comply with mitigation measures BR-1.1 through BR 1.~~11~~***12***, BR-3 and BR-4	LS
The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife or migratory fish. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish.	LS	None Recommended	LS
The project site is not located in any adopted habitat	LS	None Recommended	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
conservation plan.			
CULTURAL RESOURCES			
There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.	LS	None Recommended	LS
Field surveys were conducted on the site and a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project. The historical sites in the project area are not eligible for the National Register of Historic Places or for the California Register.	PS	CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources. If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
		In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.	
The site was surveyed for subsurface anomalies and trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site.	PS	CR-3: Unintended Discovery Mitigation Measure Comply with Mitigation Measure CR-2, Cultural Resources Unanticipated Discoveries	LS
HAZARDOUS MATERIALS			
The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has indicted no storage or disposal of hazardous materials will occur at the project site, mitigation measure are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all	PS	HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at	LS

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
applicable standards.		appropriately licensed facilities. B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff. C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.	

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Compliance with Environmental Management Department (EMD) regulations will ensure the impacts are less than significant.	LS	None Recommended	LS
The project site is not located within ¼ mile of an existing or proposed school.	LS	None Recommended	LS
The project is not located on a known hazardous materials site.	LS	None Recommended	LS
The proposed project does not impair the implementation of or physically interfere with an adopted emergency response or emergency evacuation plan. There is no known adopted emergency response or emergency evacuation plan near the project site.	LS	None Recommended	LS
GREENHOUSE GAS EMISSIONS			

Impacts	Level of Significance Before Mitigation [1]	Mitigation Measure	Level of Significance After Mitigation
The project would result in the emission of approximately 6,321 metric tons of CO_2e per year. . The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. .	LS	None Recommended	LS

TERMINOLOGY USED IN THIS EIR

This Draft EIR uses the following terminology to describe environmental effects of the project.

Significance Criteria. A set of criteria used by the lead agency to determine at what level, or "threshold," an impact would be considered significant. Significance criteria used in this EIR include those that are set forth in the CEQA Guidelines, or can be discerned from the CEQA Guidelines; criteria based on factual or scientific information; criteria based on regulatory standards of local, state, and federal agencies; and criteria based on goals and policies identified in the Sacramento County General Plan.

Less-than-Significant Impact. A project impact is considered less than significant when it does not reach the standard of significance and would therefore cause no substantial change in the environment. No mitigation is required for less-than-significant impacts.

Potentially Significant Impact. A potentially significant impact is a substantial, or potentially substantial, adverse change in the environment. Physical conditions which exist within the area will be directly or indirectly affected by the proposed project. Impacts may also be short-term or long-term. A project impact is considered significant if it reaches the threshold of significance identified in the EIR. Mitigation measures may reduce a potentially significant impact to less than significant.

Significant Unavoidable Impact. A project impact is considered significant and unavoidable if it is significant and cannot be avoided or mitigated to a less-than-significant level once the project is implemented.

Cumulative Significant Impact. A cumulative impact can result when a change in the environment results from the incremental impact of a project when added to other related past, present or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects.

Mitigation. Mitigation measures are revisions to the project that would minimize, avoid, or reduce a significant effect on the environment. CEQA Guidelines §15370 identifies 5 types of mitigation:

a) Avoiding the impact altogether by not taking a certain action or parts of an action.

b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

e) Compensating for the impact by replacing or providing substitute resources or environments.

MITIGATION MONITORING AND REPORTING PROGRAM

Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

1. The proponent shall comply with the MMRP for this project, including the payment of a fee to cover the Department of Community Development, Planning and Environmental Review Division staff costs incurred during implementation of the MMRP. The MMRP fee for this project is $22,000.00. This fee includes administrative costs of $800.00.

2. Until the MMRP has been recorded and the administrative portion of the MMRP fee has been paid, no final parcel map or final subdivision map for the subject property shall be approved. Until the balance of the MMRP fee has been paid, no encroachment, grading, building, sewer connection, water connection, occupancy permit, or work authorization permit from Sacramento County shall be approved.

2 PROJECT DESCRIPTION

INTRODUCTION

The proposed project is a surface mining project located in unincorporated Sacramento County. The project site encompasses 683 acres and will excavate approximately 353 acres for sand and gravel. The project has two mining pits, Aspen VIII and Aspen IX. The Aspen VIII pit is approximately 255 acres and the Aspen IX pit is approximately 98 acres. The project includes an extension of Knox/Vineyard Road that runs north and south through the project site. The project will include the installation of a box culvert under Elder Creek Road and installation of landscaping along Elder Creek Road. The mine, as proposed will operated for 15 years after which time the mining site will be reclaimed to open space grassland.

PROJECT LOCATION

The project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road. The property is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community. The project is located within Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series Carmichael, California quadrangles. The latitude and longitude are 38º30’39” North and -121º19’03” West Plate PD-1 and Plate PD-2).

ASSESSOR’S PARCEL NUMBERS

Aspen VIII; 063-0180-005, 063-0180-006, and 063-0160-001

Aspen IX; 066-0020-006, 066-0030-001, and 066-0050-003

Conveyor extension to Aspen V South; 063-0190-027

Existing conveyor system; 063-0040-067, 063-0040-018, 063-0040-034, 063-0040,016, 063-0040-030, 063-0190-029, 063-0190-028, 063-0190-015, 063-0190-014, 063-0030-016, 063-0030-017, 063-0060-048, 063-0060-037, 063-0060-032, 063-0060-050, 063-0060-040, 063-0052-018, 063-0013-017, 063-0013-012, 063-0012-012, 063-0012-007, 063-0012-011, 063-0012-017, 063-0014-002, and 078-0201-008

Plate PD-1: Regional Location Map

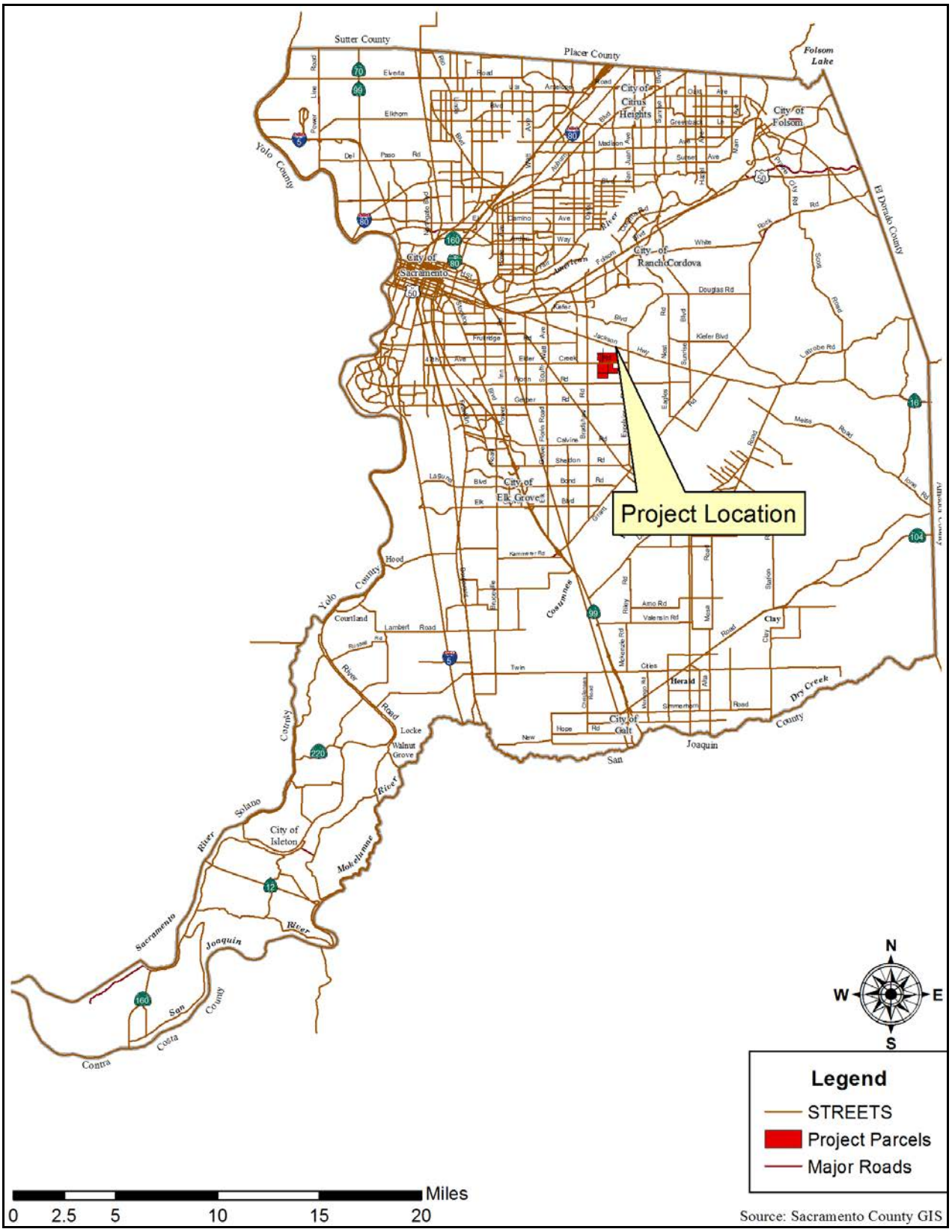
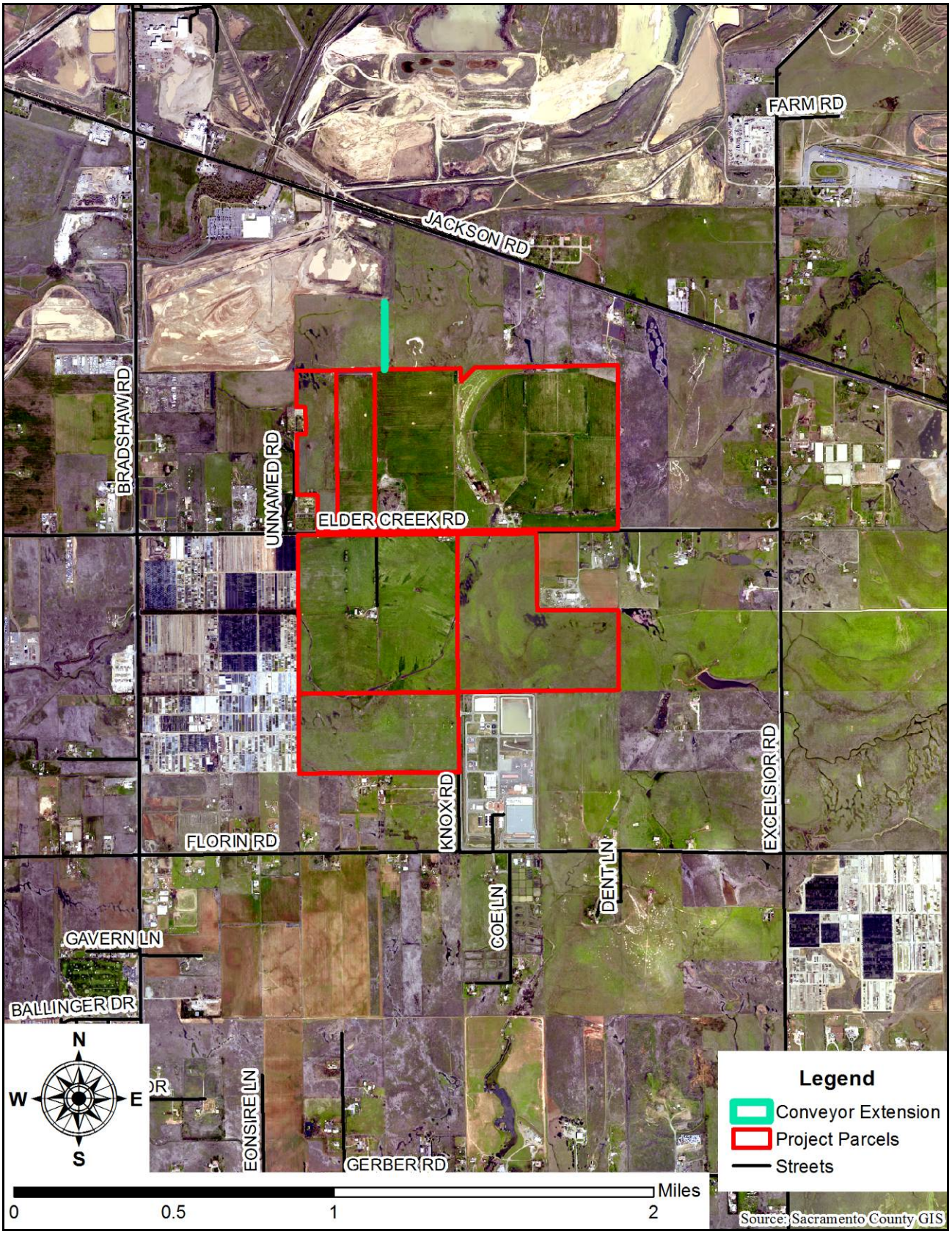


Plate PD-2: Project Location Map



PROJECT PROPOSAL

The Aspen VIII and IX Mining Use Permit, Community Plan Amendment and Rezone, Reclamation Plan, and Development Agreement project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site, with Aspen VIII to the north and Aspen IX to the south of Elder Creek Road. The project site is in the Vineyard community of unincorporated Sacramento County (Plate PD-1 and Plate PD-2).

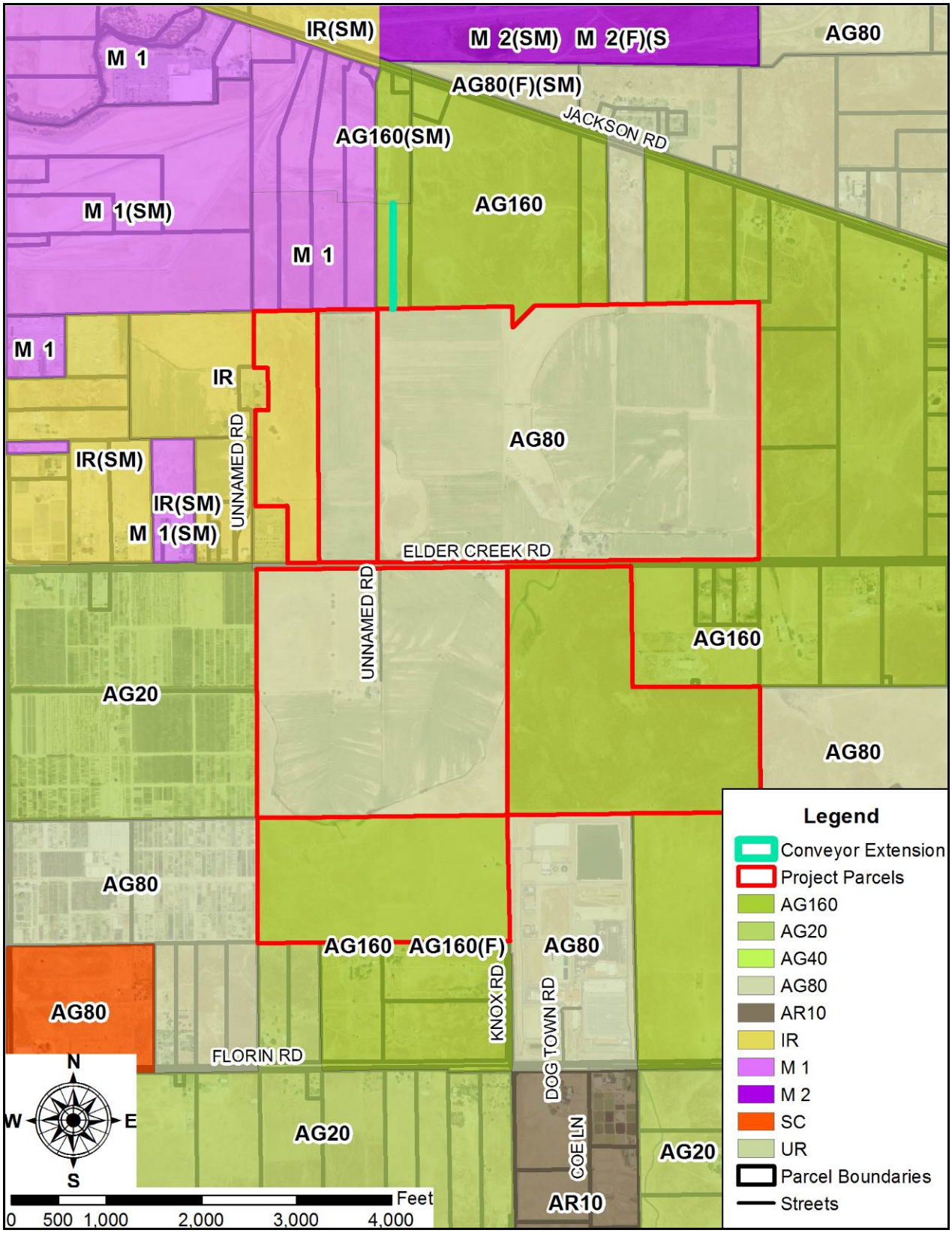
The project site is currently zoned IR (Industrial Reserve), AG-80, AG-80 Flood (F), AG-160 and AG-160 (F) (Plate PD-3). The applicant is requesting to rezone 682[1] acres of the 683 acre project site with the Surface Mining Combining Zone (SM) (Plate PD-4) and a use permit to mine aggregate material (sand and gravel) from two mining pits (Plate PD-5 and Plate PD-6), Aspen VIII and Aspen IX. Mining on Aspen VIII is proposed in two phases (Plate PD-7), Areas A & B. Area A is proposed to be approximately 133 acres while Area B is proposed to be approximately 122 acres. The total for phases A & B on Aspen VIII is approximately 255 acers. Mining on Aspen IX will be in phase C (Plate PD-8) and is proposed to be approximately 98 acres. Thus the total for all the mining pits is approximately 353 acres.

A use permit to allow the extension and continued use of an electric conveyor system to transport mined material across other parcels to the existing off-site Perkins processing plant (Plate PD-9) is also being requested as well as a reclamation plan that specifies open space grassland as the end use of the mine. The reclamation plan proposes alignments for a future right-of-way through the mining pit on Aspen VIII and along the eastern pit boundary on Aspen IX as well as a graded easement for a future multi-use trail adjacent to the mine boundary and Elder Creek (Plate PD-10 and Plate PD-11), and it specifies slope standards, roadway details and cross sections (Plate PD-12, Plate PD-13, Plate PD-14, and Plate PD-15).

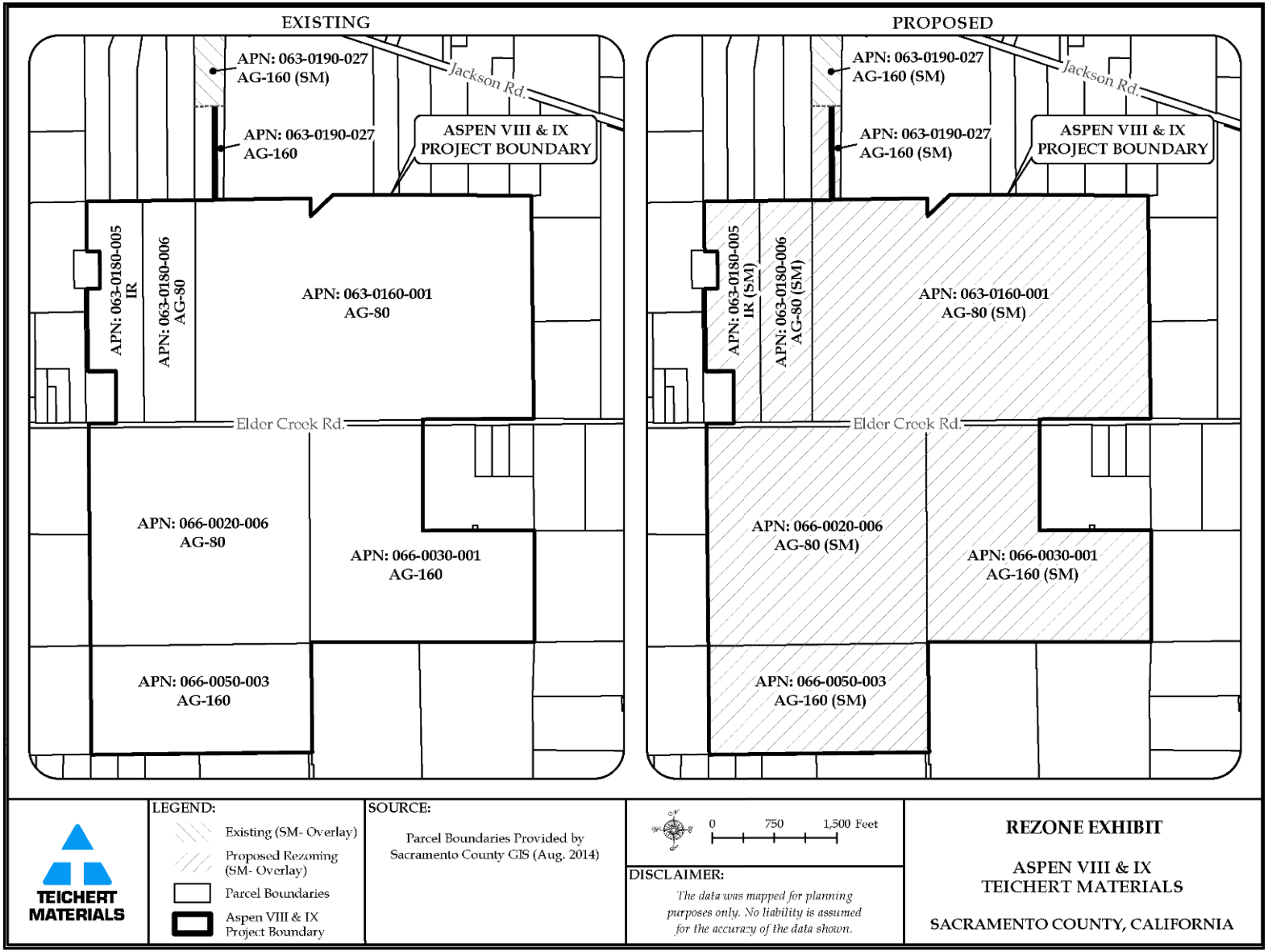
The topsoil will be salvaged and stored on-site to be used in reclamation. Originally the applicant sought to use haul trucks to remove up to 1,000,000 cubic yards of overburden off-site via County public roadways. However, based on discussions with the County of Sacramento about the environmental and fiscal impacts, the applicant determined not to remove overburden from the site via public County roads. Instead, the applicant will remove up to 500,000 cubic yards of overburden from Aspen VIII via haul trucks on internal access roads and no overburden haul trucks will enter the public roadway system. The up to 500,000 cubic yards of overburden will be trucked off-site approximately 4,600 feet along internal access roads to Aspen V South which is located directly north of Aspen VIII.

[1] Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.

Plate PD-3: Project's Current Zoning



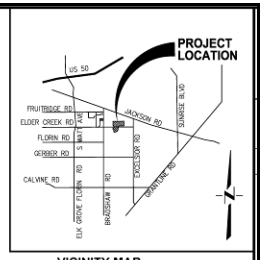
P□□□ PD□□□ R□□□□□ M□□


EXISTING
APN: 063-0190-027
AG-160 (SM)
APN: 063-0190-027
AG-160
Jackson Rd.
ASPEN VIII & IX
PROJECT BOUNDARY
APN: 063-0180-005
IR
APN: 063-0180-006
AG-80
APN: 063-0160-001
AG-80
Elder Creek Rd.
APN: 066-0020-006
AG-80
APN: 066-0030-001
AG-160
APN: 066-0050-003
AG-160
PROPOSED
APN: 063-0190-027
AG-160 (SM)
APN: 063-0190-027
AG-160 (SM)
Jackson Rd.
ASPEN VIII & IX
PROJECT BOUNDARY
APN: 063-0180-005
IR (SM)
APN: 063-0180-006
AG-80 (SM)
APN: 063-0160-001
AG-80 (SM)
Elder Creek Rd.
APN: 066-0020-006
AG-80 (SM)
APN: 066-0030-001
AG-160 (SM)
APN: 066-0050-003
AG-160 (SM)
TEICHERT MATERIALS
LEGEND:
Existing (SM- Overlay)
Proposed Rezoning (SM- Overlay)
Parcel Boundaries
Aspen VIII & IX Project Boundary
SOURCE:
Parcel Boundaries Provided by Sacramento County GIS (Aug. 2014)
0 750 1,500 Feet
DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.
REZONE EXHIBIT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

P□□□ PD□□□ S□□ P□□

IMPROVEMENT PLANS
FOR
TEICHERT AGGREGATES
RECLAMATION PLANS FOR
ASPEN VIII & IX

SACRAMENTO COUNTY, CALIFORNIA
FEBRUARY 2016



VICINITY MAP
N.T.S.

ABBREVIATIONS:

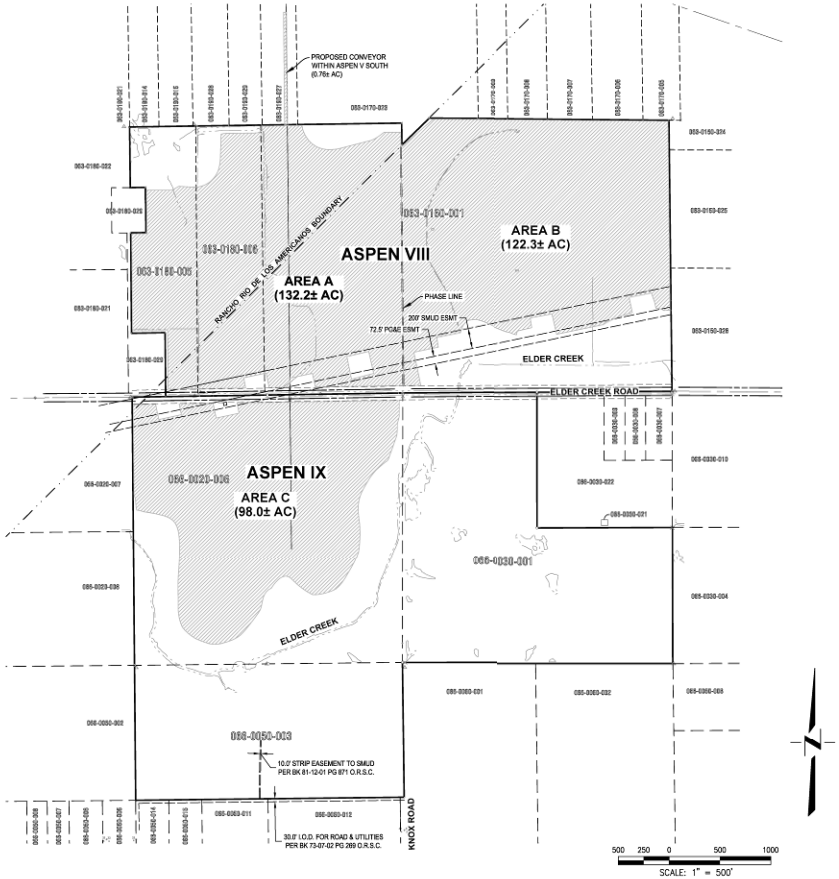
AC	ACRES
APN	ASSESSOR'S PARCEL NUMBER
AVG	AVERAGE
CL	CENTER LINE
CY	CUBIC YARDS
ESMT	EASEMENT
FL	FLOW LINE
FT	FEET
FUT	FUTURE
MAX	MAXIMUM
MIN	MINIMUM
MW	MONITOR WELL
N.T.S.	NOT TO SCALE
NO.	NUMBER
PL	PROPERTY LINE
R	RADIUS
RD	ROAD
R/W	RIGHT-OF-WAY
TYP	TYPICAL
YR	YEAR

LEGEND:

FOUND MONUMENTS AS SHOWN
AERIAL TARGET
VERTICAL CONTROL
BENCHMARK
POWER POLE
EXISTING EDGE OF ROAD
WATER
EXISTING GROUND CONTOUR
CROSS SECTION NUMBER AND SHEET LOCATION
EXISTING ELEV.
PROPOSED ELEV.
HORIZONTAL TO VERTICAL SLOPE
WATER SURFACE
PROPERTY BOUNDARY
RIGHT-OF-WAY
PARCEL LINE
EASEMENT LINE
LIMITS OF MINING
SLOPE — TOP OF SLOPE / TOE OF SLOPE
EXISTING WATER WELL
BERM
WETLAND
FUTURE SOUTHGATE TRAIL EASEMENT

NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.



SHEET INDEX:

C01 - TITLE SHEET
C02 - EXISTING SITE
C03 - ASPEN VIII-MINING PLAN
C04 - ASPEN IX-MINING PLAN
C05 - ASPEN VIII-RECLAMATION PLAN
C06 - ASPEN IX-RECLAMATION PLAN
C07 - CROSS SECTIONS 8A, 8B & 8C
C08 - CROSS SECTIONS 8D, 8E, 8F & 8G
C09 - CROSS SECTIONS 8H, 8H ALTERNATE
C10 - CROSS SECTIONS 9A, 9B, 9C & 9D
C11 - FUTURE ROAD CENTERLINE PROFILE
C12 - CIVIL DETAILS
C13 - CIVIL & LANDSCAPE DETAILS

PROPERTY OWNER:

TEICHERT LAND CO.
P.O. BOX 13308
SACRAMENTO, CA 95813

APPLICANT:

TEICHERT AGGREGATES
P.O. BOX 15002
SACRAMENTO, CA 95851

CIVIL ENGINEER:

CUNNINGHAM ENGINEERING
2940 SPAFFORD STREET, SUITE 200
DAVIS, CALIFORNIA 95618
(530) 758-2026
ATTN: STEVEN GREENFIELD

ASSESSOR'S PARCEL NUMBERS:

063-0180-005, 063-0180-006, 063-0160-001, 063-0190-027
066-0020-006, 066-0030-001, 066-0050-003

PROJECT MINING AREA:

ASPEN VIII
AREA A: 132.2± ACRES
AREA B: 122.3± ACRES

ASPEN IX
AREA C: 98.0± ACRES

TOTAL MINING AREA: 352.5± ACRES

PROPOSED CONVEYOR WITHIN ASPEN V SOUTH: 0.76± ACRES

PROPERTY ZONING:

INDUSTRIAL RESERVE:
063-0180-005

AGRICULTURE:
063-0180-006, 063-0160-001, 063-0190-027,
066-0020-006, 066-0030-001, 066-0050-003

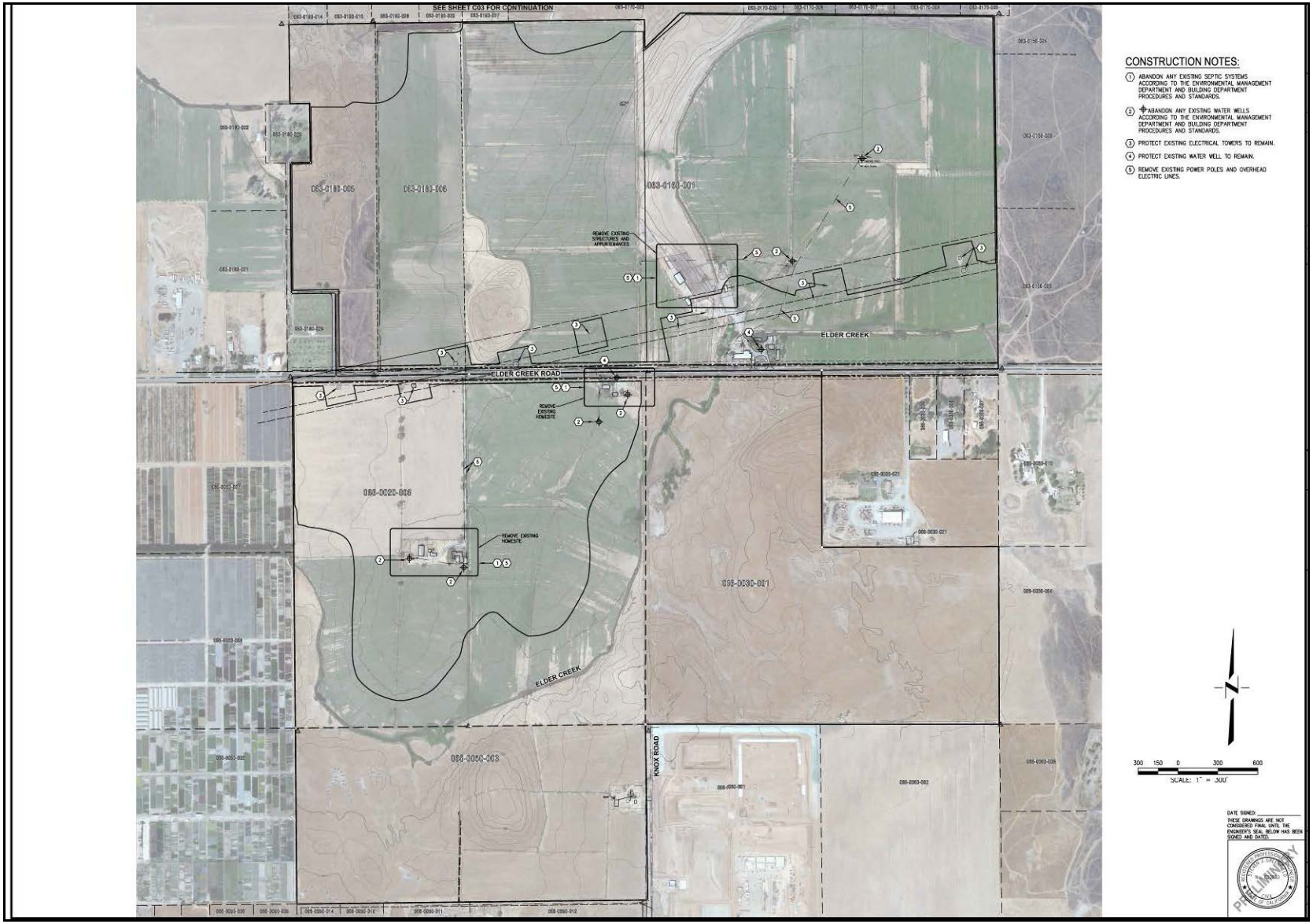
BENCHMARK:

EXISTING TOPOGRAPHY SHOWN BASED ON AERIAL TOPOGRAPHY FLOWN IN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
HORIZONTAL DATUM: NAD27
VERTICAL DATUM: NGVD29

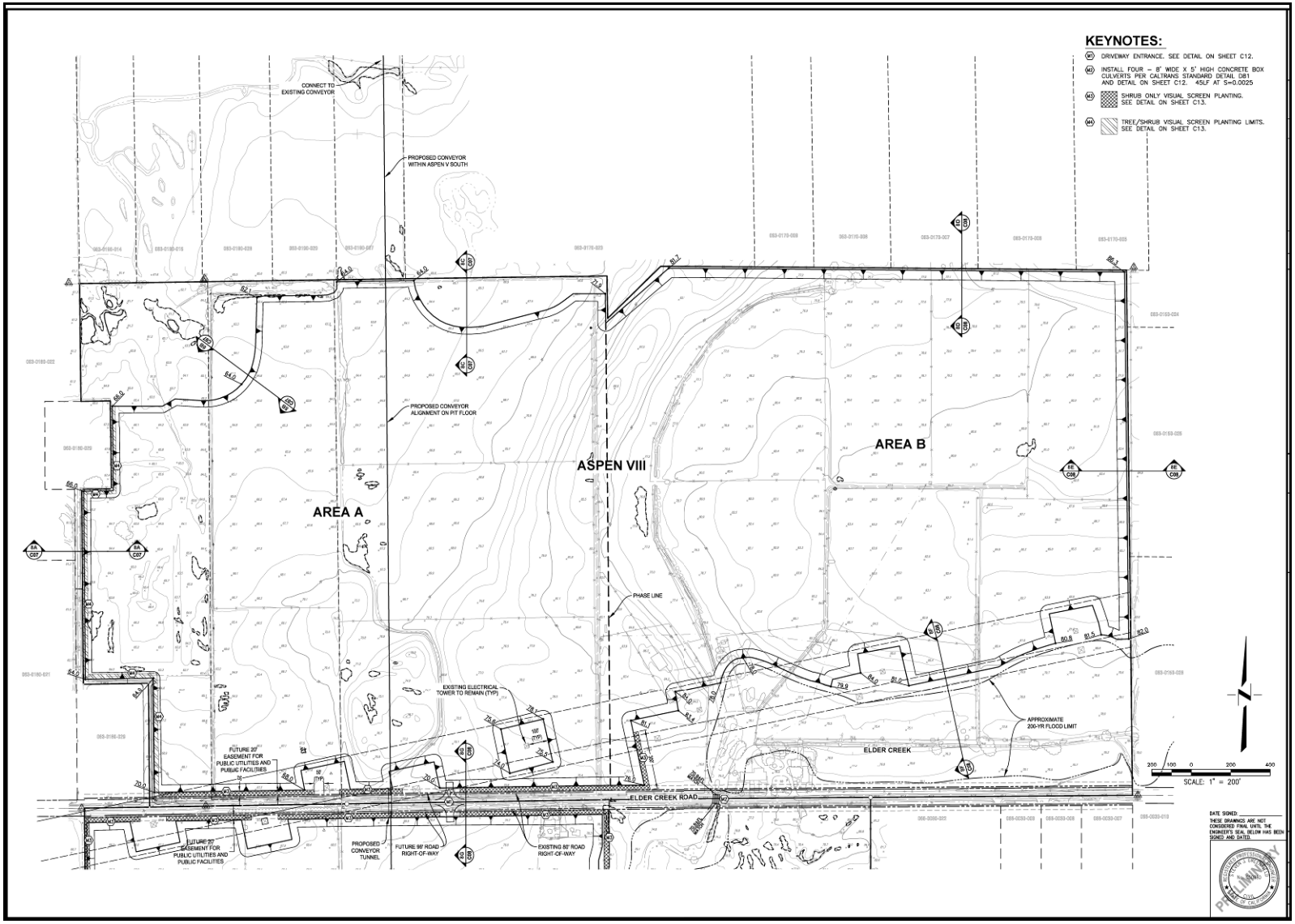
DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

PRELIMINARY

P PD E S


SEE SHEET C03 FOR CONTINUATION
CONSTRUCTION NOTES:
1 ABANDON ANY EXISTING SEPTIC SYSTEMS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
2 ABANDON ANY EXISTING WATER WELLS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
3 PROTECT EXISTING ELECTRICAL TOWERS TO REMAIN.
4 PROTECT EXISTING WATER WELL TO REMAIN.
5 REMOVE EXISTING POWER POLES AND OVERHEAD ELECTRIC LINES.
083-0183-005
083-0183-006
083-0183-001
REMOVE EXISTING STRUCTURES AND APPURTENANCES
ELDER CREEK
ELDER CREEK ROAD
REMOVE EXISTING HOMESITE
086-0020-016
REMOVE EXISTING HOMESITE
086-0030-021
ELDER CREEK
086-0050-003
KNOX ROAD
SCALE: 1" = 300'
DATE SIGNED:
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.
PRELIMINARY

P□□□ PD□□□ A□□□□ VIII


KEYNOTES:
M1 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.
M2 INSTALL FOUR – 8' WIDE X 5' HIGH CONCRETE BOX CULVERTS PER CALTRANS STANDARD DETAIL D81 AND DETAIL ON SHEET C12. 45LF AT S=0.0025
M3 SHRUB ONLY VISUAL SCREEN PLANTING. SEE DETAIL ON SHEET C13.
M4 TREE/SHRUB VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.
CONNECT TO EXISTING CONVEYOR
PROPOSED CONVEYOR WITHIN ASPEN V SOUTH
PROPOSED CONVEYOR ALIGNMENT ON PIT FLOOR
AREA A
ASPEN VIII
AREA B
PHASE LINE
EXISTING ELECTRICAL TOWER TO REMAIN (TYP)
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
ELDER CREEK ROAD
ELDER CREEK
APPROXIMATE 200-YR FLOOD LIMIT
PROPOSED CONVEYOR TUNNEL
FUTURE 99' ROAD RIGHT-OF-WAY
EXISTING 80' ROAD RIGHT-OF-WAY
SCALE: 1" = 200'
DATE SIGNED: ____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.
PRELIMINARY

P□□□ PD□□□ A□□□□ IX

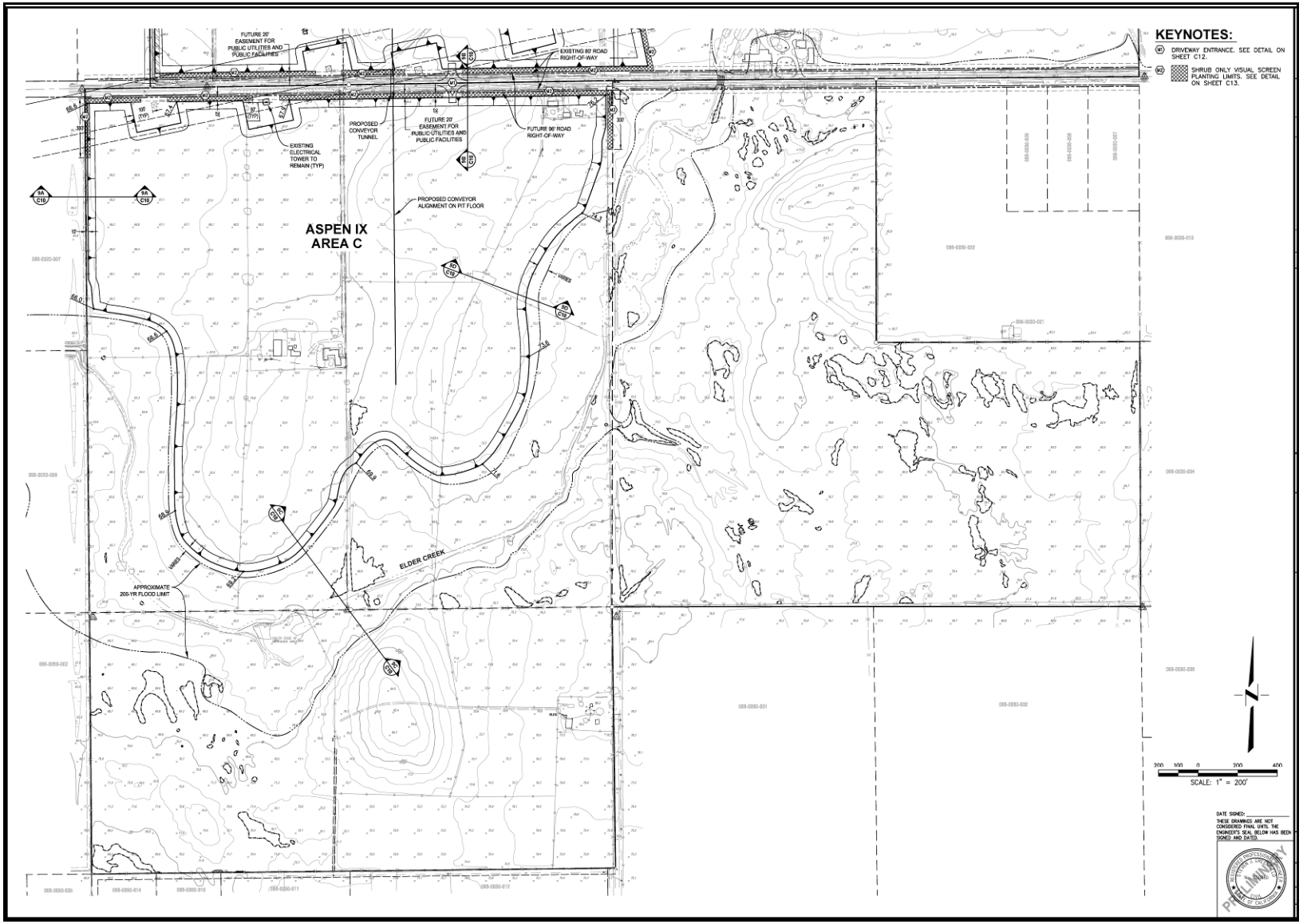
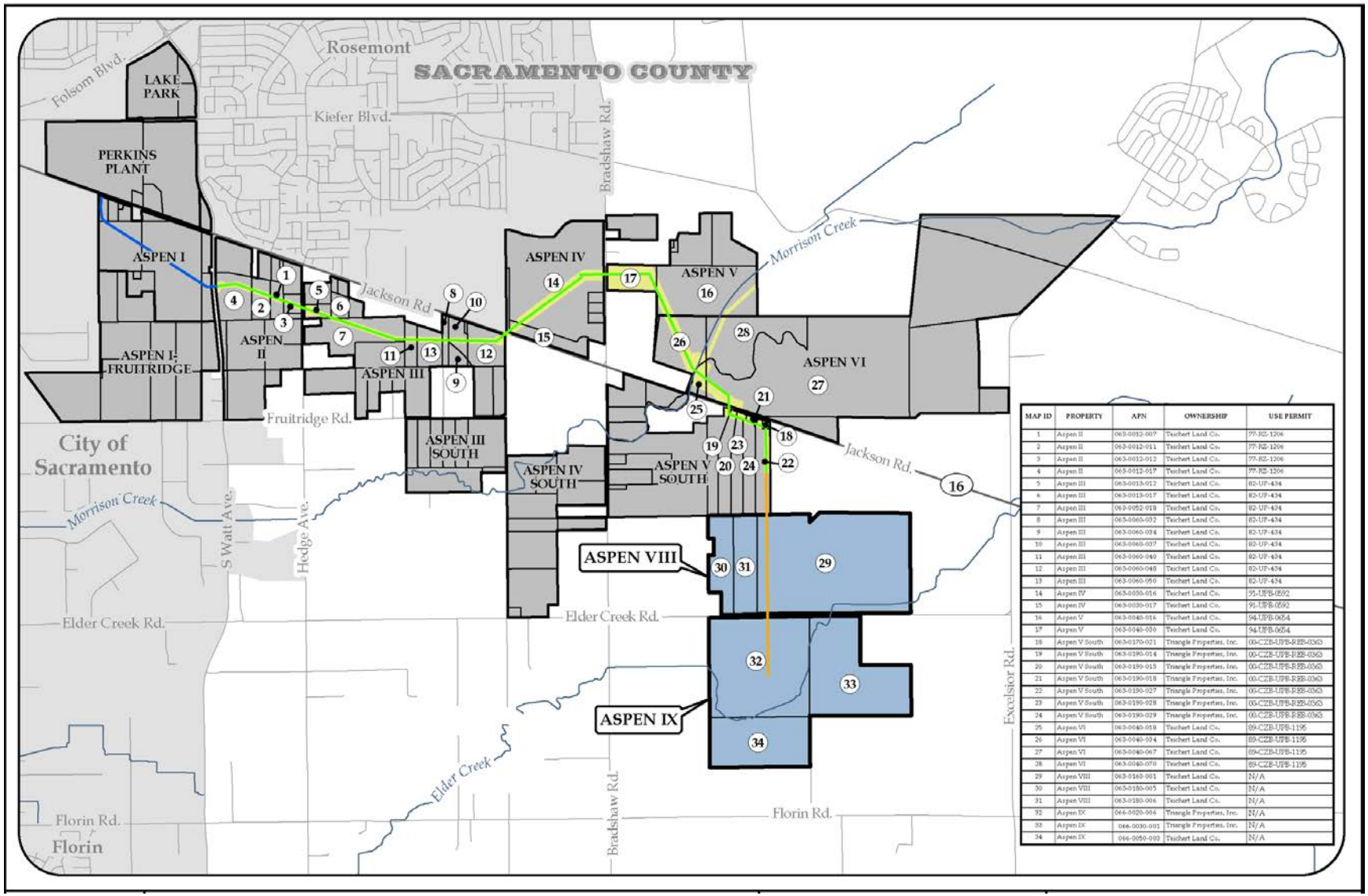
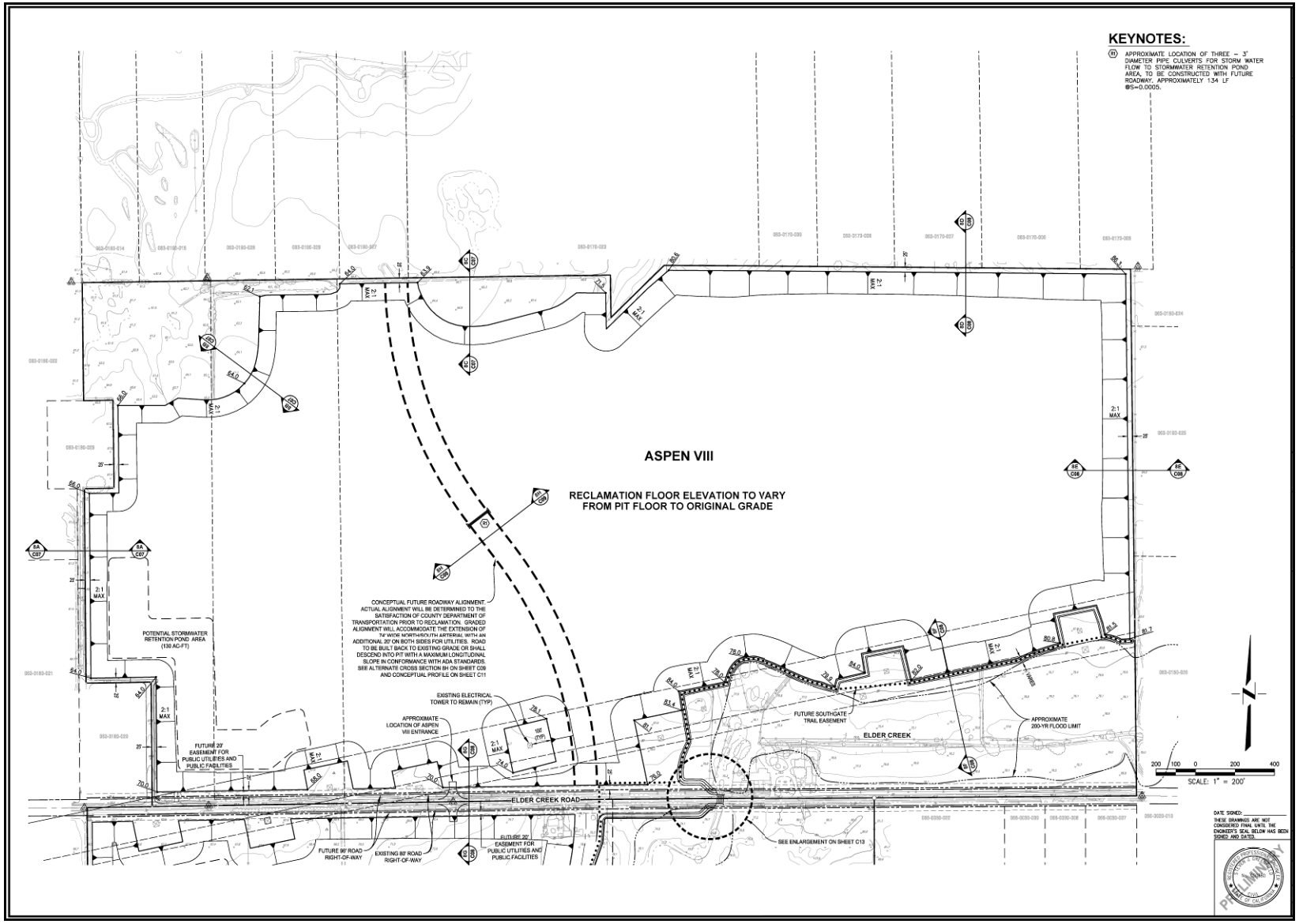

KEYNOTES:
M7 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.
M2 SHRUB ONLY VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
EXISTING 80' ROAD RIGHT-OF-WAY
EXISTING ELECTRICAL TOWER TO REMAIN (TYP)
PROPOSED CONVEYOR TUNNEL
FUTURE 20' EASEMENT FOR PUBLIC UTILITIES AND PUBLIC FACILITIES
FUTURE 96' ROAD RIGHT-OF-WAY
PROPOSED CONVEYOR ALIGNMENT ON PIT FLOOR
ASPEN IX
AREA C
ELDER CREEK
APPROXIMATE 200-YR FLOOD LIMIT
SCALE: 1" = 200'
DATE SIGNED:
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.
PRELIMINARY

Plate PD-9: Existing/Proposed Conveyor Route

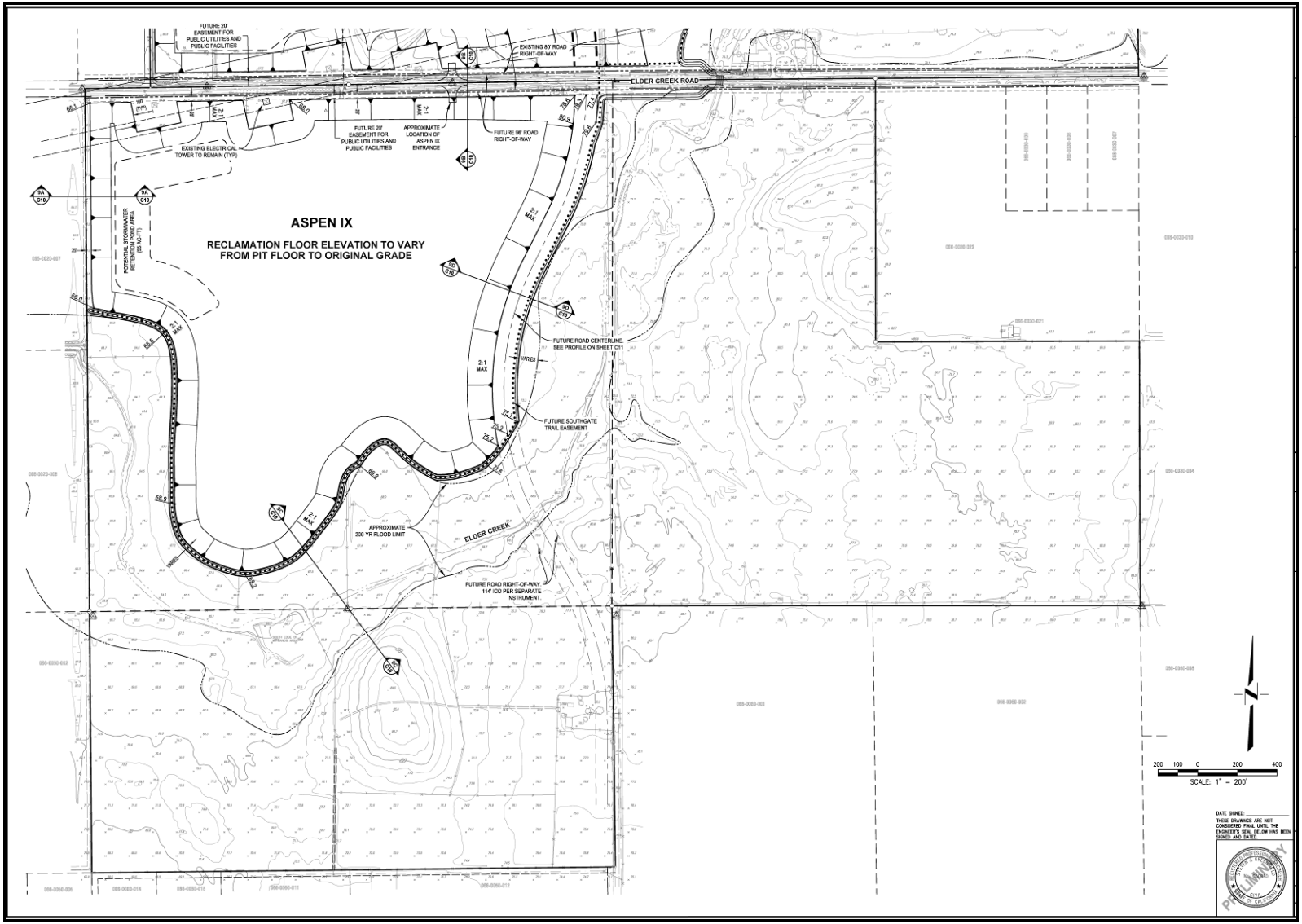


MAP ID	PROPERTY	APN	OWNERSHIP	USE PERMIT
1	Aspen II	063-0012-007	Teichert Land Co.	77-RZ-1206
2	Aspen II	063-0012-011	Teichert Land Co.	77-RZ-1206
3	Aspen II	063-0012-012	Teichert Land Co.	77-RZ-1206
4	Aspen II	063-0012-017	Teichert Land Co.	77-RZ-1206
5	Aspen III	063-0013-012	Teichert Land Co.	82-UP-434
6	Aspen III	063-0013-017	Teichert Land Co.	82-UP-434
7	Aspen III	063-0052-018	Teichert Land Co.	82-UP-434
8	Aspen III	063-0060-032	Teichert Land Co.	82-UP-434
9	Aspen III	063-0060-034	Teichert Land Co.	82-UP-434
10	Aspen III	063-0060-037	Teichert Land Co.	82-UP-434
11	Aspen III	063-0060-040	Teichert Land Co.	82-UP-434
12	Aspen III	063-0060-048	Teichert Land Co.	82-UP-434
13	Aspen III	063-0060-050	Teichert Land Co.	82-UP-434
14	Aspen IV	063-0030-016	Teichert Land Co.	91-UPB-0592
15	Aspen IV	063-0030-017	Teichert Land Co.	91-UPB-0592
16	Aspen V	063-0040-016	Teichert Land Co.	94-UPB-0654
17	Aspen V	063-0040-030	Teichert Land Co.	94-UPB-0654
18	Aspen V South	063-0170-021	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
19	Aspen V South	063-0190-014	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
20	Aspen V South	063-0190-015	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
21	Aspen V South	063-0190-018	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
22	Aspen V South	063-0190-027	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
23	Aspen V South	063-0190-028	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
24	Aspen V South	063-0190-029	Triangle Properties, Inc.	00-CZB-UPB-REE-0063
25	Aspen VI	063-0040-018	Teichert Land Co.	89-CZB-UPB-1195
26	Aspen VI	063-0040-034	Teichert Land Co.	89-CZB-UPB-1195
27	Aspen VI	063-0040-067	Teichert Land Co.	89-CZB-UPB-1195
28	Aspen VI	063-0040-070	Teichert Land Co.	89-CZB-UPB-1195
29	Aspen VIII	063-0180-001	Teichert Land Co.	N/A
30	Aspen VIII	063-0180-005	Teichert Land Co.	N/A
31	Aspen VIII	063-0180-006	Teichert Land Co.	N/A
32	Aspen IX	066-0020-006	Triangle Properties, Inc.	N/A
33	Aspen IX	066-0030-001	Triangle Properties, Inc.	N/A
34	Aspen IX	066-0050-003	Teichert Land Co.	N/A

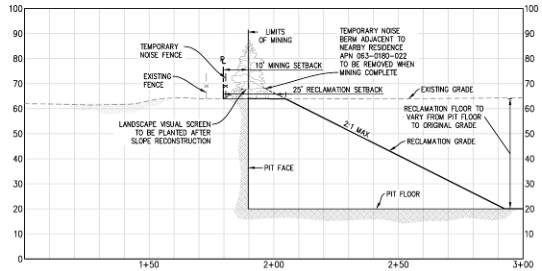
P□□□ PD□□□□ A□□□□ VIII R□□d □□d M□□□U□□ Tr□□P□□□



P□□□ PD□□□□ A□□□□ IX R□□d □□d M□□□□U□□ Tr□□P□□□

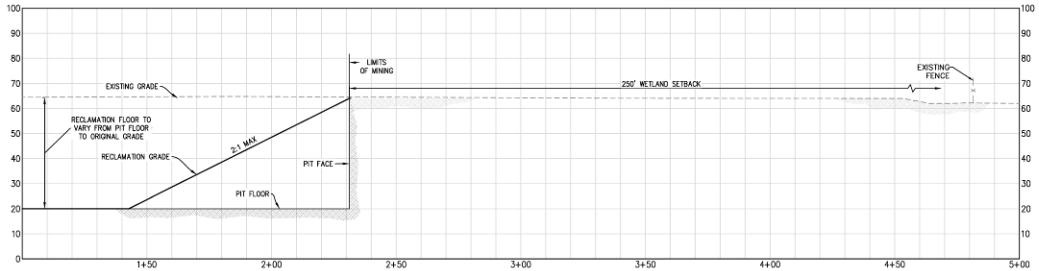


P□□□ PD□□□□A□□□□ VIII D□□□□□ P□□□□ A



SECTION 8A

SCALE= 1" = 20'



SECTION 8B

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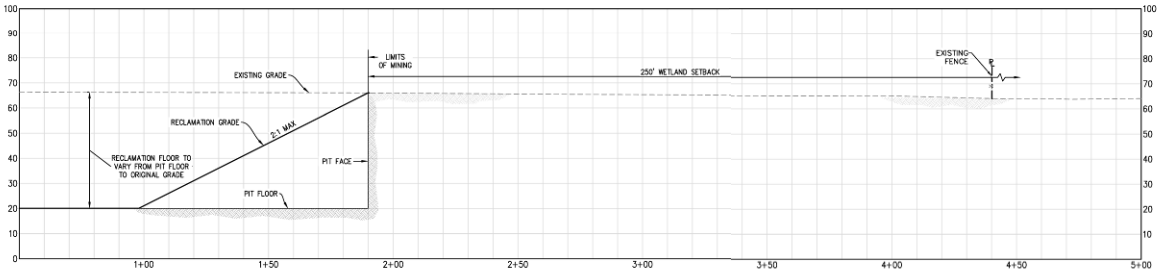


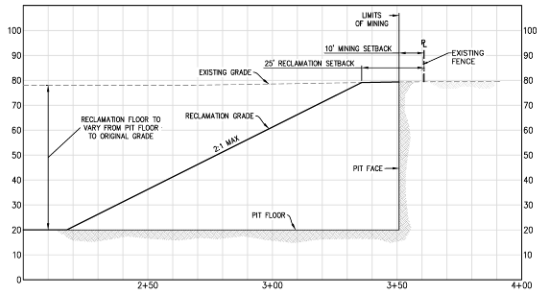
SECTION 8C

SCALE= 1" = 20'

DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

PRELIMINARY

P□□□ PD□□□ A□□□ VIII D□□□□ P□□□ B



SECTION 8D

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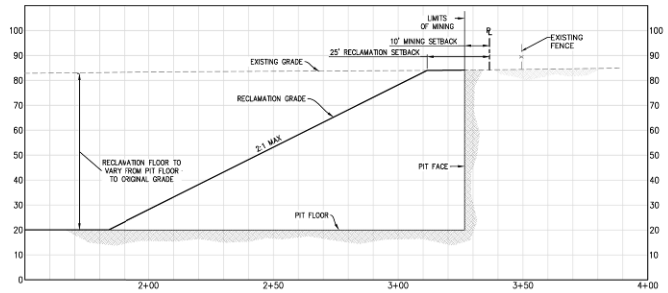

SECTION 8E

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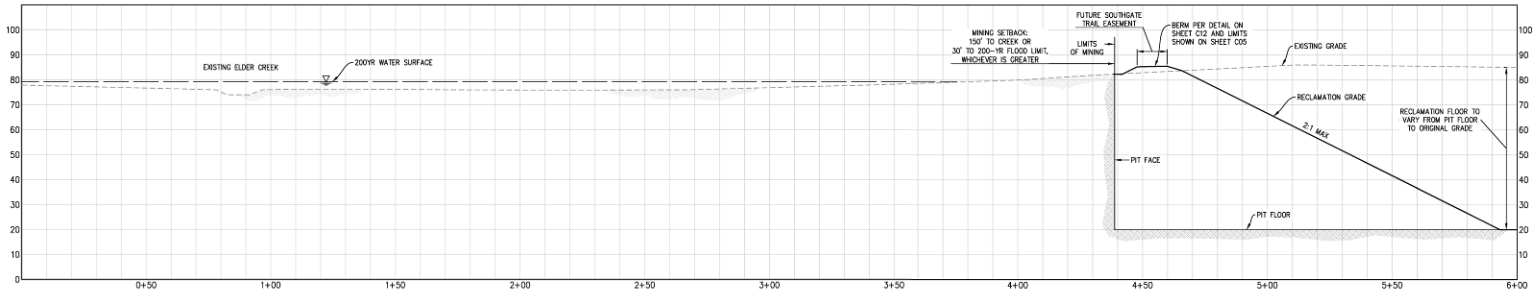
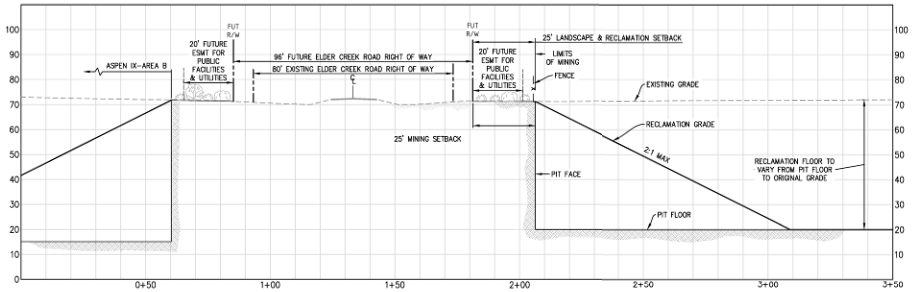


SECTION 8F

SCALE= 1" = 20'

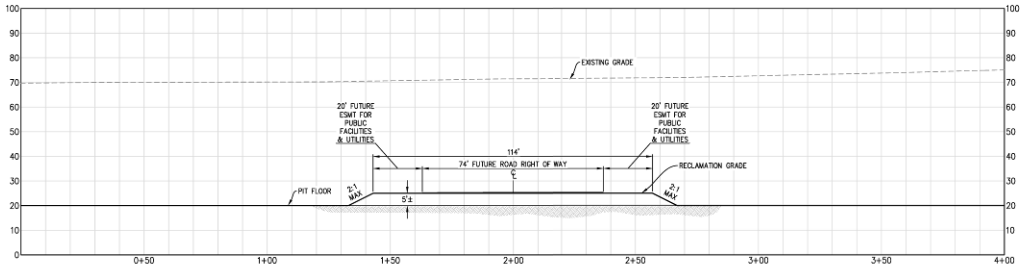


SECTION 8G

SCALE= 1" = 20'

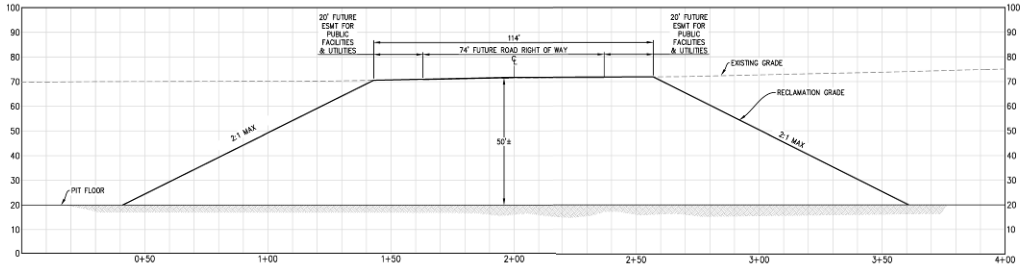
DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

P□□□ PD□□□□ A□□□□ VIII R□□d D□□□□□



SECTION 8H - ROAD AT PIT BOTTOM

SCALE= 1" = 20'

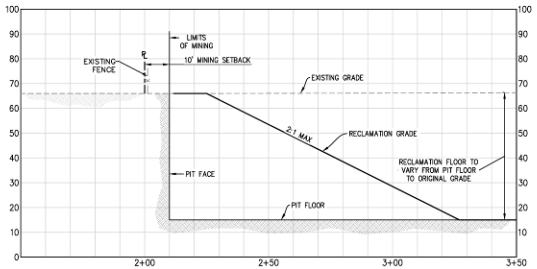


SECTION 8H ALTERNATE - ROAD AT EXISTING GRADE

SCALE= 1" = 20'

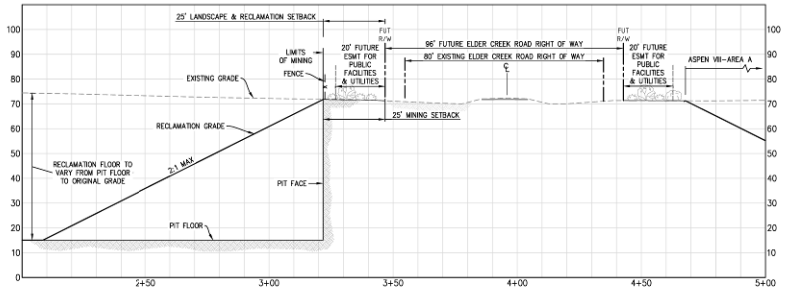
DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

P□□□□ PD□□□□ A□□□□ IX D□□□□□□ P□□□□ C



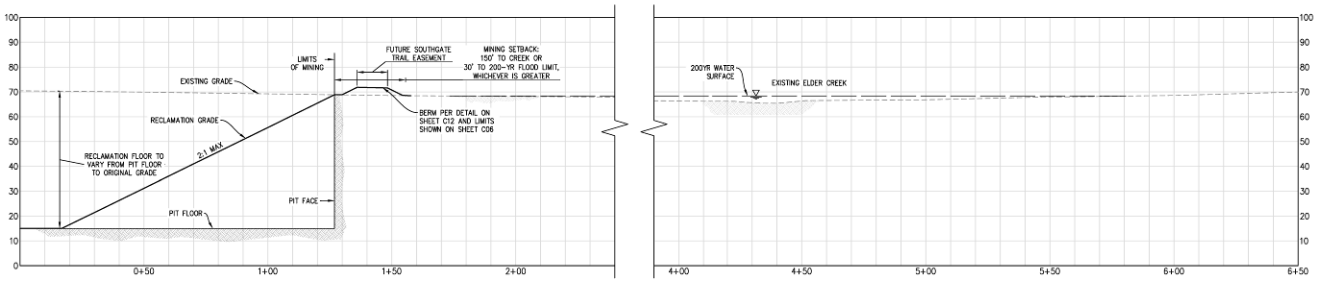
SECTION 9A

SCALE= 1" = 20'



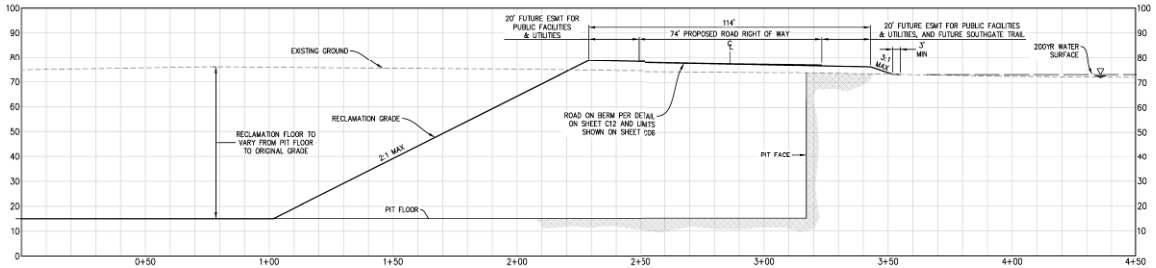
SECTION 9B

SCALE= 1" = 20'



SECTION 9C

SCALE= 1" = 20'



SECTION 9D

SCALE= 1" = 20'

DATE SIGNED: _____

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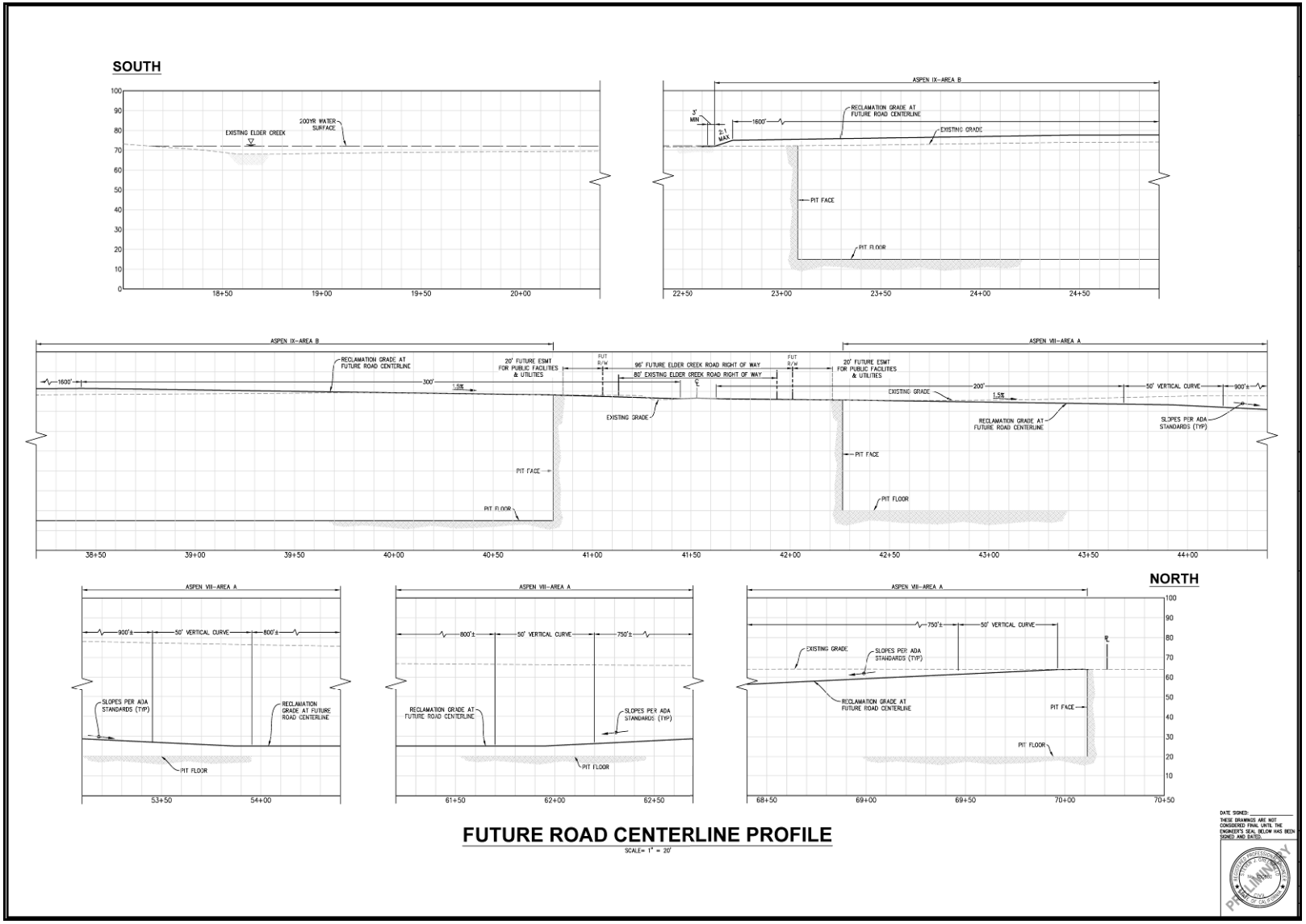
PRELIMINARY

P□□□□ PD□□□□ R□□d Pr□□□□


SOUTH
EXISTING ELDER CREEK
200YR WATER SURFACE
ASPEN IX-AREA B
RECLAMATION GRADE AT FUTURE ROAD CENTERLINE
EXISTING GRADE
PIT FACE
PIT FLOOR
ASPEN VIII-AREA A
20' FUTURE ESMT FOR PUBLIC FACILITIES & UTILITIES
96' FUTURE ELDER CREEK ROAD RIGHT OF WAY
80' EXISTING ELDER CREEK ROAD RIGHT OF WAY
50' VERTICAL CURVE
SLOPES PER ADA STANDARDS (TYP)
NORTH
FUTURE ROAD CENTERLINE PROFILE
SCALE= 1" = 20'
PRELIMINARY

The applicant is proposing to construct a sinuous, paved exit ramp from Aspen VIII to control track out of dirt from employee, maintenance and service vehicle trips. The applicant is also proposing to upgrade the culvert under Elder Creek Road (Plate PD-17).

No overburden will be removed from Aspen IX. Aggregate from both pits will be conveyed off the site via an electric conveyor system to the existing off-site Perkins processing plant. The applicant is also requesting to install native landscaping as part of visual screening of the mining pits. Native landscaping is proposed along Elder Creek Road and along the boundary separating the project site from Bellevue and Arlington Cemeteries (Quiet Haven Memorial Park) to the west (Plate PD-18). Furthermore, the applicant is proposing to install berms to help attenuate noise and to act as a visual screen at the residence near the west side of Aspen VIII and at the northwest corner of Aspen IX.

REQUESTED ENTITLEMENTS:

1. A **Use Permit** to allow surface mining on approximately 353 acres of a 683-acre project site.

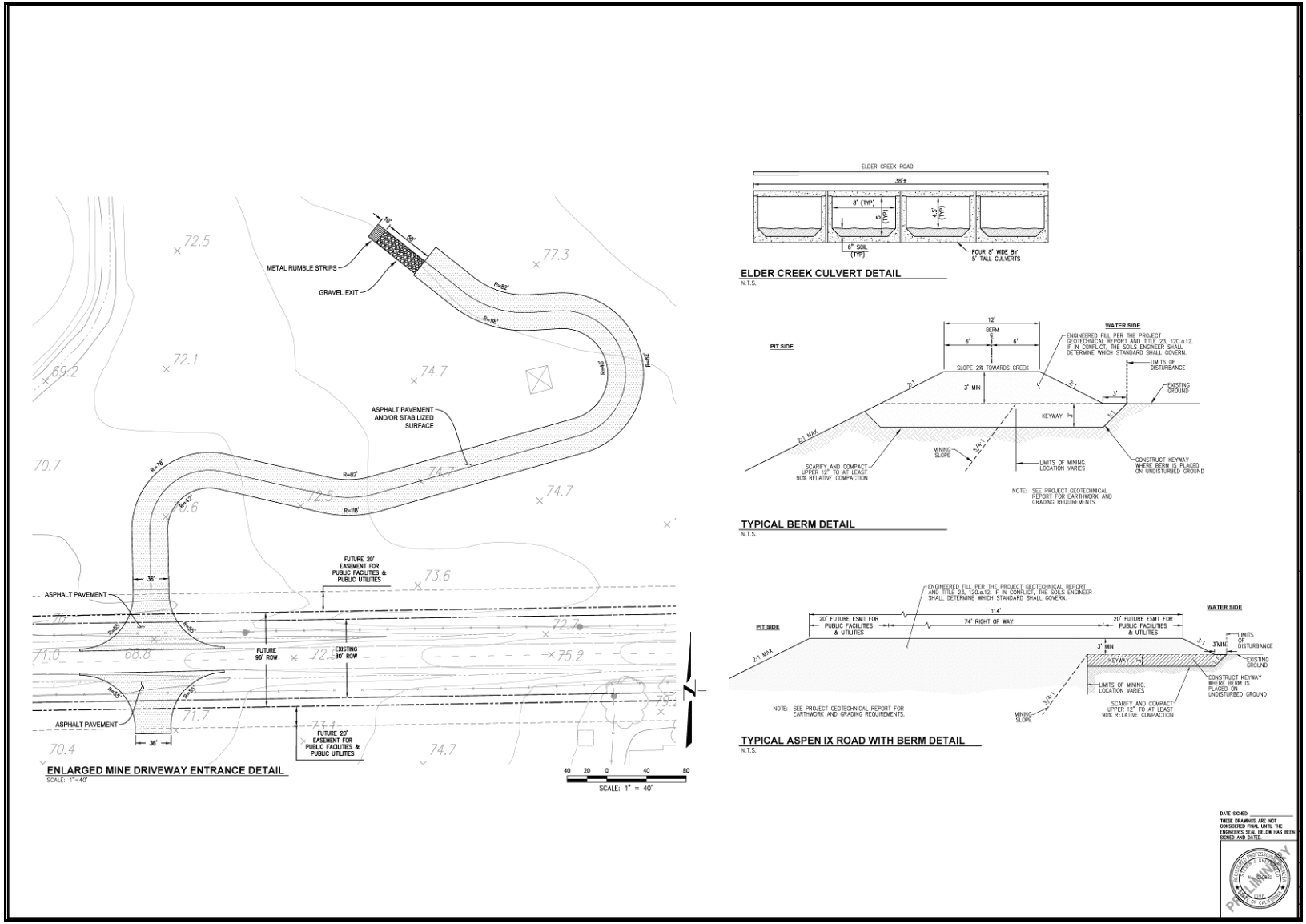
2. A **Use Permit** to allow for the extension and continued use of an electric conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.

3. A **Community Plan Amendment** and **Rezone** to add the Surface Mining Combining Zone (SM) to 682 acres of IR, AG-80, AG-80 (F), AG-160 and AG-160 (F) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.

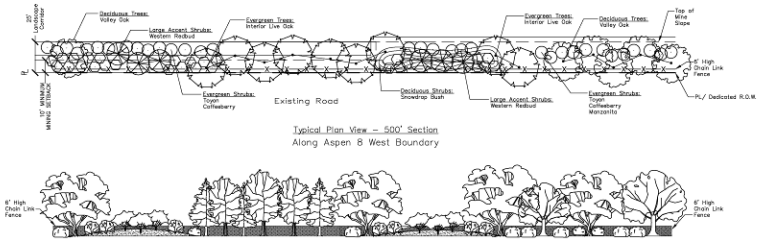
4. A **Reclamation Plan** to include open space grasslands as the end use of the mine.

5. A **Development Agreement** between the applicant and the County of Sacramento.

P□□□□ PD□□□□A□□□□ VIII Dr□□□□ □□ □□d C□□□□r□D□□□□□

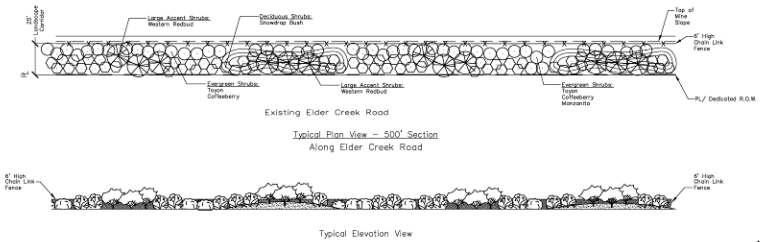


P□□□□ PD□□□□ L□□d□□□□□□□ □□d C□□□□r□D□□□□□



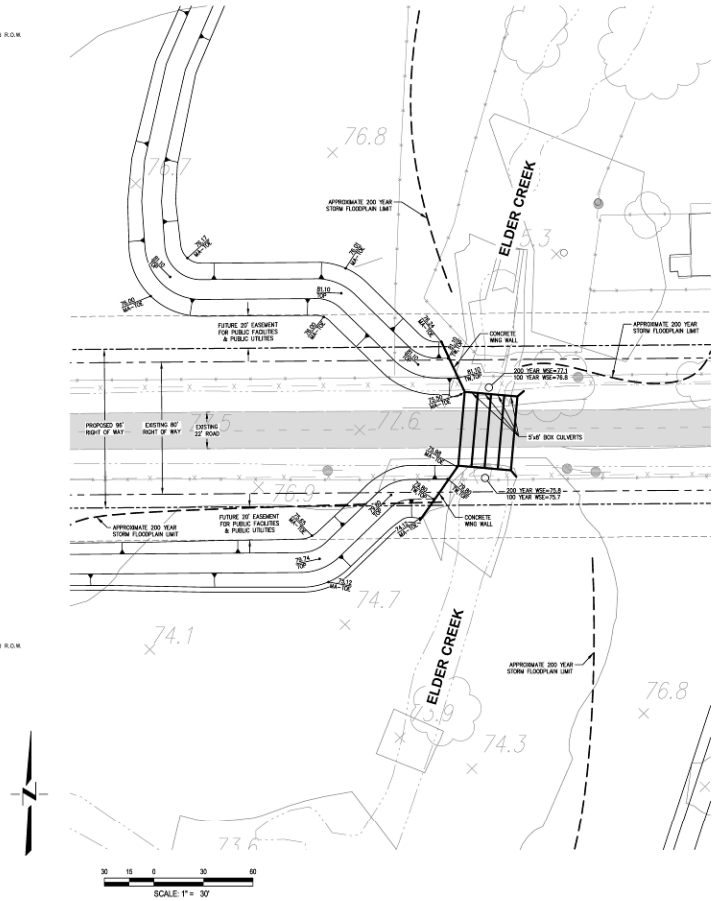
Botanical Name	Common Name	Type	Mature Height
Large Trees:			
Quercus lobata	Valley Oak	Deciduous	60–100'
Quercus wislizenii	Interior Live Oak	Evergreen	30–70'
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	"Howard McMinn" Manzanita	Evergreen	8–12'

TREE/SHRUB VISUAL SCREEN CORRIDOR



Botanical Name	Common Name	Type	Mature Height
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	"Howard McMinn" Manzanita	Evergreen	8–12'

SHRUB ONLY VISUAL SCREEN CORRIDOR



DATE SIGNED: _____
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PRELIMINARY

PROJECT PROPONENTS

APPLICANTS

Teichert Materials
3500 American River Drive
Sacramento, CA 95864
Attention: John Lane

OWNERS

Teichert Land Company and
Triangle Properties
3500 American River Drive
Sacramento, CA 95684
Attention: Ron Gatto

ENGINEER

Cunningham Engineering
2940 Spafford Street, Suite 200
Davis, CA 95618
Attention: Steve Greenfield

PROJECT OBJECTIVE

The applicant has provided the following project objectives:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).
2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.
3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.
4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.
5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.

6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.

7. To minimize impacts to wetlands and other protected habitat from mining operations.

To ensure the responsible reclamation of mined lands and the removal of all associated equipment upon the completion of mining operations.

Project Justification Statement

The County of Sacramento is experiencing a high demand for aggregate products. According to a recent study by the California Geological Survey, the 50-year demand for aggregates within the Sacramento County Aggregate Study Area[2] is approximately 670 million tons. However, as of 2011, the year the study was completed, only 42 million tons (6% of the demand) were permitted for extraction. (California Geological Survey, Map Sheet 52: Aggregate Sustainability in California (2012), p. 7.) This equates to less than ten years' worth of reserves. (*Id*.). At the same time, projections indicate that the County's population will increase by close to 500,000 people over the next 25 years. (California Dept. of Finance, Demographic Research Unit, "Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-Year Increments (January 2013).) In recognition of the importance of aggregate material, Sacramento County's General Plan protects known mineral resources from land uses that would preclude or inhibit timely mineral extraction to meet market demand. In order to provide homes, jobs and other services for the current and future residents of the County, as well as to maintain necessary infrastructure, it is imperative that the region continue to identify reliable, cost-effective sources of aggregate material. The Project is one such source. The Site contains a large quantity of aggregate material which is suitable to make construction products in high demand, including Portland Cement concrete (PCC) and asphalt-ready products.

The mining and reclamation of the Project have been planned to minimize impacts on the natural environment. The Site is located in close proximity to Teichert's Perkins Plant, enabling the mined aggregate material to be transported to the Plant via an extension of the existing conveyor belt system. This method results in substantially less air quality and traffic impacts than the alternative: using haul trucks to transport material. Teichert is also taking affirmative steps as part of its Project to ensure that any vehicles leaving the Site will not "track out" dirt or other sediment onto County roadways and create additional air quality or water quality impacts. In addition, Teichert's proposal to replace the existing Elder Creek culverts under Elder Creek Road

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[2] According to the CGS Report, "Aggregate study areas follow either a Production-Consumption (P-C) region boundary or a county boundary. A P-C region includes one or more aggregate production districts and the market area those districts serve. Aggregate resources are evaluated within the boundaries of the P-C Region. County studies evaluate all aggregate resources within the county boundary." (CGS,p. 7, Note 1.)

will reduce flooding risks. The larger culverts will ensure that flows generated by a 200-year event will be able to easily pass beneath Elder Creek Road, thereby avoiding the water quality and safety implications of allowing storm water to flow across Elder Creek Road. Finally, Teichert will consult with all appropriate regulatory agencies to ensure that all impacts to protected habitat and species will be properly authorized and mitigated.

Lastly, the granting of a use permit for the Project, and a rezone of the various parcels comprising these sites in order to include a SM-overlay, will not be detrimental to the health, safety, comfort or general welfare of persons living or working in the vicinity of the proposed project. As mentioned above, most of the current land uses of surrounding properties are non-residential in nature (grassland, cemeteries, nurseries, etc.) and provide a sufficient buffer from urban uses. Also as mentioned above, the Project has been designed to minimize impacts to the environment to the maximum extent practicable. To further ensure compliance with all applicable County Code provisions, the Project also incorporates the existing conveyor system, which is a previously approved and operational mining use, to ensure that all aspects of the Aspens VIII and IX mining operation are appropriately permitted and, upon completion of mining, satisfactorily reclaimed. Finally, Teichert will comply with all conditions of approval and mitigation measures identified by the County to ensure that these projects operate in a safe, responsible manner.

For the forgoing reasons, the proposed Project is justified.

Environmental Setting

The 683 acre project site currently consists of fields for cattle grazing, three residences, buildings associated with grazing and agriculture, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west. Existing habitat includes annual grasslands and irrigated farmland, scattered wetlands and other waters, including Elder Creek. The majority of the site is used as rangeland for livestock and irrigated pasture for forage production. The surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries (a.k.a. Quiet Haven Memorial Park), a nursery (Village Nurseries), and a water treatment facility (Vineyard Surface Water Treatment Plant).

Areas of Known Controversy

There are no known areas of controversy associated with environmental impacts for the proposed project.

INTENDED USES OF THE EIR

The EIR will be used by the Sacramento County Planning Commission and Board of Supervisors in evaluating the proposed project and rendering a recommendation or decision to approve or deny the proposed project. In addition, the EIR will be used as an informational document by the public and by other responsible agencies including, but not limited to: the California Department of Fish and Wildlife, Regional Water Quality Control Board, U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service.

3 ALTERNATIVES TO THE PROPOSED PROJECT

CEQA REQUIREMENTS

CEQA requires that if a project will have a significant impact on the environment, alternatives must be considered that will avoid or lessen the impacts including alternative site locations. Section 15126.6 of the CEQA Guidelines states that an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives.

INTRODUCTION

Development of the project as proposed would result in significant impacts related to agricultural resources, aesthetics, public services, air quality, noise, geology, biological resources, cultural resources, and hazardous materials. Furthermore, even with the mitigation measures proposed, the aesthetics and air quality impacts cannot be reduced to a less than significant level.

PROJECT OBJECTIVES

Consistent with CEQA requirements, primary consideration was given to alternatives that could reduce impacts, while still meeting most of the project's objectives. The applicant has indicated that the overall objective of the project is to develop the maximum known aggregate reserves that can feasibly be mined within the current project area. Specific project objectives as provided by the applicant include:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).
2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.
3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.
4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.

5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.
6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.
7. To minimize impacts to wetlands and other protected habitat from mining operations.
8. To ensure the responsible reclamation of mined lands and the removal of all associated equipment upon the completion of mining operations.

RANGE OF ALTERNATIVES

The purpose of this section is to identify alternative project designs that would mitigate, lessen, or avoid the significant effects of the Project. To foster meaningful public discussion and informed decision-making, a range of reasonable alternatives to the Project is provided. This range includes the "no project" alternative, the purpose of which is to allow the hearing body to compare the impacts of approving the Project to the impacts of not approving the Project. The "no project" alternative describes what would happen if the existing land use designations remained in effect.

The "no project" alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant unless it is identical to the existing environmental setting analysis which does establish the baseline. The EIR must also identify the environmentally superior alternative. If the "no project" alternative is the environmentally superior alternative, the EIR must identify an environmentally superior alternative from among the other alternatives (Guidelines § 15126.6(e)(2)). An EIR need not evaluate an alternative that is considered speculative, theoretical, or unreasonable (Guidelines § 15126.6(f)(3)). Not every potentially feasible alternative need be considered; rather, the relevant test is whether a "reasonable range" of feasible alternatives is considered for that particular project (Guidelines § 15126.6(a)).

A range of alternatives that could possibly reduce or eliminate some of the project's significant impacts were considered. Some of the alternatives considered were infeasible and rejected without detailed analysis. Other feasible alternatives are discussed with further detail below. The significant and unavoidable impacts that the alternatives are focused on include aesthetics and air quality impacts. Aesthetic impacts that degrade the visual character of the area and air quality impacts for NO_x emissions are significant and unavoidable impacts even after mitigation measures have been applied. The alternatives will also consider some of the project's other impacts

that are not significant and unavoidable such as agricultural resources, public services, noise, cultural resources, and biological resources.

DESCRIPTION OF ALTERNATIVES CONSIDERED BUT REJECTED

ALTERNATIVE FOOTPRINT

Use of a modified mine footprint (reduced area or modified shape) is sometimes considered for mining projects as a method of reducing the area affected or avoiding important environmental resources at the surface such as cultural sites, endangered species habitats or certain aesthetic impacts.

The proposed project has been designed to avoid the most sensitive biological areas on the site. Further, the project site contains no known cultural sites to be avoided. Due to the nature of open-pit aggregate mining, an alternative footprint would not eliminate the aesthetic impact of a large hole in the ground. A modified footprint also would not change the air quality impacts of the project as they are related to the equipment used and the intensity of the mining and not the physical location or layout of the mining pit. Therefore, it is for these reasons that an alternative footprint is not further analyzed.

REDUCED MINING DEPTH

A reduced mining depth alternative is sometimes considered for mining projects as a method of lessening impacts to aesthetic or hydrologic impacts. This proposed project does not have significant hydrologic impacts related to mine depth and is not expected to encounter ground water. The significant aesthetic impacts come from the resulting large hole in the ground left from open pit mining. While a reduced depth may be perceived as less of an impact, due to the overall, irreversible change to the landform it would not substantially lessen the impact.

Additionally, reducing the mining depth would leave existing aggregate resources in place and not utilized. This would not support the logical and orderly extraction of mineral resources. Furthermore, reducing the mining depth could result in expansion of the mine footprint in order to extract sufficient aggregate materials, thus impacts associated with aesthetics, agricultural resources, noise, air quality and biological resources may be greater under this alternative because to compensate for the lack of depth, the operator may have mine a larger area in order to achieve their project objectives and/or supply aggregate to the local market. This alternative does not lessen the significant impacts and may even result in additional significant impacts beyond the proposed project. It is for these reasons that this alternative is not further analyzed.

ALTERNATIVE LOCATION

Many factors are considered in the selection of an aggregate mine, including quality and quantity of the resource, its location and distance to the market consumption area, roadway accessibility, availability of the land, a willing lessor or seller, mining economics (such as the amount of overburden that must be removed), and other factors. In fact, the CEQA Guidelines (Section 15126.6(f)(2)(b)) recognize mining projects to be an example of why evaluation of an alternative location may not be feasible, due to the fact that location of the mineral resource is fixed to the site.

Furthermore, if the mining site was changed to another location, the significant and unavoidable impacts associated with the mine would most likely remain the same or potentially increase. This is because wherever an open-pit alluvial aggregate mine is located, it will result in a large hole in the ground which has been determined to be a significant impact due to the irreversible change to the landform. Similarly, regardless of location, heavy equipment is needed to mine and will usually result in a significant impact. Furthermore, a mine located farther away from either the processing plant or market area would result in increased air quality (and possibly traffic) impact due to aggregate hauling. The current location is near the market area and allows extension of the existing electric conveyor to send raw aggregate material to the existing permitted processing plant. Thus, this alternative would not reduce significant impacts and could even result in some additional impacts. Therefore, this alternative was not further analyzed.

DESCRIPTION OF ALTERNATIVES CONSIDERED

The alternatives considered for further evaluation include the following:

NO PROJECT

In the No Project Alternative no mining would occurr at the site. Furthermore, the No Project Alternative assumes that the General Plan designation and zoning for the site would not change. The project site would remain in its present state and be used for grazing and other agricultural uses permitted under the existing General Plan designation and zoning.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative is designed to address the project's significant air quality (NO_x) impacts by reducing the number pieces of heavy equipment operating at any one time. This could be accomplished through a specific restriction on the number of pieces of equipment or by prohibiting the operator from conducting multiple operations at the same time, such as overburden hauling combined with aggregate extraction.

IMPACT ANALYSIS

The following section analyzes the impacts identified for each topical section of the EIR for the proposed project and how each alternative compares to the proposed project.

AGRICULTURAL RESOURCES

PROPOSED PROJECT

The project as proposed will convert prime farmland and farmland of statewide importance to mining uses and then the land will be reclaimed to open space grassland. The project will convert 39 acres of prime farmland, 225 acres of farmland of statewide importance and 91 acres of farmland of local importance totaling 355 acres of farmland impacts. With mitigation the impact to agricultural resources are less than significant.

NO PROJECT

The No Project Alternative would not result in the conversion of farmland. No mining would occur on the property and agricultural uses would continue.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative would not lessen the impacts associated with agricultural resources. The reduced production rate would only limit the amount of heavy equipment working at the mine or the timing of particular mine phases such as overburden hauling. The same loss of agricultural resources will occur at a rate proportional to the mining.

AESTHETICS

PROPOSED PROJECT

Aesthetic impacts of the proposed project were determined to be significant and unavoidable. Aesthetic impacts are based on changes to the existing landform associated with two large mining pits.

NO PROJECT

The significant and unavoidable impacts of the proposed project would not occur under the No Project Alternative. The site would continue with agricultural uses as before. There would be no permanent alteration of the landform associated with mining pits.

Reduced Production Rate

Under the Reduced Production Rate Alternative, there would still be two large mining pits that would alter the land form. This alternative would only slow the rate of excavation and not eliminate the aesthetic impacts because the two mining pits would still be excavated.

Public Service

Proposed Project

The public service impacts for the project where evaluated and found to be less than significant except for the impacts associated with provisions of park and recreation services. These impacts are potentially significant in that the mining pits will limit where a planned multi-use trail can be located. Public service impacts are potentially significant but with mitigation the impacts are less than significant.

No Project

The No Project Alternative would have no impacts on public services and would not affect the planned location of the multi-use trail.

Reduced Production Rate

The Reduced Production Rate Alternative will slow the rate of production but not stop the site from being excavated. This alternative would have similar impacts on public services as the proposed project and could therefore, affect the planned location of the multi-use trail on the project site.

Air Quality

Proposed Project

The proposed project would have significant and unavoidable air quality impact for NOx emissions. The project's emission of ROG and PM are considered significant but with mitigation the impacts are reduced to less than significant.

No Project

The significant and unavoidable impacts associated with air quality for the proposed project would not occur under the No Project Alternative.

Reduced Production Rate

The Reduced Production Rate Alternative is designed to reduce the air quality impacts (No_x) of the project. This alternative limits the number of pieces of heavy-equipment used at the site and by using less equipment the air quality impacts are expected to be reduced. On the other hand, in order for the operator to mine the same amount of material, the mine will have to operate for a longer time in order to fulfill the projects objectives.

Noise

Proposed Project

The proposed project would have a significant impact for noise levels that are in excess of standards established by the noise ordinance and ambient noise. The project would result in noise in excess of median (L50) noise levels at the residence located west of the proposed Aspen VIII pit. Furthermore, the ambient noise level exceeds the standard at the same residence as above. With mitigation, noise impacts are reduced to less than significant.

No Project

The No Project Alternative doesn't result in the noise impacts identified for the propose project.

Reduced Production Rate

The Reduced Production Rate Alternative may reduce some of the noise at the project site by reducing the amount of heavy-equipment used on the site. The noise from the project has the most significant impacts to the residence to the west of the site and if the equipment used within 850 feet was reduced to one piece then the noise impacts would be reduced to less than significant.

Geology and Soils

Proposed Project

There is the potential for the reclaimed slopes and berms to become unstable. Mitigation will reduce the impacts to the reclaimed slopes and berms to less than significant. The project also has the potential for soil erosion from wind and rain, but once again mitigation will reduce the impact to less than significant. Finally the

proposed project could disturb paleontological resources but mitigation will reduce the impact to less than significant.

No Project

The No Project Alternative would have no impacts on geology and soils.

Reduced Production Rate

The Reduced Production Rate Alternative could still create unstable soil conditions for the slopes and berms. This alternative would not lessen the impacts associated with geology and soils because the mine will still excavate the same area but only with less equipment and therefore, at a slower rate. In other words, the excavated area will have the same footprint as before but the equipment used will be reduced.

Biological Resources

Proposed Project

The project will result in significant impacts related to various special status species. The impacts with mitigation are reduced to less than significant. The project will also result in significant impacts related to jurisdictional wetlands and Waters of the U.S. Specifically the project will impact 5.373 acres of vernal pools, wetlands, swales, marches, streams, ponds and ditches. Mitigation measures have been included to reduce the impacts to less than significant. Finally, the project will result in the removal of native trees and tree canopy. Mitigation for the native trees and tree canopy will lessen the impacts to less than significant.

No Project

The No Project Alternative would create no new impacts to biological resources because the existing use of the site would continue and no mining would occur at the site.

Reduced Production Rate

The Reduced Production Rate Alternative impacts to biological resources will be similar to those of the proposed project. This is because the mine will excavate the same amount of area as the proposed project. The only difference is the amount of heavy equipment used to excavate the site will be reduced. This alternative will just slow the rate of excavation but the mining footprint is the same as the proposed project. Therefore, all the impacts associated with biological resources will remain.

CULTURAL RESOURCES

PROPOSED PROJECT

The proposed project would result in potentially significant impacts to undiscovered prehistoric resources and human remains.

NO PROJECT

Under the No Project Alternative, the potential for cultural resource impacts are lessened. The site would continue to be used for agricultural uses. Agricultural use have the potential to disturb soils and expose unknown resources, although, the impacts are unlikely because the historic use of the site will continue and discoveries are not expected to occur. There is a low probability that this would change in the future.

REDUCED PRODUCTION RATE

The Reduced Production Rate Alternative may not lessen the impacts associated with cultural resources. The site will still be excavated but with less heavy equipment and at a slower rate. Consequently the impacts to cultural resources would remain the same as the propose project.

HAZARDOUS MATERIALS

PROPOSED PROJECT

The proposed project will utilize a small amount of hazardous materials associated with maintenance of the heavy equipment used at the site. There will be no on-site storage of hazardous materials. Mitigation measures have been added to lessen the impacts to less than significant.

NO PROJECT

The No Project Alternative does not propose any on-site construction. The site would continue to operate as a farm with agricultural uses. Farming practices could involve the use of pesticides, fertilizer and maintenance and overhauling of farm equipment. Since agricultural uses don’t receive the same level of scrutiny as mining projects; the agricultural uses on the site could have greater hazardous materials impacts than the proposed project.

Reduced Production Rate

The Reduced Production Rate Alternative has the potential to reduce the amount of equipment used at the site. Less heavy equipment used at the mining site may result in fewer impacts associated with hazardous materials.

Consistency with Project Objectives

No Project

The No Project Alternative would not achieve any of the project objectives except for the minimization of impacts to wetland and other protected habitats.

Reduced Production Rate

The Reduced Production Rate Alternative would meet all project objectives but at a slower rate than the proposed project. This alterative would produce the same amount of material but it would take a longer period of time. While not specifically stated in the project objectives, this alternative may not meet the needs of the applicant to supply a certain percentage of the local aggregate market. The ramifications of this are discussed in the discussion of the environmentally superior alternative below.

Summary of Comparison of Alternative

For comparison purposes, Table ALT 1 provides the impacts of the proposed Project, the No Project Alternative and the Reduced Production Rate Alternative.

- LS Indicates the project's impact is Less than Significant
- PS Indicates the project's impact is Potentially Significant
- S Indicates the project's impact is Significant
- + Indicates the impact is greater than the proposed project.
- - Indicates the impact is less than the proposed project.
- = Indicates the impact is equal to the proposed project.

Table ALT 1: Comparison of Alternatives to the Proposed Project

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	LS	=	=
Displaces substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere.	LS	=	=
Physically divides an established community.	LS	=	=
Induces substantial unplanned population growth in an area either directly or indirectly.	LS	=	=
Converts Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production.	S	-	=
Conflicts with any existing Williamson Act contract.	LS	=	=
Introduces incompatible uses in the vicinity of existing agricultural uses	LS	=	=
Substantially degrades the existing visual character or quality of the site and its surrounding.	S	-	=
Creates a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the	S	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
area.			
Substantially alters existing viewsheds such as scenic highways, corridors or vistas.	LS	=	=
Exposes people residing or working in the project area to aircraft noise levels in excess of applicable standards.	LS	=	=
Results in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft.	LS	=	=
Results in a safety hazard for people residing or working in the vicinity of an airport/airstrip.	LS	=	=
Results in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	LS	=	=
Has an adequate water supply for full buildout of the project.	LS	=	=
Have adequate wastewater treatment and disposal facilities for full buildout of the project.	LS	=	=
Is served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	LS	=	=
Results in substantial adverse physical impacts associated with the construction of new water	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
supply or wastewater treatment and disposal facilities or expansion of existing facilities.			
Results in substantial adverse physical impacts associated with the provision of storm water drainage facilities.	LS	=	=
Results in substantial adverse physical impacts associated with the provisions of electric or natural gas service.	LS	=	=
Results in substantial adverse physical impacts associated with the provision of emergency services.	LS	=	=
Results in substantial adverse physical impacts associated with the provisions of public school services.	LS	=	=
Interfere with adopted plans associated with Interferes with adopted plans or results in substantial adverse physical impacts associated with the provision of park and recreation services.	PS	-	=
Results in substantial adverse impact due to inadequate parking capacity.	LS	=	=
Conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Results in a substantial adverse impact to public safety on area roadways.	LS	=	=
Results in a substantial increase in peak hour vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County.	LS	=	=
Results in a substantial adverse impact to access and/or circulation.	LS	=	=
Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.	S	-	-
Exposes sensitive receptors to pollutant concentrations in excess of standards.	LS	=	=
Creates objectionable odors affecting a substantial number of people.	LS	=	=
Results in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies.	S	-	-
Results in a substantial temporary increase in ambient noise levels in the project vicinity.	S	-	-
Substantially alters the existing drainage pattern of the project area	S	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
and/or increases the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site.			
Develops within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard.	LS	=	=
Creates substantial sources of polluted runoff or otherwise substantially degrades ground or surface water quality.	LS	=	=
Substantially depletes groundwater supplies or substantially interferes with groundwater recharge.	LS	=	=
Places structures that would impede or redirect flood flows within a 100-year floodplain.	LS	=	=
Exposes people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.	LS	=	=
Creates or contributes runoff that would exceed the capacity of existing or planned stormwater systems.	LS	=	=
Is located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction,	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
or collapse.			
Results in substantial soil erosion or the loss of topsoil.	PS	-	=
Directly or indirectly destroy a unique paleontological resource or site.	PS	=	=
Exposes people or structures to substantial risk of loss, injury or death involving ruptured of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.	LS	=	=
Results in a substantial loss of an important mineral resource.	LS	=	=
Has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available.	LS	=	=
Has a substantial adverse effect on any special status species. Sanford's Arrowhead	S	-	=
Has a substantial adverse effect on any special status species. Invertebrates	S	-	=
Has a substantial adverse effect on any special status species.	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
Western Spadefoot Toad			
Has a substantial adverse effect on any special status species. Western Pond Turtle	PS	-	=
Has a substantial adverse effect on any special status species. Nesting White-Tailed Kite or Swainson's Hawk	PS	-	=
Has a substantial adverse effect on any special status species. Nesting Northern Harrier	PS	-	=
Has a substantial adverse effect on any special status species. Nesting Raptors	PS	-	=
Has a substantial adverse effect on any special status species. Nesting or Roosting Burrowing Owl	PS	-	=
Has a substantial adverse effect on any special status species. Nesting birds protected under the Migratory Bird Treaty Act	PS	-	=
Has a substantial adverse effect on any special status species. Loss of foraging habitat for White-Tailed Kite and Swainson's Hawk	S	-	=
Has a substantial adverse effect on	PS	-	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
any special status species. Disturbance to nesting Loggerhead Shrike			
Has a substantial adverse effect on any special status species. Disturbance to nesting or roosting Yellow-Billed Magpie	PS	-	=
Has a substantial adverse effect on any special status species. Disturbance to nesting Tricolored Blackbird	S	-	=
Has a substantial adverse effect on any riparian habitat or other sensitive natural community.	LS	-	=
Has a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act.	S	-	=
Adversely affects or results in the removal of native or landmark trees.	S	-	=
Conflicts with any local policies or ordinances protecting biological recourses.	LS	=	=
Has a substantial adverse effect on the movement of any native resident of migratory fish or wildlife species.	LS	=	=
Conflicts with the provisions of an adopted Habitat Conservation Plan or other approved local, regional,	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
state or federal plan for the conservation of habitat.			
Causes a substantial adverse change in the significance of a historical resource.	PS	=	=
Has a substantial adverse effect on an archaeological resource.	PS	=	=
Disturbs any human remains, including those interred outside of formal cemeteries.	PS	=	=
Creates a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	PS	-	=
Exposes the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials.	LS	=	=
Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.	LS	=	=
Is located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 resulting in a substantial hazard to the public or the environment.	LS	=	=
Impairs the implementation of or physically interferes with an adopted emergency response or	LS	=	=

Impact Category	Proposed Project Before Mitigation	Alternative 1: No Project	Alternative 2: Reduced Processing Rate
emergency evacuation plan.			
Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	LS	=	=

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The “No Project” alternative has the fewest environmental impacts but does not meet the project objectives. The CEQA Guidelines require that a “No Project” alternative be evaluated and although the “No Project” alternative could be considered the environmentally superior alternative, when the “No Project” alternative is the environmentally superior alternative, another environmentally superior alternative must be identified (CEQA Guidelines §15126(d)).

The reduced processing rate alternative appears to result in lessened air quality and noise impacts compared to the proposed project and it meets the stated project objectives. However, the objectives do not specify a minimum extraction rate or mining time-frame, therefore what is not captured is that a restriction on the amount of mining equipment may not meet the applicant’s needs to provide a steady supply of aggregate to the market at a rate commensurate with their existing processing plant. Additionally, because aggregate is an inflexible commodity, meaning it will be supplied to the market regardless of price and because there are other permitted mines in the market area, if the reduced production rate alternative were imposed, the market would adapt by supplying more aggregate from other mines in the area or even by importing aggregate from outside the area.

Because the other mines are in the same air basin, the average cumulative air quality impacts would be about the same if other mines ramped up production to make up for artificial restrictions on the proposed project’s production. Similarly, if other mines ramp up production, their noise impacts would increase. If aggregate was imported, noise and air quality impacts would increase as well as traffic impacts from the extra on-road heavy truck hauling needed to bring the material in from other areas such as the Yuba Goldfields. There could also be additional impacts if other mines built new processing plants and/or capacity to serve the market. Since the proposed project would be served by an existing, permitted processing plant with an existing conveyor system and existing capacity, it is environmentally superior to a reduced processing rate alternative that

could restrict the applicant's ability to capture as much market share and thus result in additional impacts from other mines ramping up, building additional capacity or from aggregate import outside the area.

Although the Reduced Production Alternative would have reductions in impacts related to air quality and noise locally, when considering the air basin as a whole and the inherent cumulative nature of air quality analysis, and that increased mining elsewhere or the import of aggregate for outside the areas would add additional air quality, noise and possible traffic impacts, the alternative would be no better than the proposed project. It may even result in greater impacts if other mines built additional processing capacity or aggregate was imported from other markets. For these reasons, the proposed project is considered the environmentally superior alternative. It results in the fewest impacts while still meeting the full objectives of the applicant.

4 LAND USE/POPULATION AND HOUSING

REGULATORY CONTEXT

SURFACE MINING AND RECLAMATION ACT (SMARA)

The Surface Mining and Reclamation Act of 1975 (SMARA) is administered by the State of California, Department of Conservation, Office of Mining and Reclamation. SMARA provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The reclamation plans required by SMARA and County Code define the basis for achieving safe and usable end land uses for mines. Furthermore, SMARA encourages the production, conservation, and protection of the State's mineral resources, Public Resources Code Section 2207 provides an annual reporting requirement of all mines in the State, under which the State Mining and Geology Board is also granted authority and obligations.

Sacramento County is the SMARA Lead Agency on all mines that operate in the unincorporated County of Sacramento. The County of Sacramento, Department of Community Development is charged with regulating mines in accordance with SMARA, County Code, General Plan, and Zoning Code regulations. Mine operators are required to post a financial assurance (e.g. performance bond, certificate of deposit, or letter of credit) in an amount that will reclaim the mine in accordance with the approved reclamation plan in the event that the operator fails to do so. The County of Sacramento, as the Lead Agency conducts annual reviews to assure financial assurances remain adequate based on the condition of the mine in relation to the approved reclamation plan. In addition, the Department of Community Development conducts annual inspections of all mines within the unincorporated county to insure compliance with SMARA and use permit conditions.

SACRAMENTO COUNTY CODE

The Sacramento County Code (SCC) is the codification and compilation of general ordinances adopted by the Board of Supervisors. For surface mining projects, SCC Title 20 regulates surface mining and reclamation.

Sacramento County recognizes that the extraction of minerals is essential to the continued economic well-being of the County and to the needs of society and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety. Sacramento County also recognizes that surface mining takes place in diverse

areas where the geologic, topographic, climatic, biological, and social conditions are substantially different and that final reclamation and the specifications therefore may vary accordingly.

The purpose and intent of the surface mining and reclamation chapter of the County Code is to ensure the continued availability of important mineral resources, while regulating surface mining operations as required by SMARA to ensure that:

- Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.
- The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment.
- Residual hazards to the public health and safety are eliminated.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to land use/population and housing that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

Policy CO-39:

> Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

Policy CO-40:

> Extractive uses and associated processing uses and facilities shall maintain adequate minimum setbacks to protect adjoining land uses.

Policy CO-41:

> Surface mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

Policy CO-57:

> In areas where topsoil mining is permitted, it shall be done so as to maintain the long-term productivity of the soil.

Sacramento County Zoning Code

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

The applicant is requesting a use permit to allow surface mining and use of an existing electric conveyor system to transport the mined material off-site. This can be allowed pursuant to Zoning Code section 4.8.4.A, which states, “All mining operations are permitted in the Surface Mining Combining Zone subject to approval of a conditional use permit by the Board of Supervisors after receipt of a recommendation by the Planning Commission and upon approval of a reclamation plan and financial assurances.”

In addition to the general information required for use permit applications as set forth in the Zoning Code section 6.4.1, an application for a mining use permit is also subject to Zoning Code section 4.8.11. This section requires the following additional information: a mining plan; a reclamation plan; soil, geologic and hydrologic data; a traffic and parking plan; air pollution control measures; noise data; waste data; a drainage plan; a hazardous materials plan; a landscaping plan; a lighting plan and a regional analysis of ancillary uses.

All aggregate mining operations, including sand and gravel mines, hard rock quarries and dredger tailing mining operations shall be subject to Zoning Code section 4.8.12, operating standards for aggregate mining operations. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways.

Surface Mining (SM) Combining Zone

The applicant is requesting a community plan amendment and rezone from IR, AG-80, AG-80(F), AG-160, and AG-160(F) to IR(SM), AG-80(SM), AG-80(F)(SM), AG-160(SM), and AG-160(F)(SM) for the approximately 682 acres of the 683-acre project site. Concurrent with the rezone request, is a use permit request to allow surface mining on an approximately 357 acre portion of the project site, a use permit to allow an existing electric conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant, a reclamation plan that includes ~~agricultural uses~~ ***open space grassland*** as the end use of the mine, and a development agreement between the applicant and the County of Sacramento. According to Zoning Code section 4.8.1, the purpose of the surface mining (SM) combining zone is as follows:

> The (SM) Surface Mining Combining Zone is designed to protect the mineral resources of Sacramento County from incompatible land use; to manage the mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use. The goals to be pursued by establishment of this zone include:

a) That mineral resource areas be protected from preclusive and incompatible land uses;

b) That surface mining be controlled to provide for protection of the environment;

c) That surface mining be controlled to protect the public health, safety, welfare, and property values of residents living near surface mining operations;

d) That provisions be made for the reclamation of mined lands.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate LU-1). Elder Creek Road bisects the project site, with Aspen 8 north of Elder Creek Road and Aspen 9 south of Elder Creek Road. The project is located in the Vineyard Community and the majority of the project site is currently used as irrigated pasture and rangeland for livestock. The project site has three residences; two of the three residences will be removed as part of this project. The home located along Elder Creek Road (10151 Elder Creek Road) will remain on the project site. Plate LU-2 shows the location of the six nearest residences to the project site. This excludes the two residences that will be removed as a result of this project.

Plate LU-1 Zoning and Location Map

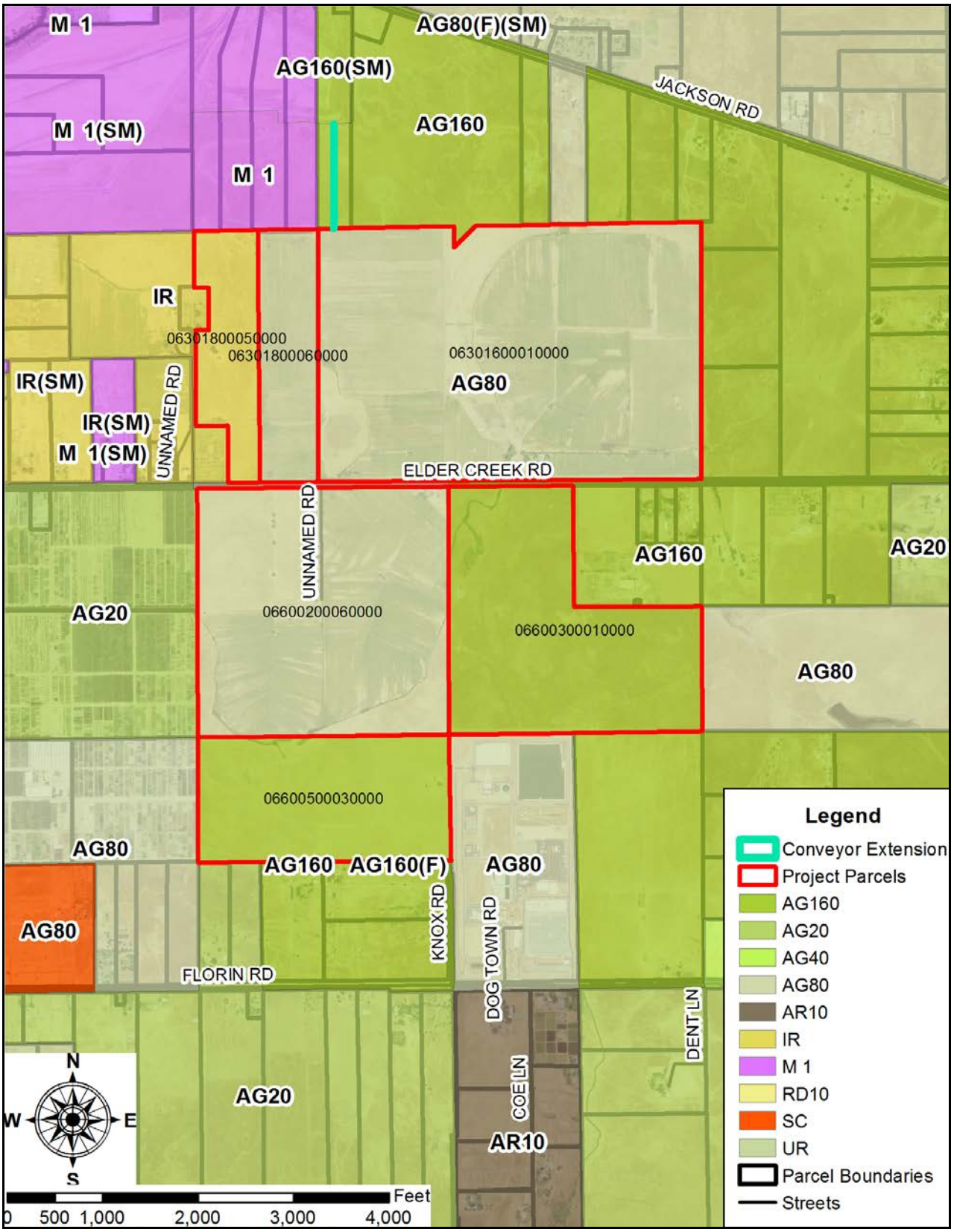
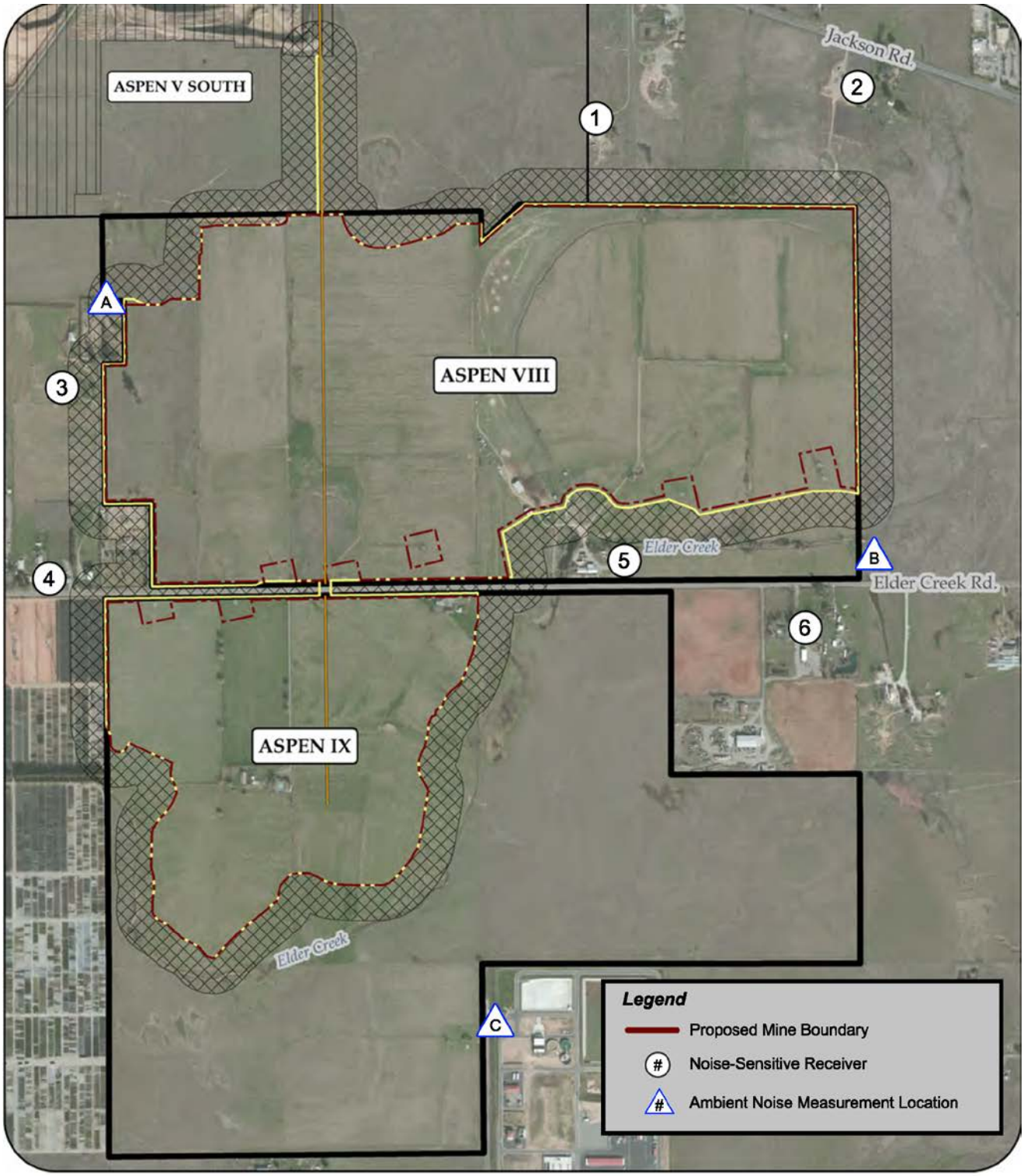


Plate LU-2 Nearby Residences



BOLLARD
Acoustical Consultants

Scale (feet)
0 500 1,000

Proposed land uses

The applicant is proposing to develop two surface mining pits that will allow extraction of sand and gravel aggregate material. The applicant anticipates the mining to last 15 years and after 15 years the site will be reclaimed to open space. The project will consist of site preparation activities, mining operations, and end with reclamation. Site activities include the installation of native landscaping along both the north and south sides of Elder Creek Road and adjacent to Aspen VIII's western most parcel (063-0180-005-0000), the replacement of undersized culverts under Elder Creek Road, the installation of entrance driveways, and connection to the existing electric conveyor system. The conveyor system is currently in place and utilized on the property to the north of Aspen VIII at the permitted Aspen V south mine. The applicant is proposing to tie in a new electric conveyor system that will be placed on Aspen VIII and IX with this exiting electric conveyor to the north. This will allow the mined materials to be transported to the Perkins processing plant located off-site. Mining operations consist of topsoil management, overburden removal and transport, and aggregate removal. Reclamation entails converting the mining pits back to open space uses. The applicant is requesting approval of a community plan amendment and rezone (Plate LU-3), a use permit to allow surface mining, a use permit to allow an existing electric conveyor system to transport the mined materials to an off-site processing plant, a reclamation plan to convert the mining pits back to open space uses and a development agreement with the County of Sacramento.

Existing Land Use and Zoning Designations

The land use diagram of the General Plan designates the project site as General Agriculture and Extensive Industrial (Plate LU-4). The zoning of the project site is IR (Industrial Reserve), AG-80 (Agricultural), AG-80 (Agricultural) (F) Flood, AG-160 (Agricultural), and AG-160 (Agricultural) (F) Flood (Plate LU-1). The (F) Combining Zone is intended to encompass all land in the Federal Emergency Management Agency (FEMA) 100-year flood zone in Sacramento County. The IR (Industrial Reserve) land use zone has a minimum parcel size of 20 acres and the permitted uses are general agriculture. The AG-80 and AG-80(F) land use zones have a minimum lot area of 80 acres and the permitted uses are general agriculture; while the AG-160 and AG-160(F) land use zones have a minimum lot area of 160 acres and the permitted uses are general agriculture. The properties to the east, south, and west of the project site are used mostly for agriculture. To the north and northwest, the properties are used for surface mining.

Plate LU-3 Rezone Map

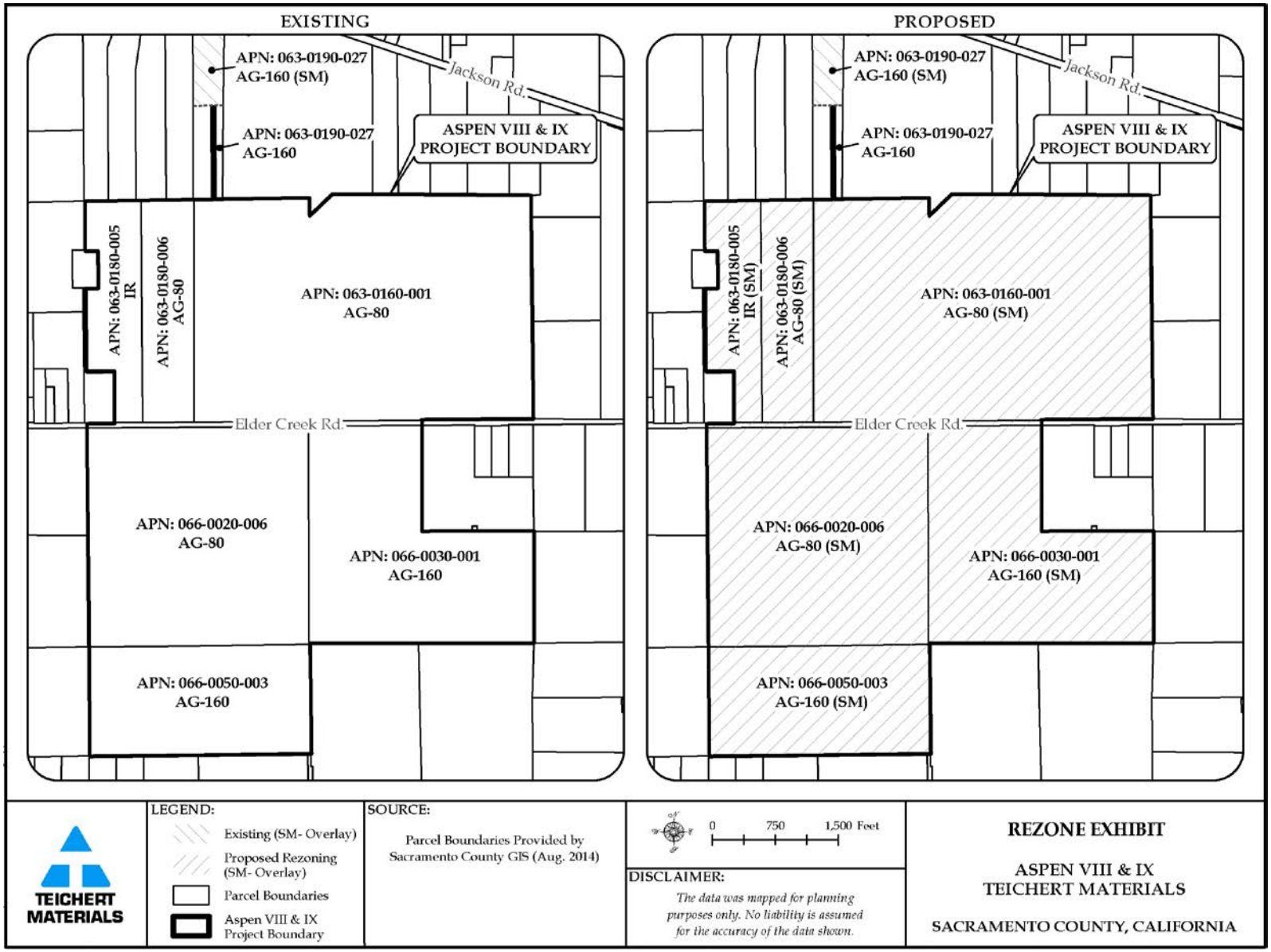
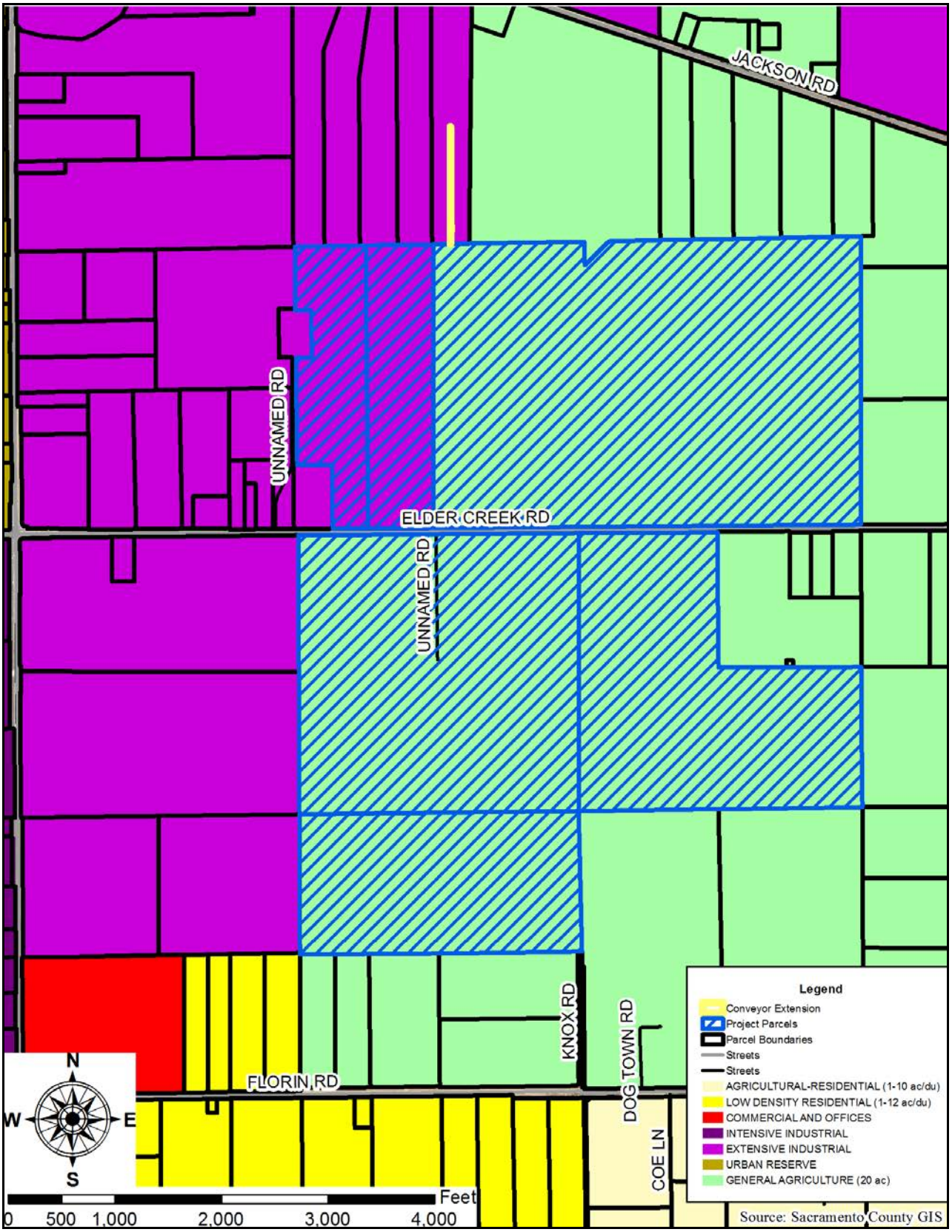


Plate LU-4 General Plan Designations



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Land Use/Population and Housing the proposed project would have a significant impact if it:

LU/PH-1: Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

LU/PH-2: Displaces substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere; or

LU/PH-3: Physically divides an established community; or

LU/PH-4: Induces substantial unplanned population growth in an area either directly or indirectly.

There are no established communities near the project site. The nearest established residential neighborhood is located over two miles away to the northwest. The project does not propose any new housing nor will it remove any barrier to growth. Therefore, LU/PH-3 and 4 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation LU/PH-1: Does the project conflict with any land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Through the application process, the County has reviewed the project's reclamation plan and financial assurance cost estimate (FACE) and required all necessary changes for SMARA compliance. The County has determined that the project as proposed complies with SMARA.

The proposed project does not conflict with the Surface Mining chapter of the County Code (Title 20, Chapter 20.04) which regulates surface mining in unincorporated Sacramento County.

The proposed project is consistent with General Plan Policy CO-39 in that, mitigation measures are included as appropriate in this Environmental Impact Report (EIR) which has been prepared in accordance with CEQA. Additionally, pursuant to CEQA the

Board of Supervisors, should they choose to approve the project, will adopt appropriate findings and overrides for any impact determined to be significant and unavoidable.

The proposed project is consistent with General Plan Policy CO-40. The project's mining pits are proposed to be set back a minimum of 10 feet from property lines in accordance with Zoning Code section 4.8.12.F.2. Furthermore, the project complies with the Zoning Code requirement for at least a 25-foot setback from the public right-of-way. Included in this setback along Elder Creek, the applicant is proposing to install native landscaping. The one residence that will remain on the mining project site will be set back over 400 feet from the mining pits; Zoning Code section 4.8.12.F.2 requires the residence be set back a minimum of 50 feet.

The proposed project is consistent with General Plan Policy CO-41. The project has a reclamation plan that will be approved by the California State Office of Mine Reclamation and the Sacramento County Board of Supervisors. This approved reclamation plan is based on the mine being reclaimed to open space grassland. The post mining use is consistent with the zoning of the site. Furthermore, the post mine use is consistent with General Plan policies for Sacramento County.

The proposed project is consistent with General Plan Policy CO-57. The project's topsoil will be salvaged in accordance with the approved reclamation plan. The topsoil will be used for reclamation of the mined area to open space grassland. The topsoil will be added back to the ground of the mined area to insure the long term production of the land.

The applicant requests a rezone to add the Surface Mining combining zone to the project area. The Surface Mining combining zone would allow mining with approval of the requested conditional use permit. The project application conforms to Zoning Code section 4.8.11 which specifies the required data to be included in the project application. Furthermore, the proposed project conforms to the operating standards of Zoning Code section 4.8.12. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways. Upon approval of the requested community plan amendment, rezone, use permits, and reclamation plan, the project will be consistent with the Zoning Code.

Level of Significance: Less than Significant – No Mitigation Required

<u>Impact Evaluation LU/PH-2: Does the project displace substantial amounts of exiting housing, necessitating the construction of replacement housing elsewhere?</u>

There are three single-family residences located on the project site. Implementation of the proposed project would remove two of the three residences. The home at 10151 Elder Creek Road will remain. The project site is 683 acres in size and the loss of two homes is not substantial. Furthermore, the project site is closely located to the developing communities of North Vineyard Station, Florin-Vineyard Gap and Vineyard

Springs which provide a source of readily available housing stock to meet the demand associated with the loss of two residences.

Level of Significance: Less than Significant – No Mitigation Required

5 AGRICULTURAL RESOURCES

REGULATORY CONTEXT

SURFACE MINING AND RECLAMATION ACT (SMARA)

The Surface Mining and Reclamation Act of 1975 (SMARA) is administered by the State of California, Department of Conservation, Office of Mining and Reclamation. SMARA provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The reclamation plans required by SMARA and County Code define the basis for achieving safe and usable end land uses for mines.

For prime agricultural land there are the following SMARA regulations: SMARA regulation section 3707 (a), Performance Standards for Prime Agricultural Land Reclamation states, “mining operations which will operate on prime agricultural lands, as defined by the U.S. Soil Conservation Service, shall return all disturbed areas to a fertility level as specified in the approved reclamation plan”. Furthermore section 3707 (c) states, “Reclamation shall be deemed complete when productive capability of the affected land is equivalent to or exceeds, for two consecutive crop years, that of the premining conditions or similar crop production in the area. Productivity rates, based on reference areas described in the approved reclamation plan, shall be specified in the approved reclamation plan.”

For land that is not prime agricultural land there is the following SMARA regulation. SMARA regulation 3708, Performance Standards for Other Agricultural Land states, “The following standards shall apply to agricultural lands, other than prime agricultural lands, when the approved end use is agricultural. In addition to the standards of topsoil salvage, maintenance, and redistribution, non-prime agricultural lands shall be reclaimed so as to be capable of sustaining economically viable projection of crops commonly grown the surrounding areas.”

WILLIAMSON ACT

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) serves to preserve open spaces and agricultural land. It discourages urban sprawl and prevents landowners from developing their property to commercial and/or subdivided residential use. The Williamson Act program was revised by the enactment of Farmland Security Zone (FSZ) legislation during the 1998 legislative session, offering landowners greater property tax reduction in exchange for longer contract terms than under the Williamson Act Program.

The Williamson Act is a State program that allows agricultural landowners to pay reduced property taxes in return for their contractual agreement to retain the land in agricultural and open space uses for a period of 10 years. The term of the contract automatically renews each year, so that the contract always has a 10-year period left to run. The renewing process can be stopped by either the landowner or the County, at which point the contract would run out and, after 9 years, expire. The legal contract is between the landowner and the County. The specific land uses allowed on agricultural lands under Williamson Act contract are regulated by the contract itself and by State law (Government Code Section 51200 *et seq.*). Government Code Section 51238.2 specifically addresses surface mining of Williamson Act contracted lands. The requirements of Section 51238.1 and Section 51238.2 restrict the types of uses that may be allowed on Williamson Act lands. Generally the uses are those related to the production of food and fiber; however, each Williamson Act contract can be different and individual contracts spell out permitted and prohibited uses.

Important Farmland Mapping Classifications

In 1982, under Legislative mandate (Government Code §65570), the Department of Conservation was required to collect and/or acquire data on lands converted to/from agricultural use. The purpose for collecting such information was to provide decision makers maps and statistical data on the conversion of farmland and grazing land to assist in the land use planning process. Important Farmland maps are prepared biannually based on information from the Natural Resources Conservation Service and State Department of Water Resources. Based on this information, land is classified into one of eight categories (five relating to farmlands and three associated with nonagricultural purposes). The five farmland classifications are as follow:

1. Prime Farmland: Lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.

2. Farmland of Statewide Importance: Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to retain moisture.

3. Unique Farmland: Lands with lesser-quality soils used for the production of California's leading agricultural cash crops. These lands usually are irrigated but may include non-irrigated orchards or vineyards, as found in some of the state's climatic zones.

4. Farmland of Local Importance: Lands of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee.

5. Grazing Land: Lands in which the existing vegetation is suited to the grazing of livestock.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The General Plan includes goals and policies that protect and guide development on surrounding Agricultural Lands. The two general goals of the Agricultural Element are (1) maintenance of the County's agricultural lands, their agricultural productivity and natural resource benefits they provide and (2) support farming and related industries as a strong and viable sector of the economy of a rapidly urbanizing county. The Agricultural Element provides the following introduction:

> Farmland is the fundamental agricultural resource. County farmlands are being encroached upon by urban developments, wildlife preserves, and outdoor recreation facilities. With rare exceptions, conversions of farmland to nonfarm uses are irreversible. Farmland conversions affect agricultural productivity directly by reducing the farmland base, and indirectly by increasing production costs or reducing yields on neighboring farmlands. Farmland losses reduce the ability of the County to supply food to local and export markets. The cumulative effects of individual farmland conversions include urban growth inducement, unstable rural real estate markets, and reduced viability of the local agricultural economy.
>
> The converse relationship is also true: lack of viable agricultural productivity tends to lead to conversions of land to other, often conflicting uses. The real or perceived lack of viability may be caused by many factors including: growth pressures, unstable or reduced real estate values, cost of water or energy, and government regulation.

The following are the most pertinent General Plan policies related to agricultural resources that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

AG-5:

> Projects resulting in the conversion of more than fifty (50) acres of farmland shall be mitigated within Sacramento County, except as

specified in the paragraph below, based on a 1:1 ratio, for the loss of the following farmland categories through the specific planning process or individual project entitlements request to provide in-kind or similar resources value protection (such as easement for agricultural purposes).

- Prime, statewide importance, unique, local importance and grazing farmlands located outside the USB (Urban Service Boundary);
- Prime, statewide importance, unique and local importance farmlands located inside the USB.

The Board of Supervisors retains the authority to override impacts to Unique, Local, and Grazing farmlands, but not with respect to Prime and Statewide farmlands.

However, if that land is also required to provide mitigation pursuant to a Sacramento County endorsed or approved Habitat Conservation Plan (HCP), then the Board of Supervisors may consider the mitigation land provided in accordance with the HCP as meeting the requirements of this section including land outside of Sacramento County.

Note: This policy is not tied to any maps contained in the Agricultural Element. Instead, the most current Important Farmland map from the Department of Conservation should be used to calculate mitigation.

AG-28:

The County shall actively encourage conservation of soil resources.

AG-30

Provide a plan focused on noxious weed control in agricultural areas.

CO-51

Direct development away from prime or statewide importance farmlands or otherwise provide for mitigation as required by AG-5 slowing the loss of additional farmland conversion to other uses.

Sacramento County Zoning Code

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

The Agricultural Land Use zone is designed to promote and protect the designated agricultural lands within Sacramento County. Specifically, the land use zone is designed to:

- Eliminate encroachment of incompatible land uses on agricultural lands;
- Preserve the supply of agricultural land in order to conserve the County's economic resources;
- Discourage premature and unnecessary conversion of agricultural land to urban uses;
- Preserve agricultural lands as open space and for production of agricultural products; and
- Encourage retention of large agricultural lots to assure viable agricultural units.

Surface mining is permitted within an Agricultural land use zone subject to the following conditions (Zoning Code section 3.2, Table 3.1 Industrial Uses, A.3; Use Standard 3.8.1.C):

- Permitted for short duration, small scale borrow sites of 200,000 cubic yards or less over a year after obtaining a conditional use permit from the appropriate County authority.

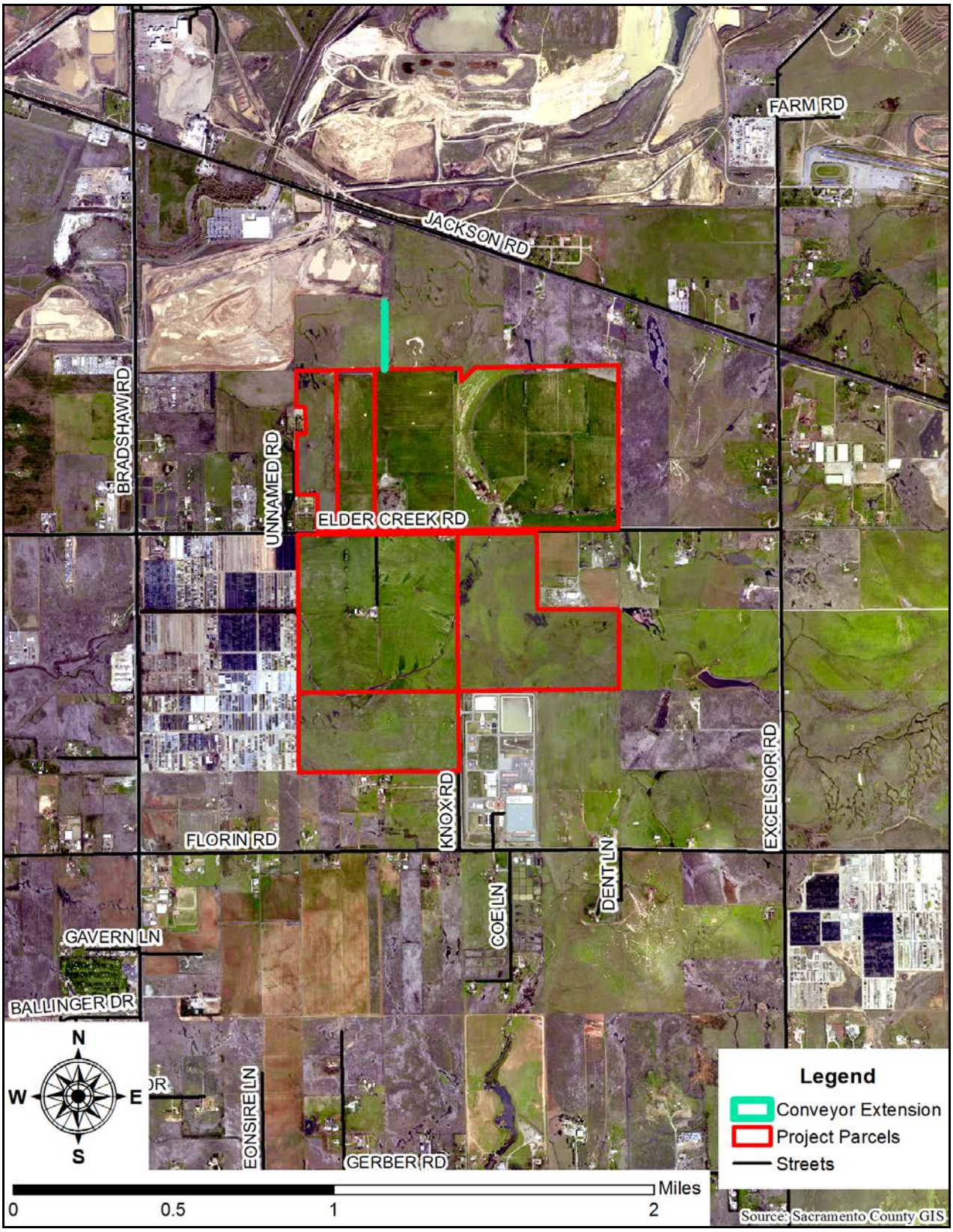
For surface mining operations that exceed the 200,000 cubic yard a year limit, they must rezone the subject parcels to add a Surface Mining Combining land use zone. The Surface Mining Combining land use zone allows operations that produce amounts of material larger than 200,000 cubic yards a year subject to additional permitting and regulatory requirements enumerated in Zoning Code section 3.8.1.A.

ENVIRONMENTAL SETTING

EXISTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate AG-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

Plate AG-1: Location Map (2012 Imagery)



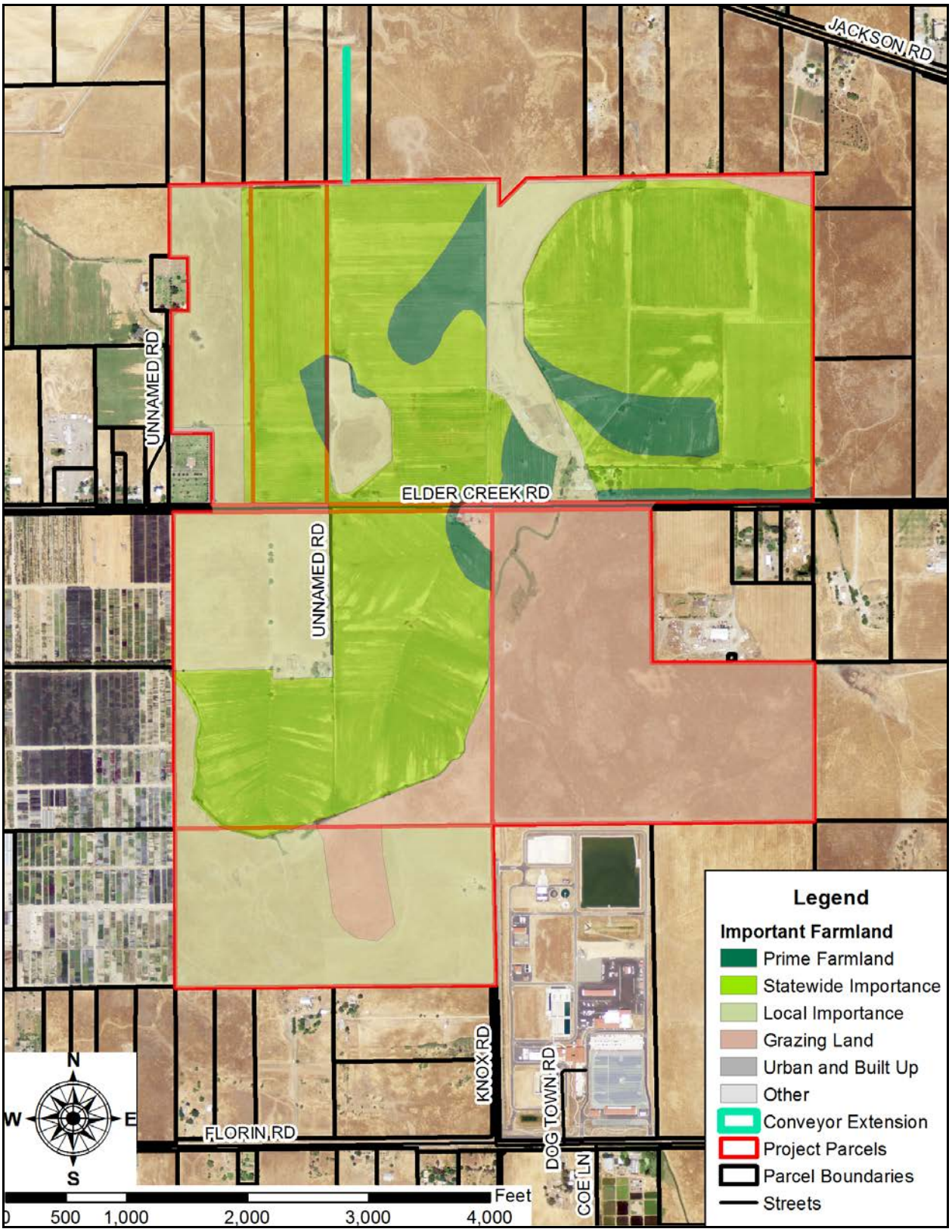
Project Site Characteristics

The project site consists of annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek. The majority of the project site is used as rangeland for livestock and irrigated pasture for forage production. The project site also includes three residences with associated out buildings and power line towers. Site topography slopes downward from east to west with surface elevations ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet MSL along the west side of the project site.

The project site's zoning (IR, AG-80, AG-80 (F), AG-160 and AG 160 (F)) allows for the entire site to be used as general agricultural. Furthermore, the project site has lands classified as prime farmland, statewide importance farmland, local importance farmland and grazing land. There are approximately 43 acres of prime farmland within the project site; the greater part of the prime farmland is located within Aspen 8 which contains approximately 38 acres of prime farmland. Aspen 9 has approximately five acres of prime farmland located on parcel 066-0020-006 adjacent to Elder Creek Road. The majority of the project site is statewide importance farmland with approximately 305 acres. Local importance farmland encompasses approximately 179 acres of the project site. The remainder of the farm land is classified as grazing land with approximately 152 acres. The project site also contains about four acres of water (Elder Creek), roads and other development (Plate AG-2).

The surrounding properties have similar land use and General Plan and Zoning designations. The surrounding lands are sparsely populated with very isolated agricultural residences. Currently there are three homes on the project site and there are five residences adjacent to the site. Of the three homes on the project site two of the three will be removed as a result of the project. Surrounding land uses consist of irrigated farmland, annual grasslands, grazing lands, rural residential homes, Bellevue and Arlington Cemeteries to the west, a nursery facility to the south-west, a surface water treatment facility to the south, and other surface mining operations to the north and north-west.

Plate AG-2: Farmland Map



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Agricultural Resources the proposed project would have a significant impact if it:

AG-1: Converts Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production; or

AG-2: Conflicts with any existing Williamson Act contract; or

AG-3: Introduces incompatible uses in the vicinity of existing agricultural uses.

IMPACTS AND ANALYSIS

Impact Evaluation AG-1: Does the project Convert Prime Farmland, Unique Farmland, Farmland of Statewide importance or areas containing prime soils to uses not conducive to agricultural production?

The proposed project for the Aspen VIII portion of the site will mine 34 acres of prime farmland, 166 acres of farmland of statewide importance, and 54 acres of local importance farmland (Table AG 1). The proposed project for the Aspen IX portion of the site will mine five acres of prime farmland, 59 acres of farmland of statewide importance, and 37 acres of local importance farmland (Table AG 2). The total project site has 43 acres of prime farmland, 305 acres of farmland of statewide importance, and 179 acres of local importance farmland (Table AG 3). The project will mine a total of 39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of local importance farmland.

According to General Plan Policy AG-5, projects resulting in the conversion of more than 50 acres of farmland shall be mitigated within Sacramento County at a ratio of 1:1. Policy AG-5 further states, that if the project is located in the Urban Service Boundary (USB) the project must mitigate for prime farmland, farmland of statewide importance and farmland of unique or local importance. The project is located in the USB and will therefore, have to mitigate at a ratio of 1:1 for the conversion of all the prime farmland, farmland of statewide importance, and farmland of local importance converted in excess of 50 acres. The proposed project will convert over 50 acres of farmland to mining uses for up to 15 years. There will be a total of 357 acres of land mined of this total 39 acres are prime farmland, 225 acres are farmland of statewide importance, 91 acres of

Table AG 1: Farmland on Aspen VIII

Aspen VIII	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	38	34	4
Statewide Importance	209	166	43
Local Importance	69	54	15
Grazing Land	1	1	0
Other	1.4	0	1.4

Table AG 2: Farmland on Aspen IX

Aspen IX	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	5	5	0
Statewide Importance	96	59	37
Local Importance	110	37	73
Grazing Land	151	1	150
Other	1.6	0	1.6

Table AG 3: Total Farmland on the Project Site

Total for Project (Aspen VIII & Aspen IX)	Existing Acreage	Acreage to be Mined	Acreage to remain (not Mined)
Prime Farmland	43	39	4
Statewide Importance	305	225	80
Local Importance	179	91	88
Grazing Land	152	2	150
Other	3	0	3
Totals	682	357	325

farmland of local importance, and two acres of grazing land. General Plan Policy AG-5 uses the word "conversion" of farmland as the impact triggering mitigation. Upon reclamation the mine will be reclaimed to open space grassland as the end use and not back to irrigated agricultural uses. This constitutes a permanent conversion of agricultural land to another use. The permanent conversion of a total of 355 acres of farmland (39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of local importance) is considered a significant impact.

Level of Significance Before Mitigation: Significant

AG-1: Agricultural Farmland Impacts Mitigation Measure

Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted on the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 34 acres of prime farmland, 166 acres of statewide importance farmland, and 54 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use

- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Prior to any work south of Elder Creek Road , grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Level of Significance After Mitigation: Less than Significant

<u>Impact Evaluation AG-2: Does the project conflict with any existing Williamson Act contract?</u>

The project site was previously under two Williamson Act contracts both located on the proposed Aspen VIII project site. Williamson Act contract 70-AP-041 was for parcel 063-0160-001 and Williamson Act contract 76-AP-006 was for parcels 063-0180-005 and 006. Both of the Williamson Act contracts were noticed for non-renewal on September 11, 1989. The notice of non-renewal was filed with the Board of Supervisors and the contract expired automatically on February 28, 1999. Therefore, there are no active Williamson Act contacts covering the project parcels for which the project could conflict.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AG-3: Does the project introduce incompatible uses in the vicinity of existing agricultural uses?

The applicant is requesting a use permit and rezone to mine the project site. The use is permitted on agricultural land with an approved use permit from the Board of Supervisors. The proposed mining operation will not be an incompatible use near agricultural uses. Currently there are numerous mines located near agricultural uses in the vicinity of the proposed project. The uses work well together because the mine operations normally don't interfere with the surrounding farm operations. Furthermore, the mines have to be reclaimed in accordance with their approved reclamation plans which usually specify agricultural uses or other open space use as the end result of reclamation. The County's General Plan has policies that encourage the mining of important mineral resources. The mining operation will allow for the extraction of important mineral resources and after the mining is complete the project site will be reclaimed to open space grassland uses. Open space grassland uses would not conflict with the surrounding agricultural uses. Therefore, the proposed project will not introduce incompatible uses in the vicinity of existing agricultural use.

Level of Significance: Less than Significant – No Mitigation Required

6 AESTHETICS

REGULATORY CONTEXT

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to aesthetics that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

LU-31:

> Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8, Surface Mining (SM) Combining Land Use Zone, Mining Administration and Procedures contains regulations pertaining to surface mining (Zoning Code Sections 4.8 through 4.8.16.E). Many of these regulations address aesthetic impacts through the use of required setbacks. For example, the Zoning Code requires a 25-foot minimum setback from the property lines, the first five feet of which shall remain entirely undisturbed. Furthermore, along public streets a 25-foot setback of undisturbed land is required. Additionally, the Zoning Code provides that the Board of Supervisors may condition the project to require visual screening in the form of berms, landscaping or other setbacks.

ENVIRONMENTAL SETTING

REGIONAL LANDSCAPE

The regional character of Sacramento County is distinguished by three general regions; the Sierra Nevada-foothills (east), the Lower Sacramento Valley (west, south, and north), and the Sacramento-San Joaquin River Delta (south and west). Sacramento County is located at the southern portion of the Sacramento Valley providing for the vast agricultural lands that occupy much of the County. The County contains three major rivers, the Sacramento, American, and Cosumnes Rivers. The Sacramento River forms the western border of the county and flows north to south. The American and Cosumnes Rives flow through the central portion of the County and they flow from east to west.

A majority of Sacramento County is at an elevation near sea level, with some portions of the County below sea level. The highest elevations in the County occur along its eastern border on the edge of the Sierra Nevada foothills, approximately 700 – 800 feet above mean sea level. Much of the County is flat alluvial plains until the eastern edge where the foothills of Sierra Nevada Mountains begin to emerge.

Urbanization has occurred primarily in the northern and central portions of Sacramento County near the cities of Sacramento, Elk Grove, Citrus Heights, Folsom, and Rancho Cordova. The urbanized portion of the County exhibits the typical views of a combined urban and suburban area, distinguished by groups of commercial, industrial, office, and residential areas, with various infrastructure improvements (roads, bridges, etc.).

Agricultural and pasture lands presently occupy much of the area surrounding the project and are the dominant visual landscape of the south and eastern portions of the County. These areas provide views of agricultural lands containing grains, orchards, and vegetables, while other lands remain open grassland utilized primarily for grazing of cattle.

PROJECT SITE CHARACTERISTICS

The project site is in the central portion of unincorporated Sacramento County and consists of fields for cattle grazing and feeding, three residences, agricultural buildings, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west. Existing habitat includes annual grasslands and irrigated farmland, scattered wetlands and other waters, including Elder Creek. The majority of the site is used as rangeland for livestock and irrigated pasture for forage production.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Aesthetics the proposed project would have a significant impact if it:

AE-1: Substantially degrades the existing visual character or quality of the site and its surrounding; or

AE-2: Creates a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the area; or

AE-3: Substantially alters existing viewsheds such as scenic highways, corridors or vistas.

The project site does not occur in the vicinity of any scenic highway, corridors, or vistas. Therefore, impact AE-3 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation AE-1: Does the project substantially degrade the existing visual character or quality of the site and its surrounding?

The proposed project will irreversibly change the existing landform by excavating material from the site to a depth of approximately 25 to 50 feet. The degree of impact of a project, either negative or beneficial, to the visual character of the area is largely subjective. Few objective or quantitative standards are available to analyze visual quality, and individual viewers respond differently to changes in the physical world.

Reasonable people can disagree as to whether alteration of visual character would be adverse or beneficial. The project was analyzed using the principals contained within the United States Department of Transportation Federal Highway Administration document “Visual Impact Assessment for Highway Projects”. Though this is not a highway project, the document provides a visual impact framework that is broadly applicable. The document defines visual quality by three key terms: vividness, intactness, and unity, which are defined as follows:

- Vividness is a measure of the visual impression that remains in the memory of the viewer (e.g. Niagara Falls). Vivid visual experiences are striking and distinctive.

- Intactness is the visual integrity of the natural and built landscape. Intact landscapes are unobstructed visual experiences.

- Unity is the coherent inter-compatibility of connected landscape elements. A high degree of unity creates a harmonious visual pattern.

The project area is in a rural landscape, so there are a limited number of viewer groups that will be impacted by the project. These groups include people driving on Elder Creek Road and the residents of homes in the project vicinity. People driving on area roads are considered to have low sensitivity. Drivers have only transitory views of the site as they pass by. On the other hand, residents typically view the surrounding landscape as an integral part of their home environment, and are very sensitive to changes in that environment. Based on field visits, approximately three to five homes will have clear views of the proposed project.

Photos were taken to supplement the following discussion, and were taken from locations intended to represent the various user groups or to illustrate a point made in the discussion. Plate AE-1 is an aerial photo of the project vicinity that has been annotated to show where the photos were taken, and in which direction the camera lens was pointed. The referenced photos are in Plate AE-2 through Plate AE-6. The discussion is divided into three sections focusing on each of the key terms (vividness, intactness, and unity) and a fourth section that summarizes the findings. In the beginning of each section, the current visual quality will be assessed using a scale of low, moderate, and high. Furthermore, near the end of the section the project's impacts to visual quality will be assessed using a scale of low, moderate, and high.

P AE L A A P

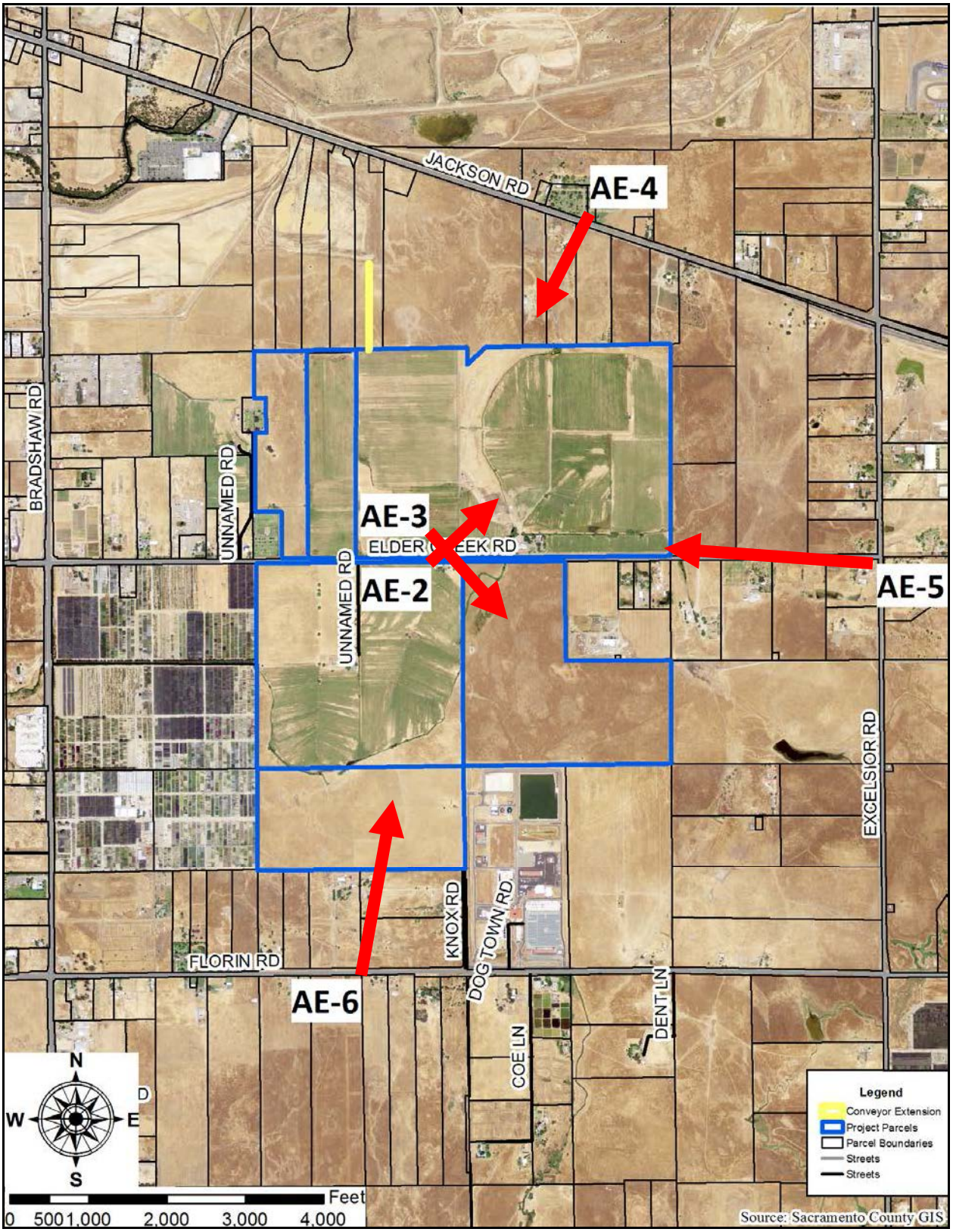

JACKSON RD
AE-4
BRADSHAW RD
UNNAMED RD
AE-3
ELDER CREEK RD
AE-2
UNNAMED RD
AE-5
EXCELSIOR RD
KNOX RD
DOG TOWN RD
FLORIN RD
AE-6
DENT LN
COE LN
N
W
E
S
Feet
0 500 1,000 2,000 3,000 4,000
Legend
Conveyor Extension
Project Parcels
Parcel Boundaries
Streets
Streets
Source: Sacramento County GIS

Plate AE-2: Looking Northeast from Elder Creek Road

Plate AE 3: Looking Southeast from Elder Creek Road

Plate AE-4: Looking Southwest from Jackson Road

Plate AE-5: Looking West from Excelsior Road

Plate AE-6: Looking North from Florin Road

Vividness

The site's current (before project implementation) vividness is assessed as moderate. The transmission line towers that are located on the site will create a memory that adds to the vividness of the site. The views are similar in visual character to much of the surrounding agricultural land. Viewers passing by on Elder Creek Road see a mostly flat landscape of grazing land for cattle and the transmission line towers. From more distant viewing locations one cannot visually identify this site as being at all separate from the rest of the agricultural lands in the viewshed.

The vividness of the site will be increased by the project; the surface mining facility will be a very distinctive feature in the landscape. Particularly from the perspective of people that live near the site. Furthermore, the mining pit will linger in the memory more post-project than it does currently for people that drive by the project site. Though the project will make the site substantially more striking, raising the vividness to high, it is important to emphasize that this is not due to any increase in overall site attractiveness as a result of the project. A view can be vividly negative or vividly positive, as determined by the intactness and unity of the view. Therefore, after the project is implemented the vividness will increase to high.

Intactness

The site's current (before project implementation) intactness is assessed as moderate. Viewers mostly see open agricultural land. The exceptions are the transmission line towers located along Elder Creek Road, the rural residences and associated out buildings near Elder Creek Road. The main visual benefit of the current site condition is that its undeveloped state gives the feeling of expansiveness or openness. The proposed project would excavate the site to a depth of about 25 to 50 feet; this will be a major new encroachment within the field of vision. As the project progress, the depth of the excavation will help limit the view of the project site from the neighboring properties and roadways. The project will be setback a minimum of 25 feet for Elder Creek Road and setback a minimum of 10 from interior property lines. Furthermore, native landscaping will be installed along Elder Creek Road to screen the project site. The project area is 683 acres in size and the excavated mining pits will be 355 acres in size. Even the relative large size of the project site will not off-set the perceived loss of the intact view, this is because the viewshed is so much larger than the proposed mining operation. The result is expected to be a degradation of the openness of the current views, even in cases where viewers are still able to see beyond the project site. Therefore, after project implementation the Intactness will be decrease to low.

Unity

The site's current (before project implementation) unity is high. As previously described, from a distance it is difficult to determine where one agricultural property begins and another ends. Even from a closer vantage point, one sees expanses of open agricultural fields and rangeland. The project will place into the area a new visual element that is not at all cohesive with the existing elements. The new element added to the view will be the proposed mining pits. The mining pits will cumulatively be over 350 acres of excavation and will turn the green or tan color into a darker brown of excavated earth because the site will be stripped of aggregates and vegetation during the mining phase of the project. The mining pits will make the view less unified because people will see the excavated pits and the color change where before one saw farmland. The unity will be lessened further by the landscaping used to help screen the mine from view. Therefore, after project implementation the unity will decrease to moderate levels.

Summary

The project area's vividness before the project is implemented is assessed at a moderate level; with project implementation the vividness is assessed at a high level. Vividness is increased because the project will excavate a large pit into the viewshed and the new mining pits are a vivid sight. Furthermore, the project area's intactness before project implementation is assessed at a moderate level and after project implementation the intactness falls to a low level. This is due to the project's mining pits lessening the intactness of the rural landscape. The current view of the intact rural landscape will be altered by the proposed mining pits. Finally, the project area's unity before the project is implemented is high and after the project is implemented unity is

assessed at a moderate level. Once again, the mining pits will lower the visual unity by lessening the connected rural landscape elements with the addition of the mining pits.

Neither unity nor intactness alone creates an attractive visual landscape. If the viewshed is highly unified and intact because it is not diverse, it creates a view that is uninteresting. The highest quality views are those that are intact, unified and contain sufficient visual diversity to make the site memorable. The project will decrease the unity and intactness but the site will become highly vivid. In this case, this vividness is not a positive impact, as an unnatural excavation is what is making the site more memorable.

For non-residents on Elder Creek Road the impacts may be either neutral or negative, depending on one's perspective. Its negative visual impact will be more fleeting and may perhaps be balanced out by its becoming an interesting talking point. For residents of surrounding properties, the project will have a negative effect. Residents are more sensitive to changes in their views.

Visual quality is intensely subjective, and as noted the nearby residents are likely to be more sensitive to any change, regardless of whether the analysis concludes the impact is not significant. With this in mind, an analysis of potential mitigation is included here for consideration. The native landscaping installed along Elder Creek Road and the berms around the mine will help screen the project site.

In the past the County has screened aggregate mines from public view with landscaping and berms. This has resulted, some will argue, in trading one aesthetic impact for another because the landscaping and berms do screen the view of the mine but they also screen the views of the landscape that lies beyond. The landscaping and berms can lead to the tunnel or corridor effect as can be experienced along the Jackson Highway aggregate mining area.

The residence located at 9895 Elder Creek Road, (063-0180-022) to the west of the proposed Aspen VIII project site will be the closest home to the mining pit. The resident attended the Public Scoping Meeting and requested additional visual screening. The applicant discussed the issue with the resident and it was mutually decided to add berms and landscaping to screen the view of the mining pit adjacent to the residence; therefore, as part of the project a mitigation measure has been added for additional visual screening of the mining pit for the residence at 9895 Elder Creek Road, west of Aspen VIII. See the Noise chapter for information concerning the berms as noise attenuation.

The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. This type of large landform change will not go unnoticed by the surrounding residences or even by the passing motorists and bicyclists. Screening will not totally hide or mitigate the visual impacts caused by project implementation. Furthermore, screening of the site can create its own problems as described above. Therefore, the overall aesthetic impacts are significant.

Level of Significance Before Mitigation: Significant

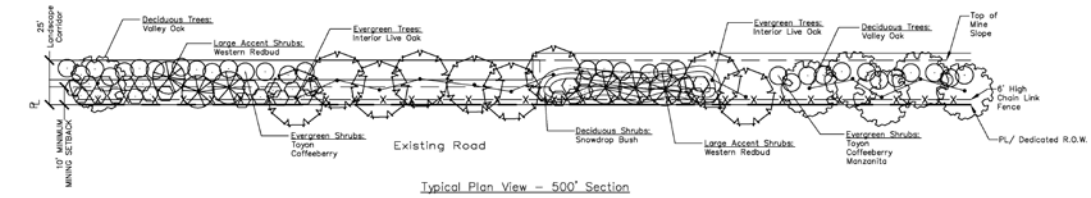
AE-1: Viewsheds Mitigation Measure

A. Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (*Quercus lobata*) and interior live oak (*Quercus wislizenii*); and the following shrubs; western redbud (*Cercis occidentalis*), toyon (*Heteromeles arbutifolia*), hoary coffeeberry (*Rhamnus tomentella*), snowdrop bush (*Styrax officinalis*), and Howard McMinn' manzanita (*Arctostaphylus densiflora*). The placement of landscaping shall be as show in Plate AE-7. The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height.

B. Additional berms and landscaping**, *or an 8-foot tall solid fence,*** shall be placed to screen the view of the mining pit for the ***benefit of those properties located west of Aspen VIII, including the*** residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and ***the cemeteries at 9899 Elder Creek Road, on assessor parcel number 063-0180-029*** ~~west of Aspen VIII~~. This shall consist of a berm and landscaping combination**, *or a fence to visually screen*,** to the satisfaction of the Department of Community Development with input from the ***neighboring property owners*** ~~resident of 9895 Elder Creek Road~~.

Level of Significance After Mitigation: Significant and Unavoidable

Plate AE-7: Landscaping Planting Plan

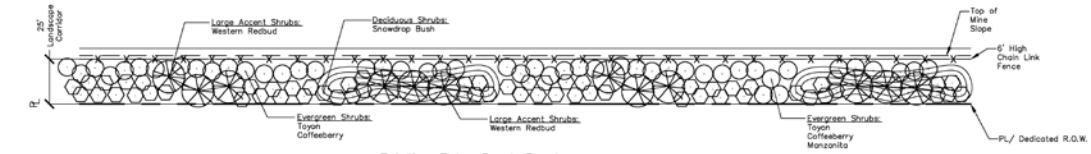


Typical Plan View – 500' Section
Along Aspen 8 West Boundary

Typical Elevation View

Botanical Name	Common Name	Type	Mature Height
Large trees:			
Quercus lobata	Valley Oak	Deciduous	60–100'
Quercus wislizenii	Interior Live Oak	Evergreen	30–70'
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

TREE/SHRUB VISUAL SCREEN CORRIDOR



Typical Plan View – 500' Section
Along Elder Creek Road

Typical Elevation View

Botanical Name	Common Name	Type	Mature Height
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

SHRUB ONLY VISUAL SCREEN CORRIDOR

Impact Evaluation AE-2: Does the project create a new source of substantial light, glare or shadow that would result in safety hazards or adversely affect day or nighttime views in the area?

There is the potential for the mining operation lighting to bleed over to the neighboring properties and create negative impacts. The equipment used to prepare the mine will be lighted with safety lights and working lights. Normally the equipment preparing the mining facility does not operate during hours of darkness. Furthermore, the hours of operation are limited by Zoning Code section 4.8.12.A which states that Monday through Friday mining operations shall be from 6:00 a.m. until 9:00 p.m. and maintenance operations beyond mining hours to occur from 9:00 p.m. to midnight, Saturday mining operations shall be from 7:00 a.m. until 3:00 p.m. and maintenance operations beyond mining hours to occur from 3:00 p.m. to 4:00 p.m., and on Sunday and labor union holidays no mining, processing or maintenance.

Once the site has been prepared for the mining of aggregate; electric conveyors, security trailers, employee trailers and mobile equipment will operate within the project area. Typically the head section of each electric conveyor is lighted. The security and employee trailers will also have lights as well as the mobile equipment. The trailer lighting will be similar to residential home lighting patterns.

The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. Only during the fall and winter will there be an opportunity to mine after sunset. Furthermore, most mining facilities curtail their activities in winter because operating in inclement weather could create issues for the safety and efficiency of the mining operation. Moreover, most of the equipment and trailers will be located down in the mining pit and will be below grade. With the lights below grade the adverse effects from lighting will be lessened. There is the potential for the project's lighting to impact negatively the adjacent homes and roadways. Therefore, the project may create a new source of light that would result in safety hazards or adversely affect day or nighttime views in the area and these impacts are potentially significant.

Level of Significance Before Mitigation: Potentially Significant

AE-2: Reducing Impacts Associated with Lighting Mitigation Measure

Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.

Level of Significance After Mitigation: Less than Significant

7 AIRPORT COMPATIBILITY

REGULATORY CONTEXT

FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration's (FAA) most recent Advisory Circular 150/5200-33B provides guidance regarding land uses that have the potential to attract hazardous wildlife near airports. The Federal Aviation Administration requires airports that receive federal grant-in-aid assistance, such as Mather Airport, to utilize these guidelines. It also recommends that land-use planners and project developers use the guidance for privately owned or initiated projects on or near airports.

Federal Aviation Administration guidance specifies that when considering proposed land uses; airport operators, local planners and development must take into account whether the proposed land uses, including new developments projects, will increase wildlife hazards. The evaluation to determine whether the net bird aircraft collision hazards would increase as a result of project actions are based on the following factors:

- Changes in habitat conditions;
- Changes in on-site bird populations;
- Existing and potential off-site habitats and resulting potential for attracting birds to the project sites from off-site lands;
- Flight heights of bird species;
- Aircraft flight paths in relation to the project site;
- Aircraft flight heights above the project site; and
- Known information on heights of past bird-aircraft collisions.

The latest Advisory Circular reaffirmed that Airport Operations Areas (AOA) and land use practices that attract hazardous wildlife should be separated by 10,000 feet. Additionally, the Advisory Circular included the recommendation of a 5-mile separation between the Airport Operations Areas (AOA) and hazardous wildlife attractants, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

The Advisory Circular further recommends that off-airport storm water management systems within the 10,000 foot or 5-mile approach and departure separation areas be designed and operated so as to be capable of being drained within 48-hours after the

design storm. The Advisory Circular recommends using steep-sided riprap lined, narrow ponds, and elimination of vegetation that offers cover and food for hazardous wildlife. It does not specifically recommend use of physical barriers for off-site ponds. Finally, the Advisory Circular identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

STATE OF CALIFORNIA

The state of California regulates airports under the authority of the Airport Land Use Commission Law, Chapter 4, Article 3.5, California Public Utilities Code. The purpose of the Airport Land Use Commission Law is to:

1. Protect public health, safety, and welfare through the adoption of land use standards that minimize the public's exposure to safety hazards and excessive levels of noise.

2. Prevent the encroachment of incompatible uses around public-use airports, thereby preserving the utility of these airports into the future.

These purposes are implemented through Airport Land Use Commissions which are required in every county with a public use airport or with an airport served by a scheduled airline. The Sacramento Area Council of Government (SACOG) has been designated as the Airport Land Use Commission for the counties of Sacramento, Sutter, Yolo and Yuba. Under the provisions of the law, the Airport Land Use Commission is required to prepare an Airport Land Use Compatibility Plan, formerly called a Comprehensive Land Use Plan (CLUP), for each public airport within its jurisdiction.

The Airport Land Use Compatibility Plan or Comprehensive Land Use Plan (CLUP) must be based on either a 20-year master plan or an airport layout plan if the Caltrans Division of Aeronautics makes a determination that the existing airport layout plan is adequate for use in Airport Land Use Compatibility Plan/Comprehensive Land Use Plan preparation. Airport Land Use Compatibility Plans and Comprehensive Land Use Plans regulate land use in three major areas:

SAFETY ZONES

The probability of airplane accidents is highest in the immediately vicinity of airports. Consequently, safety zones are delineated around airports which are associated to restrictions in land use. Ranging from most to least restrictive are the clear zone at the end of each runway, the approach/departure zone extending out away from the ends of each runway, and the overflight zone extending around the runway. The densities of land uses allowed in these zones are inversely related to probability of an accident in the zone (Plate AC-1).

NOISE ZONES

Noise that emanates away from runway and airplane flight paths is represented by concentric noise contours around the airport. The contours delineate zones where land use is restricted, protecting the citizens from the detrimental effects of exposure to excessive airplane noise. The contours are constructed using the FAA's Integrated Noise Model. The result is a 24-hour day/night average called either Day-Night Average Sound Level (DNL) or Community Noise Equivalent Level (CNEL). The cumulative noise descriptor required for aircraft noise analyses in the State of California is the CNEL. The actual noise levels around an airport are a function of the number, time of day, and frequency of operations of each aircraft type. Noise levels are also influenced by the variations in monthly and seasonal flight schedule changes by the airlines. The contours are used to determine compatible land uses around the airport (Plate AC-2).

HEIGHT RESTRICTIONS

Buildings surrounding airports are prohibited from intruding into aircraft airspace except when permitted by the California Department of Transportation, Division of Aeronautics. Compliance with the height restrictions is tested by comparing the height of proposed projects with an imaginary surface surrounding each airport. Their imaginary surfaces are based on FAA Regulations (FAR Part 77, Imaginary Surfaces). The height restrictions applicable to Mather Airport are shown in Plate AC-3

State Law requires that General Plans be made consistent with Airport Land Use Commission adopted Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans. Consistency can be achieved through either of the following actions:

1. Amending general/community plan elements and other land use regulations, where necessary, to be consistent with the Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans, or prevent the encroachment of incompatible uses around public-use airports, thereby preserving the utility of these airports into the future.

2. In the event the Board of Supervisors does not agree with a provision of the plan, it can satisfy the consistency requirement for that provision by overruling the Airport Land Use Commission by a two-thirds vote. The overruling must, however, be made after a public hearing and must be based on specific findings that the proposed actions is consistent with the purposes of the Airport Land Use Commission Law.

Plate AC-1: Mather Airport Safety Zones

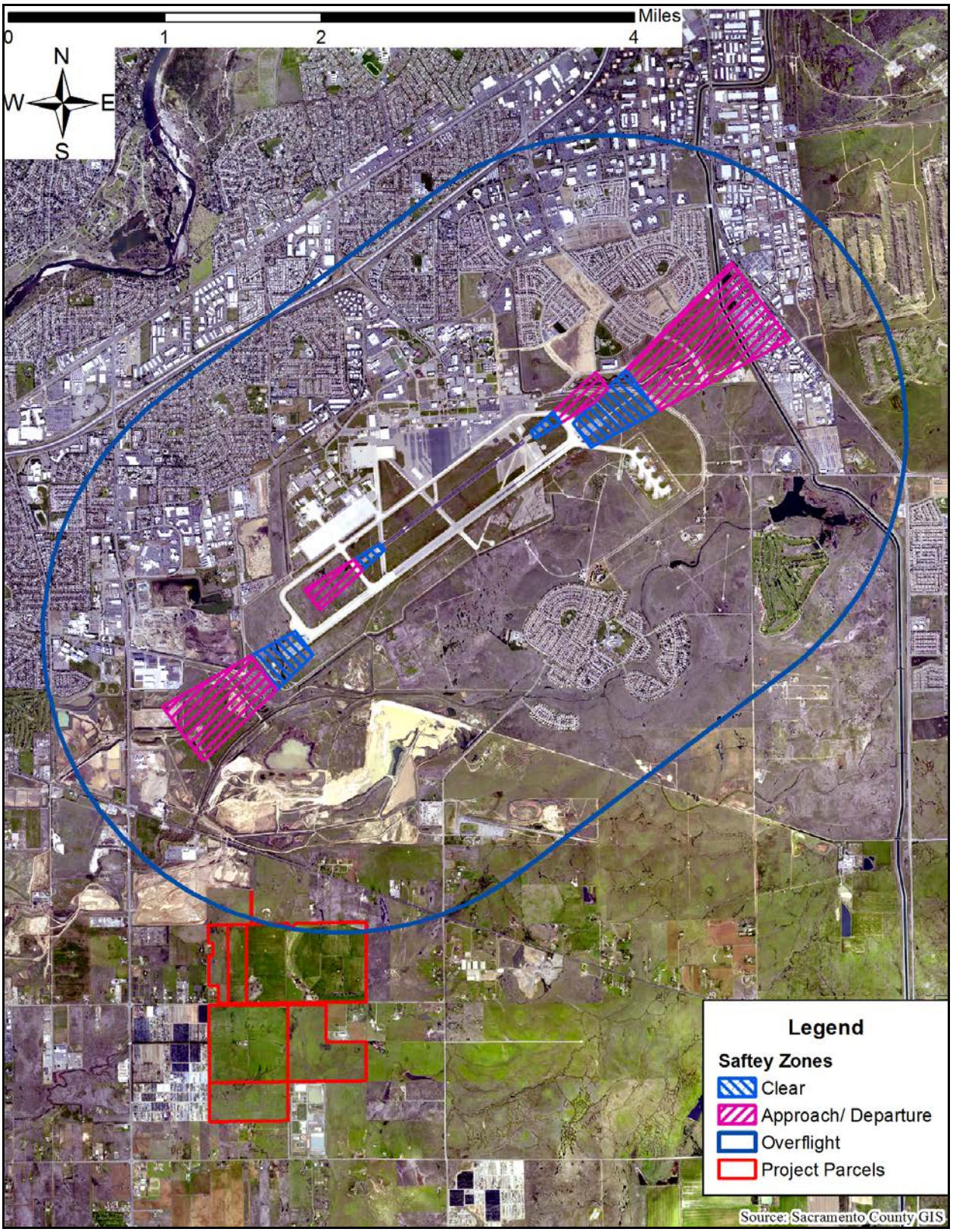


Plate AC-2: Mather Airport Theoretic Capacity Noise Contours

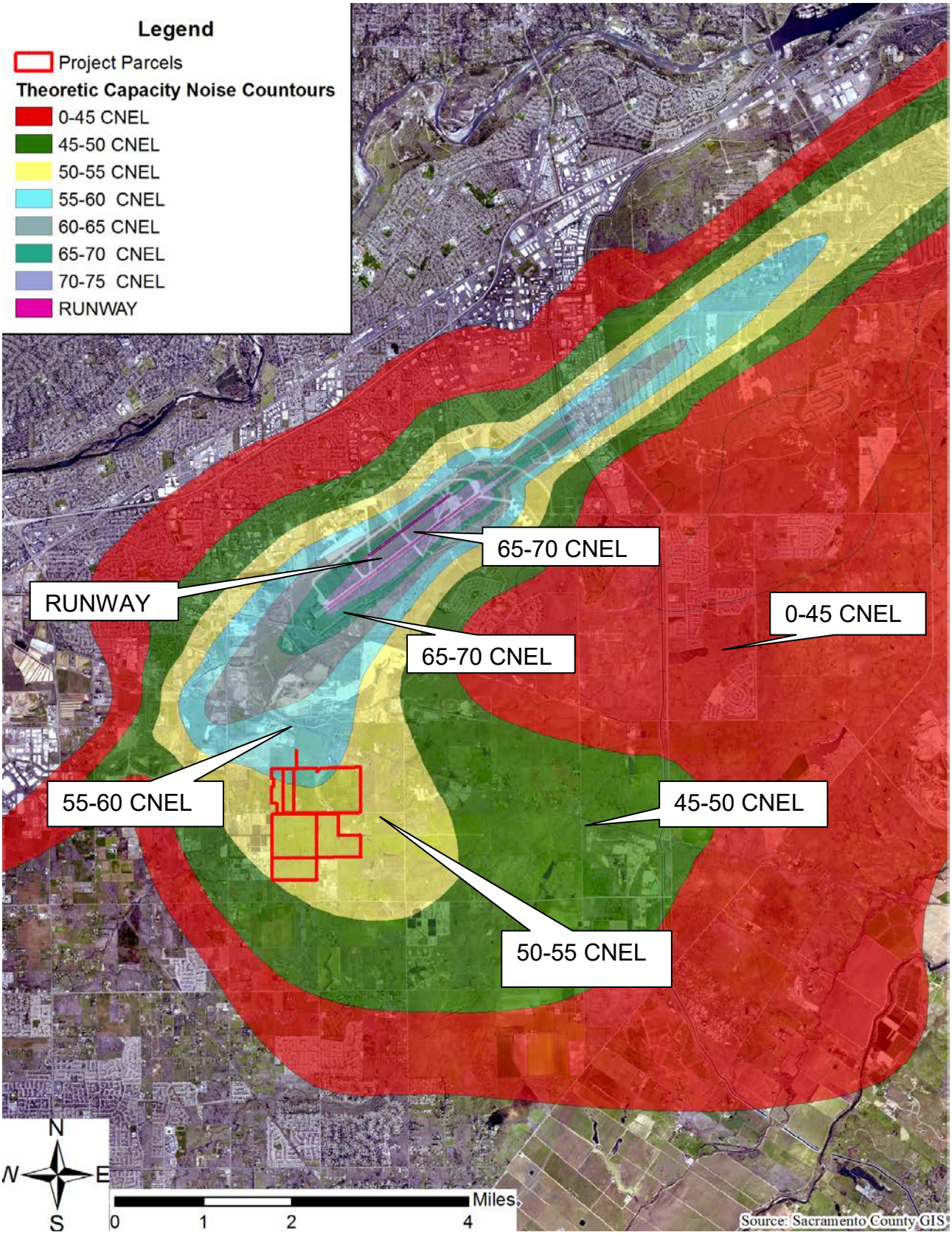
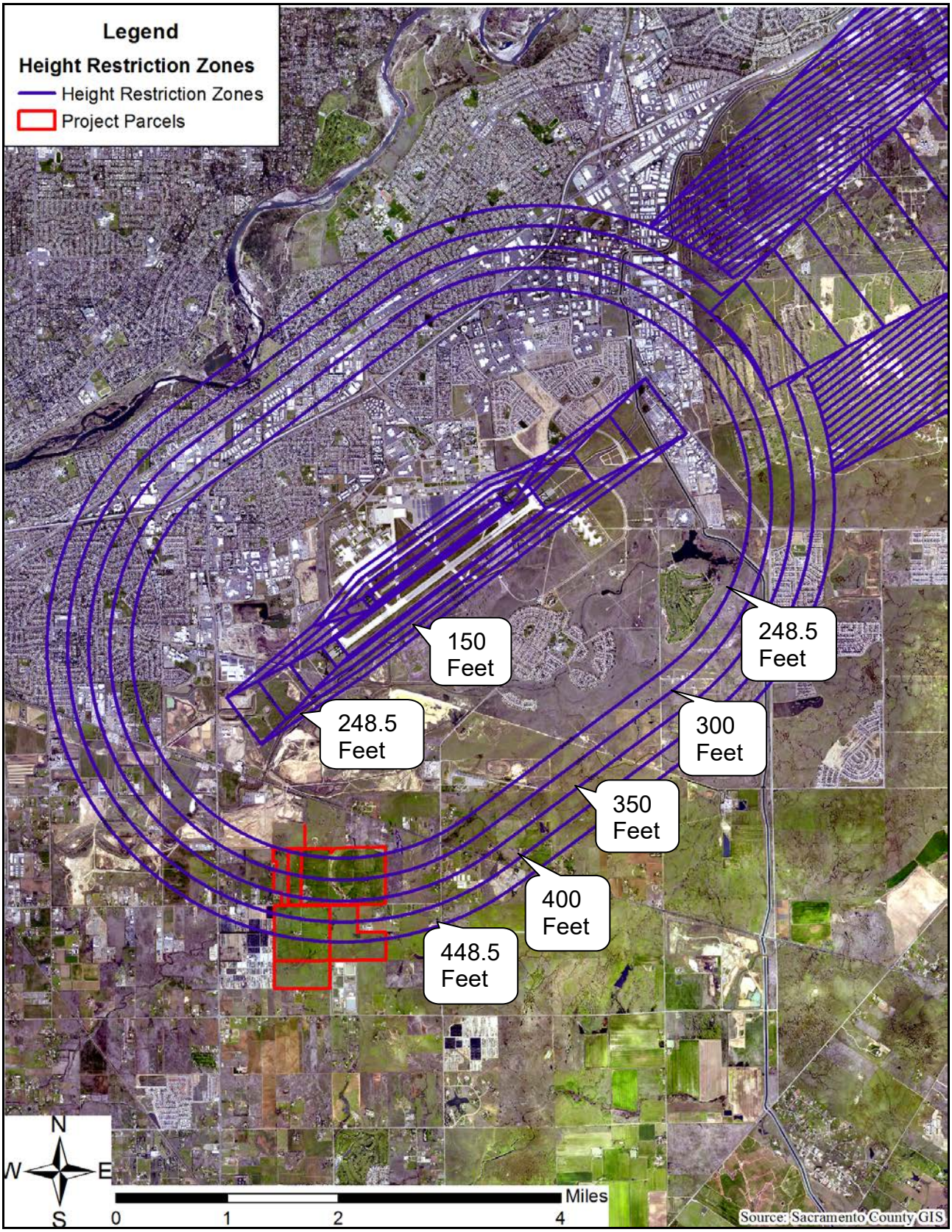


Plate AC-3: Mather Airport Height Restrictions



Once consistency is achieved between the Airport Land Use Compatibility Plans and/or Comprehensive Land Use Plans and County land use controls through either of the above two methods, State law requires that certain types of projects be referred to the Airport Land Use Commission for a determination of their consistency with an adopted Airport Land Use Compatibility Plan and/or Comprehensive Land Use Plan. Such projects include amendments to the General Plan, or a community plan, and adoption or amendments to zoning ordinances that affect an area within an airport planning boundary as established by an Airport Land Use Compatibility Plan and/or Comprehensive Land Use Plan. If the Airport Land Use Commission determines the proposed project to be inconsistent, the County may overrule the Airport Land Use Commission by a two-thirds vote, again after a public hearing, and based on specific findings.

MATHER AIRPORT COMPREHENSIVE LAND USE PLAN (CLUP)/ AIRPORT LAND USE COMPATIBILITY PLAN

In May 1996, the Airport Land Use Commission prepared a Draft Mather Airport Comprehensive Land Use Plan Update to establish height, noise and safety zones for Mather Airport based on its projected buildout use as a County-operated aviation facility. A revised version of the Draft Mather Airport Comprehensive Land Use Plan was prepared in October 1996. An amended version of the Mather Comprehensive Land Use Plan was adopted by the Airport Land Use Commission Board on May 15, 1997. On June 24, 1998, the Sacramento County Board of Supervisors approved a package of amendments to the General Plan that incorporated the Mather Field Comprehensive Land Use Plan. Although the CLUP has not been officially updated by the Airport Land Use Commission, the County of Sacramento has incorporated updated noise contours into its General Plan based on theoretic capacity of the airport and uses those contours in making land use consistency determinations.

The Mather Airport Master Plan, which was adopted in August 2014, and updated aviation forecasts may be used by Airport Land Use Commission for a future update to the Mather Comprehensive Land Use Plan. If the Mather Comprehensive Land Use Plan is revised to reflect the noise contours in the Mather Airport Master Plan, land use restrictions surrounding Mather Airport could be reduced because the model of the updated forecast show a reduction in the size of the 60 CNEL and 65 CNEL noise contours. The noise contours and land use restrictions in the currently adopted Comprehensive Land Use Plans would remain in effect after approval of the Mather Airport Master Plan until such a time that a revised Comprehensive Land Use Plans or Airport Land Use Compatibility Plans is approved by the SACOG Board and adopted into the County's General Plan. A revised Comprehensive Land Use Plan or Airport Land Use Compatibility Plan would require adequate California Environmental Quality Act (CEQA) documentation prior to approval.

MATHER AIRPORT PLANNING POLICY AREA

In 2006, Sacramento County adopted the Mather Airport Planning Policy Area (APPA), which places specific limitations on conditions of new residential development within certain proximity to Mather Airport (MHR). Specifically, the Mather APPA conditions:

1. Prohibit new residential development inside the current Board approved 60 CNEL noise contour for MHR.

2. Condition new residential land uses within the APPA boundary but beyond the current Board approved 60 CNEL noise contour for MHR as follows:

    a. Minimum noise insulation to protect persons from excessive noise within new residential dwellings, including detached singe family dwellings, that limits noise to 45 dB CNEL, with windows closed, in any habitable room.

    b. Notification in the Public Report prepared by the California Department of Real Estate disclosing to prospective buyers that the parcel is located within the applicable Airport Planning Policy Area and that aircraft operations can be expected to overfly that area at varying altitudes less than 3,000 feet Above Ground Level (AGL)

    c. Execution and recordation with the Sacramento County Recorder of Avigation Easements prepared by the Sacramento County Counsel's Office on each individual residential parcel contemplated in the development in favor of the County of Sacramento. All avigation easements recorded pursuant to this Policy shall, once recorded, be copied to the Director of Airports and shall acknowledge the property location within the appropriate Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the appropriate airport.

Exceptions: New accessory residential dwellings on parcels zoned Agricultural, Agricultural Residential, Interim Agricultural, Interim General Agricultural, or Interim Limited Agricultural, shall be exempt from the Airport Planning Policy Area's prohibitions.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15

elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to airport compatibility that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

NO-2:

> Proposals for new development within Sacramento County which may be affected by aircraft noise shall be evaluated relative to Table 4: *Land Use Compatibility for Aircraft Noise.* (Table AC 1 below is the excerpt from the General Plan's Table 4 that pertains to mining uses).

Table AC 1: Land Use Compatibility for Airport Noise

Table 4 **Land Use Compatibility for Airport Noise**					
Land Use Designation	**60-65 CNEL**	**65-70 CNEL**	**70-75 CNEL**	**75-80 CNEL**	**80-85 CNEL**
• Agricultural services	Yes	Yes	Yes[3]	Yes[3]	Yes[3]
• Mining and quarrying	Yes	Yes	Yes[3]	Yes[3]	Yes[3]
• Oil and gas extraction	Yes	Yes	Yes[3]	Yes[3]	Yes[3]

LU-87:

> Because land use decisions around airports by local governments have a direct impact on an airport's long-term viability and utility, proposed new land use projects and land use practices near airports within Sacramento County shall consider consistency with current federal, State, and local airport land use compatibility regulations, orders, policies, plans, standards and guidance pertaining to public safety and minimization of hazardous wildlife attractions within five statute miles of County airports.

Table AC 2 shows an excerpt from the Land Use Compatibility for Airport Safety table in the Land Use Chapter of the General Plan. The footnotes that pertain to mining and quarrying are listed after the table:

Table AC 2: Land Use Compatibility for Airport Safety

Land Use Category	SAFETY ZONES		
	Clear	Approach / Departure	Overflight
PUBLIC AND QUASI-PUBLIC SERVICES			
• Post offices	No	No	Yes[18]
• Government offices	No	No	Yes[15,18]
• Government social services	No	No	Yes[15,18]
• Elementary and Secondary schools	No	No	Yes[9,16,17]
• Colleges and universities	No	No	No
• Hospitals	No	No	No
• Medical and dental laboratories	No	Yes[2,17]	Yes[18]
• Doctor and dentist offices	No	No	Yes[15,18]
• Museum and art galleries	No	No	Yes[15,18]
• Libraries	No	No	Yes[15,18]
• Churches	No	No	Yes[15,18]
• Cemeteries	No	Yes[2,2A,10]	Yes[18]
• Jails and detention centers	No	No	No
• Child care programs (six or more children)	No	No	Yes[15,18]
• Nursing care facilities	No	No	Yes[15,18]
RECREATION			
• Neighborhood parks	No	No	Yes[18,20]
• Community-wide and regional parks	No	No	Yes[17]
• Riding stables	No	Yes[2,12,17]	Yes[18]
• Golf courses	No	Yes[2,2A,11]	Yes[18,19]
• Open space and natural areas	Yes[3,6]	Yes[2,2A,6,12]	Yes[6,18,20]
• Natural water areas	Yes[3,6]	Yes[2,2A,6,12]	Yes[6,18,20]
• Recreation and amusement centers	No	No	Yes[15,18]
• Physical fitness and gyms	No	No	Yes[15,18]
• Camps, campgrounds, and recreational vehicle parks	No	No	Yes[17]
• Dance halls, studios, and schools	No	No	Yes[15,18]
• Theaters - live performance	No	No	Yes[15,17]
• Motion picture theater - single or double	No	No	Yes[15,17]
• Motion picture theater complex - three or more	No	No	No
• Professional sports	No	No	No
• Stadiums and arenas	No	No	No
• Auditoriums, concert halls, and amphitheaters	No	No	No
• Fairgrounds and expositions	No	No	No
• Racetracks	No	No	No
• Theme parks	No	No	No
AGRICULTURAL AND MINING			
• Row and field crops	Yes[3,6]	Yes[2,2A,6]	Yes[6]
• Tree crop	No	Yes[2,2A,6]	Yes[6]
• Intensive livestock	No	Yes[2,2A,6]	Yes[6]
• Nursery products	No	Yes[2,2A,6]	Yes[6]
• Poultry	No	Yes[2,2A,6]	Yes[6]
• Pasture and grazing	Yes[3,6]	Yes[2,2A,6]	Yes[6]
• Agricultural services	No	Yes[2,2A]	Yes
• Mining and quarrying	No	Yes[2,2A,6]	Yes[6]
• Oil and gas extraction	No	No	Yes

Footnote 2: Use is compatible only if they do not result in a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 persons per acre per hour during any 24 hour period ending at midnight, not to exceed 50 persons per acre at any time. Note: if entry also refers to footnote 2A, see below.

Footnote 2A: For Sacramento International Airport, use is compatible only if it does not result in a concentration of persona greater than 25 persons per acre at any time or the storage of flammable or explosive material above ground.

Footnote 6: Uses compatible only if they do not result in a possibility that a water area may cause ground fog or a bird hazard.

METHODOLOGY FOR BIRD AIR STRIKE HAZARD EVALUATION

Northwest Hydraulic Consultants prepared a technical study titled Evaluation of Bird-Aircraft Collision Hazards for the Aspen VIII and IX project. Portions of the report are utilized below and the entire report is provided in Appendix AC-1. Northwest Hydraulic Consultants assessed whether the proposed project would significantly increase the potential for bird collisions with aircraft using Mather Airport compared to that which occurs under existing conditions. To evaluate current and future collision risks, Northwest Hydraulic Consultants evaluated regional habitat conditions, existing and post-project land use conditions, and uses of these habitats by potentially hazardous bird species. The analysis then evaluated the frequency of aircraft flights over the project site, height of previous bird aircraft collisions at Mather Airport, and typical heights of hazardous species. This information is then combined to determine the overall bird aircraft collision hazard that currently occurs at the site and that which would occur under the proposed project. These pre- and post- project evaluations are then compared to determine if the project would result in a net change in bird aircraft collision hazard.

REGIONAL HABITAT CONDITIONS

Regional habitat conditions were evaluated using aerial images in Google Earth (www.earth.google.com). Teichert's Geographic Information Systems (GIS) staff also quantified regional abundance of various wetland habitats within the 10,000 foot and 5-mile separation zones around Mather Airport using data from the South Sacramento County Habitat Conservation Plan. The information provided a regional context for comparison with Aspen VIII and IX conditions and for evaluation of potential synergistic effects.

EXISTING ON-SITE HABITAT CONDITIONS AND POTENTIAL BIRD USE

On-site habitat conditions and bird use were evaluated at a general level based on several sources. Wetland habitat acres were a focus of the assessment because of

their potential to attract water birds that are considered hazardous to aircraft. Wetlands were characterized from the assembled regional wetland database, to ensure consistency for comparison with regional characteristics. Results from regional mapping were cross checked with project specific wetland delineation (ECORP Consulting 2014).

Bird use of existing project lands were characterized at a general level for species and species groups identified as hazardous by the Federal Aviation Administration. Relative level of bird population sizes and use (i.e., high, high-moderate, moderate, moderate-low, low-none, none, relative to other regional habitats) were determined based on:

- Habitat conditions observed on-site;
- Biological survey the project site (Burleson 2014) and reconnaissance surveys conducted by Daniel Airola;
- Other related studies of bird use and bird-aircraft collisions risk conducted in the areas of Mather Airport (Airola 2007a, b; Airola and Gibson & Skordal 2009, LSA Associates 2008);
- Review of the California Natural Diversity Database and California Wildlife Habitat Relationships System (California Department of Fish and Game 2007);
- Daniel Airola's personal knowledge of local bird species distribution, abundance, habitat relationships and behaviors, based on 30-years conducting biological work and birding in Sacramento Region, and information for other references (Beedy and Pandolfino 2013 and ebird.org); and
- Eric Lichtwardt's personal knowledge from conducting wildlife hazards assessments at many California airports.

Synergistic Effects from Adjacent Lands

Synergistic effects are defined as those created as a result of project conditions, in combination with other off-site conditions. Effects of existing on-site conditions were evaluated to determine if they could encourage bird flight to and from the site and therefore result in enhanced bird hazards to aircraft. Potential synergistic effects include the presence of nesting or roosting habitat that would attract birds that forage on off-site land or the presence of foraging habitat on-site that would attract birds that roost or nest off-site.

Post Project On-Site Habitats and Bird Use

Existing project land uses and habitat conditions were evaluated during on-site surveys and from biological and wetlands surveys. Post-project habitat conditions were assessed based on information in the mining and reclamation plans and revegetation plan. Relative population levels of bird species and species groups identified as most

hazardous to aircraft were evaluated based on surveys of other mining sites with habitats similar to those at the proposed project (Airola's 2006a, b), extensive field experience in the project region, and general references on avian distribution on habitat relationships in the region (Beedy and Pandolfino 2013, ebird.org).

POST PROJECT SYNERGISTIC EFFECTS FROM ADJACENT LANDS

To assess potential post-project synergistic effects, foraging or roosting conditions on-site were evaluated to determine if they would be expected to increase the number of bird flights to and from the project site that may cross the flight path closer to the runway, which could result in enhanced bird hazards to aircraft.

AIRCRAFT FLIGHT CHARACTERISTICS OVER THE PROJECT SITE

Sacramento County Department of Airports keeps extensive records of aircraft flight paths and elevations because of high public concern about aircraft noise and public safety. Sacramento County Department of Airports originally provided a record of aircraft departure and arrival frequencies, locations, and heights over the project site and other areas during August of 2007. Northwest Hydraulic Consultants contacted Sacramento County Department of Airports and determined that the records from 2007 are still appropriate for analysis.

BIRD-AIRCRAFT COLLISION RECORDS

Bird airstrikes are an ongoing issue at Mather Airport and as a result the County has reported information on individual bird airstrikes to the Federal Aviation Administration's bird airstrike database (http://www.faa.gov/airports/airport_safety/wildlife/). Northwest Hydraulic Consultants used data on bird aircraft collisions collected at Mather Airport during July 2004 to June 2014 to characterize bird aircraft collisions. The data was used to identify species and groups that previously posed hazards to local aircraft and the heights at which the incidents occurred. The data was evaluated to determine the frequencies of recorded strikes that occurred at various heights. The limited nature of this data (number of records, incompleteness of information on species identities, height, etc.) precluded quantitative use, but nonetheless provided information useful in subjectively evaluating hazards.

ANALYSIS OF BIRD AIRCRAFT COLLISION HAZARDS

Evaluations of changes in potential risks of bird aircraft collision were conducted for hazardous species based on existing and post project habitat conditions and resulting bird populations, in combination with information on aircraft flight heights and past information on bird aircraft collisions in the area. The evaluations included assessment of the potential for collisions by birds with aircraft above the project site and elsewhere as a result of synergistic effects.

EXISTING CONDITIONS AND POST-PROJECT HAZARD EVALUATION

Existing bird hazard conditions were characterized based on the relative abundance of species at the project site. Relative abundance was scaled (from high to low) relative to highest abundance of each species' in local habitats and geographic areas. Species relative abundances then become the basis for identifying changes in abundance of hazardous species under the proposed project.

For the post-project evaluation, collision potential was examined for species whose relative abundance of post-project populations either increase or occurred at relative abundance levels of moderate and above. These species were examined in greater detail based on general knowledge of the species' flight heights, to determine which may pose collision potential at the altitudes at which aircraft cross the project site.

NET PROJECT EFFECTS

To assess the net effects of the project, relative abundances of potential hazardous bird species were compared under the pre- and post-project conditions and those for which population levels were likely to increase were identified. These species were then evaluated for their potential to pose a collision hazard to aircraft flying at know heights above the project site, to determine if the project would pose any net increase in aircraft collision hazard.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community. Most of the project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains a nearly two mile partially channelized segment of Elder Creek, which now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. Approximately 27 acres of wetlands have been identified on-site, many of which are associated with irrigation. Tree cover on the project site is sparse due to historic land clearing.

The applicant proposes to mine 353 acres of the 683-acre project site, while maintaining 166 acres of grassland-vernal wetland habitat which will include a 93-acre preserve area to be located near the south-east side of Aspen IX and the Elder Creek floodway (Plate AC-4). The mine depth will be approximately 30-50 feet below the current grade. When mining is completed the site will be reclaimed back to open space grassland.

The preservation component of project mitigation for loss of existing jurisdictional wetlands and other habitats would occur within the on-site preserve areas along Elder Creek and possibly in other unmined lands on-site, while other mitigation to achieve the creation requirements for lost wetland acreage would occur off-site at approved mitigation banks.

When mining and reclamation is completed, the mined site will be below grade. Stormwater from precipitation falling within the mined areas will no longer flow off-site. As such, permanent stormwater retention ponds are proposed at the site. Furthermore, the site will be graded to direct all surface water flows into the retention ponds. The ponds will be constructed as deep, linear ponds with relatively small surface areas and steep banks that discourage bird use (Plate AC-5).

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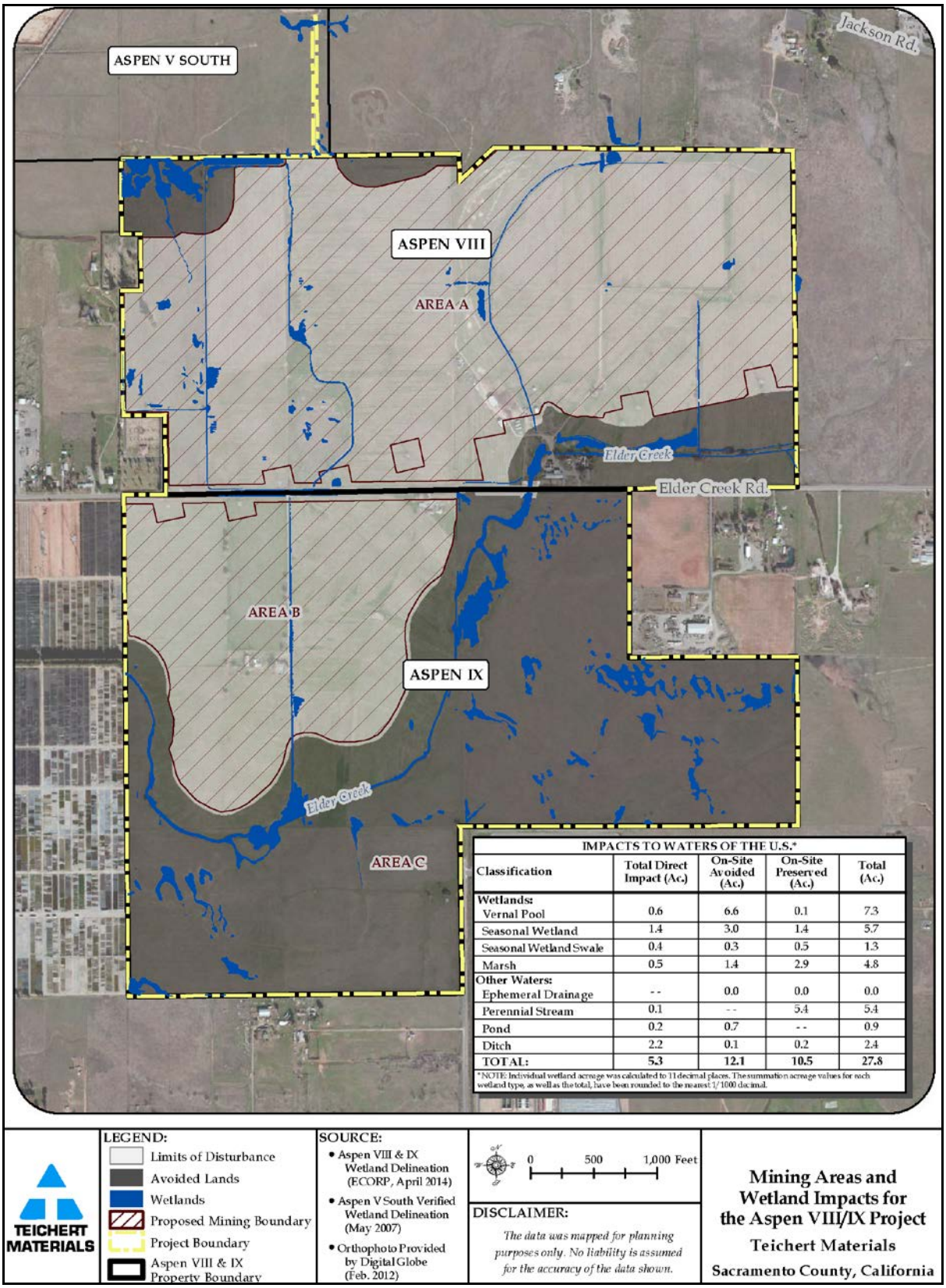

IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	On-Site Avoided (Ac.)	On-Site Preserved (Ac.)	Total (Ac.)
Wetlands:				
Vernal Pool	0.6	6.6	0.1	7.3
Seasonal Wetland	1.4	3.0	1.4	5.7
Seasonal Wetland Swale	0.4	0.3	0.5	1.3
Marsh	0.5	1.4	2.9	4.8
Other Waters:				
Ephemeral Drainage	--	0.0	0.0	0.0
Perennial Stream	0.1	--	5.4	5.4
Pond	0.2	0.7	--	0.9
Ditch	2.2	0.1	0.2	2.4
TOTAL:	**5.3**	**12.1**	**10.5**	**27.8**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

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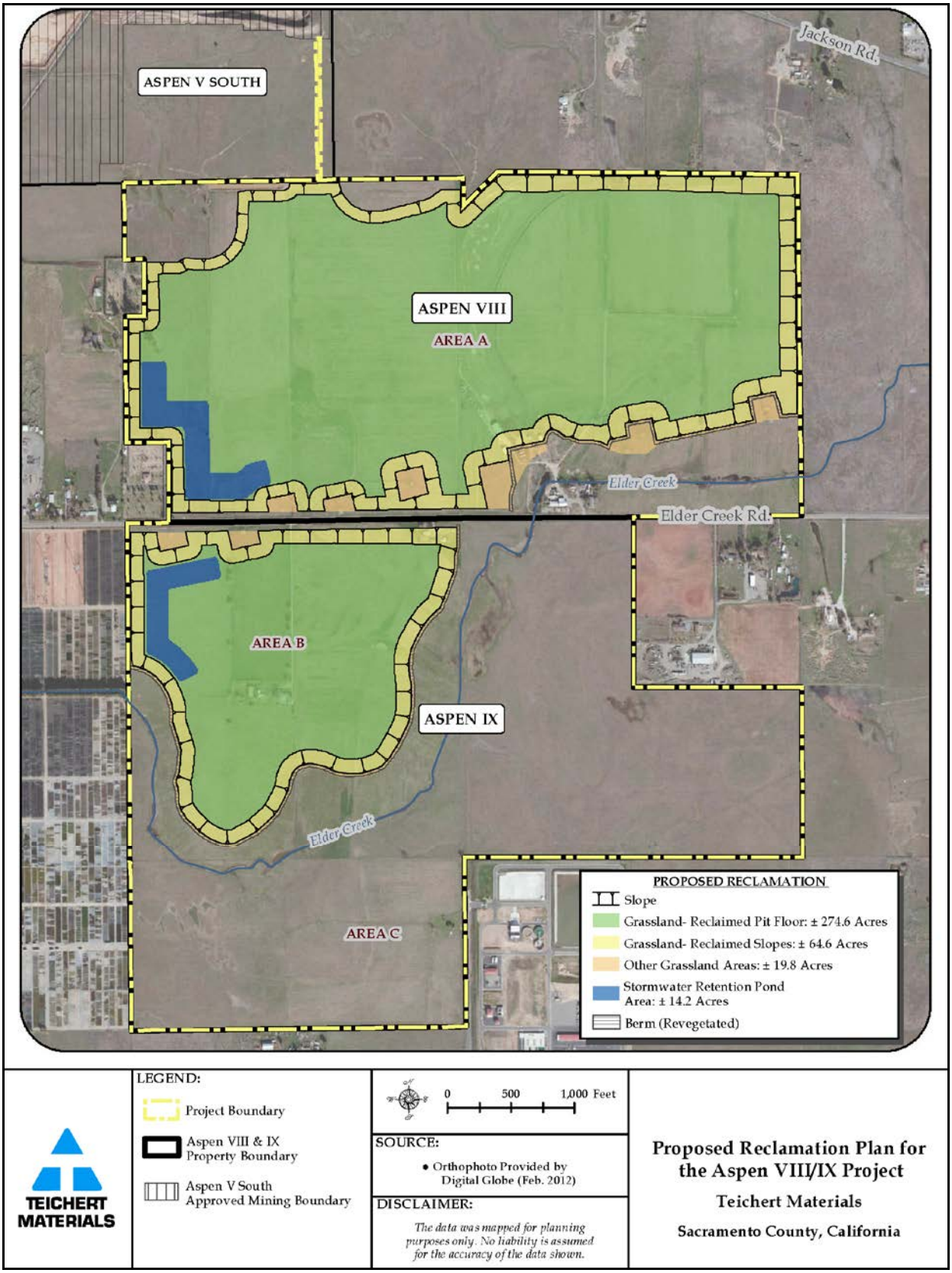
ASPEN V SOUTH
Jackson Rd.
ASPEN VIII
AREA A
Elder Creek
Elder Creek Rd.
AREA B
ASPEN IX
Elder Creek
AREA C
PROPOSED RECLAMATION
Slope
Grassland- Reclaimed Pit Floor: ± 274.6 Acres
Grassland- Reclaimed Slopes: ± 64.6 Acres
Other Grassland Areas: ± 19.8 Acres
Stormwater Retention Pond Area: ± 14.2 Acres
Berm (Revegetated)
TEICHERT MATERIALS
LEGEND:
Project Boundary
Aspen VIII & IX Property Boundary
Aspen V South Approved Mining Boundary
0 500 1,000 Feet
SOURCE:
• Orthophoto Provided by Digital Globe (Feb. 2012)
DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.
Proposed Reclamation Plan for the Aspen VIII/IX Project
Teichert Materials
Sacramento County, California

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Airports, the proposed project would have a significant impact if it:

AC-1: Exposes people residing or working in the project area to aircraft noise levels in excess of applicable standards; or

AC-2: Results in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft; or

AC-3: Results in a safety hazard for people residing or working in the vicinity of an airport/airstrip; or

AC-4: Results in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks, the project is a surface mine that will extract aggregate material from the site. Therefore, AC-4 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation AC-1: Does the project expose people residing or working in the project area to aircraft noise levels in excess of applicable standards?

The project site is located to the south of the Mather Airport runway and is located in both the 50-55 Community Noise Equivalent Level (CNEL) and the 55-60 CNEL noise contours emanating from Mather Airport. Pursuant to General Plan Policy NO-2, mining and quarrying are compatible uses where aircraft noise levels are less than 70 CNEL. By virtue of the project's location, the surface mining use is compatible with the airport noise standards of the General Plan. Therefore, the project would not expose people residing or working in the project area to aircraft noise levels in excess of applicable standards and impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AC-2: Does the project result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft?

Navigable Airspace

The navigable airspace could be impacted if building heights in the project area exceed designated height standards. The Mather Comprehensive Land Use Plan height standards for defining obstructions to air navigation are established by the Federal Aviation Administration are defined in Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. The Mather Comprehensive Land Use Plan further discusses the need for height restrictions as follows:

> Height restrictions are necessary to ensure that objects will not impair flight safety or decrease the operation capability of the airport. Federal Aviation Regulation Part 77 defines a series of imaginary surfaces surrounding airports. Any object or structure which would penetrate any of these imaginary surfaces is considered by the Federal Aviation Administration to be an obstruction of air navigation.

The “imaginary surfaces” for Mather Airport are most restrictive adjacent to the runway and becomes less restrictive further away. The project site is south of the runway; the northern boundary of the project site is near the 248.5 foot height limit and the southern portion of the project area is outside of the 448.5 foot height limit.

The project is a surface mining operation that does not propose to construct any permanent structures much less any structure over 200 feet in height. The project will use construction type trailers as the temporary office and security office at the site. The project will also include the use of electric conveyors to move the aggregate off the site. The electric conveyors are usually no more than five feet off the ground but in some cases the conveyors are raised up to make a pile of aggregate material. When raised the conveyers will not be over 50 feet in height; moreover they will be in the mining pit below grade. Therefore, the project will not result in structures that would affect navigable airspace and impacts are less than significant.

Ground Fog

The project area is located within the Overflight Safety Zone. The proposed use does not conflict with General Plan policy LU-87 in that according to Table AC-1 mining is conditionally compatible in the Overflight Safety Zone. Footnote 6 states; “such use is compatible only if it does not result in a possibility that a water area may cause a ground fog or a bird hazard.” The ground fog and bird hazard discussions are below.

The site contains a total of 27.796 acres of wetlands and water of the U.S; this includes vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, perennial streams, ephemeral streams, ponds and ditch wetland habits. The project will eliminate

5.373 acres of these wetlands; the project will also create drainage basins to control flooding. The drainage basins will be located at the low point of the each mining pit and will be approximately 8,700 feet or 1.75 miles south of the runway. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. Therefore, by virtue of lower elevation, the distance from the runway, and the prevailing winds, the project is not expected to cause any additional adverse ground fog hazards for aircraft.

Bird Airstrike Hazards - Existing Habitat Conditions

The properties that surround the project area are used for commercial nursery operations, agriculture, aggregate mining, rural residential use, and the County's water treatment facility. Wetlands are common features within the area, with over 480 wetland acres present within 10,000 feet and 2,253 acres within 5 miles of Mather Airport (Plate AC-6). The Aspen VIII and IX project site supports 27.7 acres of wetlands and waters of the United States. All of these are capable of supporting open water during wet periods. The majority of the site consists of irrigated pasture used for hay production and livestock grazing. There are 163 trees located on the site; or about one tree per four acres.

The estimated use levels by potentially hazardous bird species are found in Table AC-3. A number of hazardous species and species groups are currently expected to occur at greater than moderate abundance at the project site, relative to their abundance on neighboring lands. Many of the species on-site are more abundant than on surrounding lands due to their preference for irrigated pasture. Eight species were rated as occurring at moderate abundance and ten potentially hazardous species either are unlikely to occur at the project site or would occur at low or low-moderate abundance.

The only current site features that may be contributing to synergistic use of the site (bird attraction from elsewhere) is irrigation (water features on the site) and management of pasture lands. Current irrigation increases production and duration of availability of low green vegetation that likely attracts use by Canada geese, irrigation and growth of hay also increases production of earthworms, insects, and other invertebrates which may attract crows, blackbirds, starlings, and other species, and seeds that are attractive to blackbirds. Irrigation also enhances productivity of the site for rodents (gophers, ground squirrels, voles), and hay cutting makes these species more available and thereby attract raptors.

The existing on-site wetlands are likely too small and scattered to serve as major roosting areas for waterfowl because better sites are available nearby. Similarly, the number of trees is relatively low at the project site and their densities and sizes are similar to those on surrounding lands, so that no substantial attraction of tree nesting species would occur.

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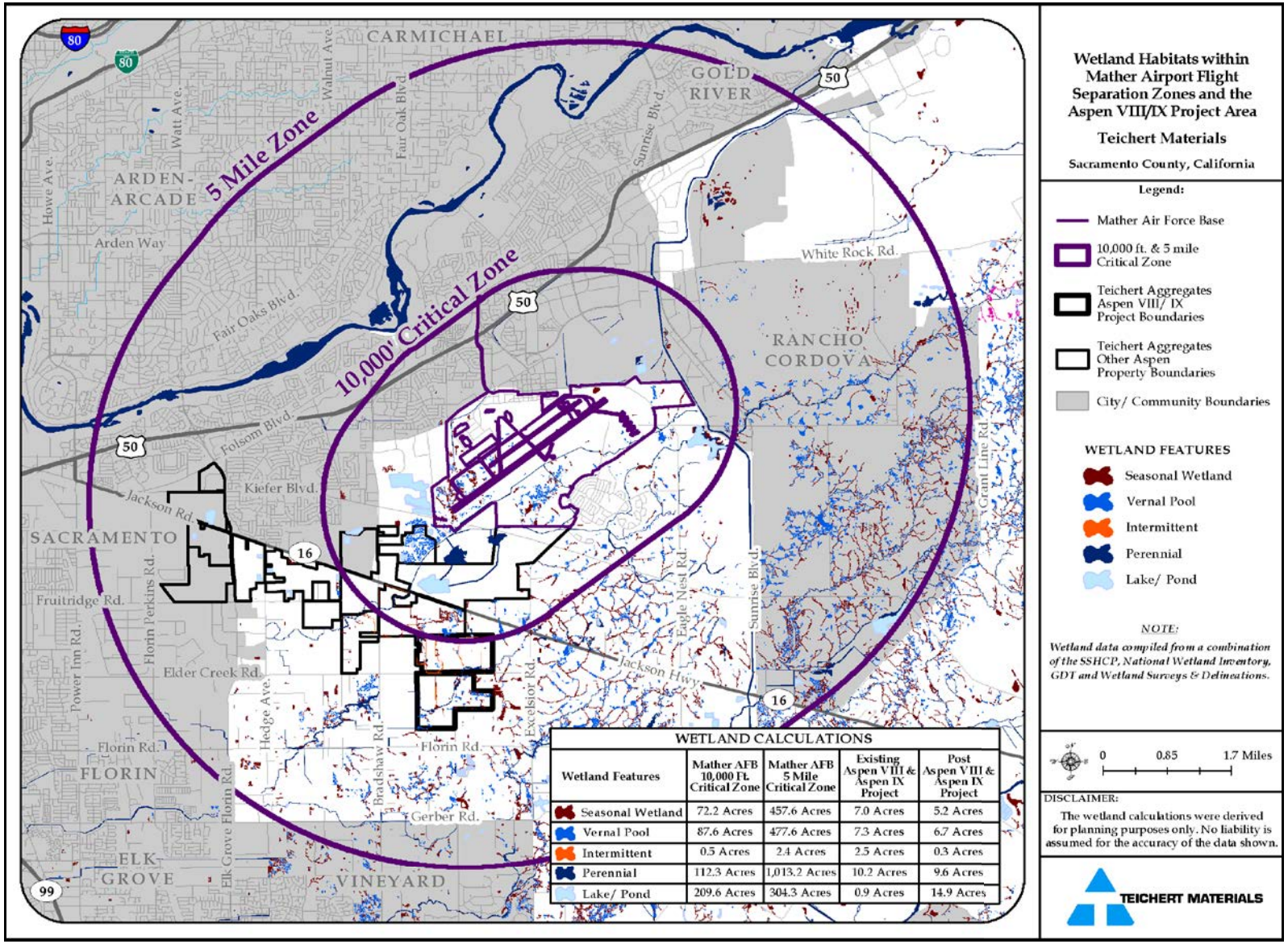


Table AC-3: Use Levels by Hazardous Bird Species

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Turkey Vulture	Moderate	Moderate	No Change	Tree removal may decrease abundance initially by removing roosting habitat (trees), but riparian restoration would at least partly offset this effect over the long-term (>50 years) based on tree age used for roosting (Airola 2011). Foraging habitat likely to remain unchanged due to continued livestock use, although changes in surrounding land uses may reduce populations
Canada Goose	Moderate	Low	Decrease	Irrigated lands are greatly preferred for foraging. Post-project water bodies likely too small for roosting use and too steep-sided and predator prone for nesting use
White Pelican	None	None	N/A	Wetlands under current and post-project conditions are too small for use
Double-crested Cormorant	None-Low	None-Low	No Change	Wetlands under current and post-project conditions are too small for use. Stormwater retention basins would be too small and narrow to support regular use by cormorants.
Sandhill Crane	None	None	N/A	The project site is far from traditional wintering areas where species uses waste grain; habitat not highly suitable for either foraging or roosting
Bald and Golden Eagles	None	None	N/A	Wetlands are too small for Bald Eagle foraging. Too much of surrounding area is converted to development and unsuitable agriculture for Golden Eagle.
Ducks	Moderate	Low-Moderate	Decrease	Irrigated habitat may attract limited numbers of foraging and nesting ducks in wet areas. Seasonal wetlands in annual grasslands likely supports few nesting Mallards. Limited amount of open water in small, linear ponds under post-project condition would maintain use at low levels.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Osprey	None-Low	None-Low	No Change	Water bodies too small to attract nesting or dispersing individuals.
Wild Turkey	Low	Low	No Change	Woodlands are limited under existing and post-project conditions, but irregular use could occur under both.
Ring-necked Pheasant	Low -Moderate	Low	Decrease	Irrigated pasture is not a preferred foraging crop, but hay production likely supports a small population that would nest in weedy areas and annual grassland. Areas of pure annual grassland support few pheasants, due to poor foraging conditions. Increase in post-project annual grassland acreage could slightly reduce populations.
Great Blue Heron and Great Egret	Moderate	Low-Moderate	Decrease	Reduced irrigated pasture would reduce foraging habitat on gophers exposed during irrigation. Wetland acreage decrease also would reduce foraging habitat. Tree removal would reduce potential for nesting, but lack of foraging nearby high quality foraging habitat make nesting use unlikely onsite.
Swainson's Hawk	Moderate-High	Moderate	Decrease	Foraging habitat quality would likely decrease for Swainson’s Hawk due to loss of irrigated pasture and hayfields. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area. Long-term population declines are also possible due to land use changes in surrounding lands
Red-tailed Hawk	Moderate-High	Moderate-High	No Change	Foraging habitat quality would likely would increase slightly for Red-tailed Hawk over the long term by reclamation of pasture and hayfields to annual grassland. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area to support nesting

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Gulls	Moderate-High	Low	Decrease	Foraging habitat quality would decrease substantially with elimination of irrigated agriculture. Roosting habitat is limited or absent on all lands due to low amounts of open water, except after flood events.
Rock Pigeon	Moderate	Low	Decrease	Elimination of some barns and other buildings likely would reduce nesting populations of the Rock Pigeon. Foraging habitat conditions would be reduced through elimination of food sources in hayfields.
Great-horned Owl and Barn Owl	Moderate	Low-Moderate	Decrease	Elimination of irrigated agriculture likely would reduce prey, especially gopher populations, for both species. Loss of buildings would reduce Barn Owl nesting. Tree removal could decrease nesting and roosting use by both species.
Horned Lark	Low-Moderate	Moderate-High	Increase	The species favors short, dry grasslands and disturbed lands. Suitable habitat would increase during mining and subsequent reclamation to grazed annual grassland, but only if grazing occurs at high intensities.
American Crow	Moderate-High	Low-Moderate	Decrease	Forages on earthworms and insects in irrigated agriculture, so use would decrease following elimination of irrigated use.
Common Raven	Low	Low	No Change	Localized and uncommon at low elevations in Sacramento County. Abundance may increase as part of an ongoing population trend, but is unlikely to be affected by changes to the project area.
Mourning Dove	Moderate-High	High	Increase	Hay fields, grazed annual grasslands, and disturbed mining areas all produce seeds and open foraging conditions favored by doves. Tree removal would reduce nesting habitat, but as restored trees mature, nesting habitat would partly recover.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Blackbirds/ European Starling	High	Moderate	Decrease	Elimination of irrigated pasture would likely reduce foraging habitat for Brewer's and Red-winged Blackbirds and European Starlings, and potential nesting habitat for Tricolored Blackbird. Foraging areas in annual grassland for the Tricolored Blackbird would remain.
American Kestrel	Moderate	Moderate	No Change	Change from irrigated pasture and hayfields to grazed annual grassland would not likely change habitat suitability for kestrel foraging. Tree removal during mining would decrease nesting habitat suitability, which would partly recover with maturation of planted trees.
Western Meadowlark	Low-Moderate (breeding) High (wintering)	Moderate (breeding), Moderate (wintering)	Decrease	Irrigated land is likely better foraging habitat for meadowlarks than annual grassland, but annual grassland is better for nesting. Therefore, summer populations would likely increase, while large wintering populations (a greater risk to aircraft) would decrease.
Swallows	Moderate-High	Low-Moderate	Decrease	Production of insect foods would be substantially reduced under non-irrigated post-project condition. Removal of barns and trees would reduce nesting opportunities for the Barn, Cliff, and Tree Swallows
Sparrows	Moderate	Moderate-High	Increase	In the short term, loss of irrigated land likely would reduce cover for sparrows (Song and Savanna Sparrows, Spotted Towhee
Nighthawks	None	None-Low	Increase	Nighthawks are uncommon species, generally restricted to drier rocky areas. They might increase slightly in mined areas prior to reclamation

Post Project Habitat Conditions

The project proponents expect to disturb 383 acres of the 683-acre site. Therefore, mining of the site will alter habitat conditions on approximately 383 acres. The remaining approximately 300 acres will remain undisturbed, including a 93-acre preserve area. The major changes to habitat that would affect bird populations include:

- Elimination of irrigated agriculture (including hay farming, and irrigated pasture grazing),
- A minor reduction in wetland and pond acreage,
- Elimination of certain farmsteads (including buildings and existing trees),
- On-site creation of permanent, steep-sided stormwater retention basin,
- Creation of temporary disturbed areas during mining, and
- Creation of additional non-irrigated annual grassland habitat following mining reclamation.

The proposed project will decrease the existing wetlands and other waters from approximately 27.8 to 22.5 acres. However, a total of 14.2 acres of stormwater detention ponds, designed to minimize wildlife use, will be constructed to serve as on-site stormwater detention basins. The project will, therefore, result in a net increase in the area of wetlands and water by 8.9 acres. The applicant has designed the stormwater detention system to minimize waterbird use. The detention ponds will be:

- Located outside the 10,000 foot separation area from Mather Airport,
- Designed to provide a minimum surface area,
- Narrow and linear in shape to reduce bird security for resting, and
- Steep-sided at all water elevations to discourage wildlife use and shoreline vegetation growth.

There were 26 species and species groups analyzed. The expected change in their abundance is presented in Table AC-4 and their anticipated post-project abundance/use levels are presented in Table AC-5. Only four species are expected to increase post-project while 12 species would decrease, seven species would remain unchanged and three species would have no use. Seventeen species or species groups are predicted to remain at or below low-moderate population levels under post-project conditions. The remaining nine species or groups; the turkey vulture, Swainson's hawk, red-tailed hawks, horned lark, mourning dove, blackbirds and starlings, American kestrel, western meadowlark, and sparrows have the potential to occur at moderate or higher levels and warrant more site-specific analysis of hazard risk that is below.

Table AC-4: Changes in Species/Groups Abundance and Use Levels from Existing to Post-Project

Species/Group Responses	Number of Species/Groups	Percentage of Species/Groups
Increase	4	15
Unchanged	7	27
Decrease	12	46
No Use	3	12

Table AC-5: Post-Project Abundance/Use Levels

Post-Project Relative Abundance	Number of Species/Groups	Percentage of Species/Groups
High	1	4
Moderate-High	3	12
Moderate	5	19
Low-Moderate	5	19
Low	5	19
None-Low	4	15
None	3	12

Of the nine species that have the potential to occur at moderate or greater relative population levels, only four are expected to increase under post-project conditions. They are the mourning dove (post-project abundance high), the horned lark, sparrows, and nighthawks (post-project abundance moderate-high).

Aircraft Activity

A total of 2,250 aircraft departures and 2,154 arrivals occurred from Mather Airport during the August 2007 reference period. Most of the departure flights occur at night, according to the County Airport System. Almost a quarter (23%) of all aircraft departures crossed above the project site while almost three quarters (72%) of those departing flights occurred at heights of 1,000-2,500 feet above the project site and nearly a quarter (24%) occurred above 2,500 feet. Only 3% of departures passed at heights below 1,000 feet.

Most arrivals to Mather Airport approach landings from the northeast. The project parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, flights arriving from the south or southwest may pass over

the project site as they proceed to runway 22. Of the total of 2,154 arriving planes recorded at Mather Airport in August 2007, 135 (6.3%) crossed above the project site. Of these arriving flights that crossed the site, over three quarters (77%) occurred at heights of 1,000-2,500 feet about the project site. No flights passed below 500 feet and only 11% of these flights (less than one per day) passed at heights below 1,000 feet.

The aircraft arrival and departure data show that a moderate proportion (23%) of departing flights and a small proportion (6.3%) of arriving flights from Mather Airport cross over the project site. Departing flights crossed the project area above 1,500 feet 80% of the time. Arriving flights cross the project site less frequently than departing flights but the arriving flights are at lower heights. No planes flew over the project site at heights below 500 feet, and less than one plane per day flew between 500- 1,000 feet.

Mather Airport Airstrike Characteristics

Bird strikes were reported at an average rate of 7 per year (78 collisions per 11 years) from data reported covering the years 2004-2014 (Table AC-6). A majority (68%) of the birds that collided with aircraft were not identified. Larger species such as coots and hawks represented 32% of identified species or groups. Medium-sized species such as killdeer, starlings, meadowlarks, blackbirds represented 28% of the species that collided with aircraft. Finally, smaller species such as swallows, sparrows, pipits, and larks comprised 40% of reported species groups.

Table AC-6: Characteristics of Bird-Aircraft Collisioins Reproted at Mather Airport, 2004-2014

Species Group	Collision Location				% of Identified Groups
	On Ground	In Air	Unknown	Total	
Coots		1		1	4
Hawks	4		3	7	28
Starlings/blackbirds	1	3		4	16
Killdeer	1		2	3	12
Pipits/larks		1	1	2	8
Swallows	4	2	1	7	28
Sparrow		1		1	4
Unknown birds	16	30	7	53	
Total	**26**	**38**	**14**	**78**	100
% of known locations	**41**	**59**			

Bird airstrike information for in-air collisions reported at Mather Airport shows 41% or 26 collisions occurred at ground level and 79% or 50 collisions occurred at an altitude of less than 200 feet (Table AC-7). Only one collision occurred over the 11 year reporting

period at an altitude of 1,000-2,500 feet, the altitude most aircraft cross the project site. Nine percent or five collisions occurred within 200-2,500 feet altitude, while 14% or nine occurred above 2,500 feet. Nearly 70% of collisions occurred during the daytime (**T**able AC-8).

Table AC-7: Characteristics Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014

Bird-Aircraft In-Air Collision Heights in Feet

Height	Number of Collisions	%
0	26	41
>0-200	24	38
>200-500	1	2
>500-1,000	3	5
>1,000-2,500	1	2
>2,500- 5,000	4	6
>5,000	5	8

Table AC-8: Characteristics of Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014 Timing of Collisions

Period	Number of Collisions	%
Daytime	34	69
Dusk/Dawn	9	18
Night	6	12

Net Project Hazard Effects

The net project hazard effects considers hazardous species that occur at greatest abundance relative to surrounding lands and those whose populations would increase from existing to post-project conditions. The evaluation considers the potential for these species to collide with aircraft based on previous bird aircraft collisions and on the altitudes at which planes cross the project site, usually at 1,000-2,500 feet.

Under existing conditions, hazardous species use the project site because of the irrigated pasture habitat, trees, farmsteads, wetlands, some storm flooding events, and other habitat conditions. The current risk of bird aircraft collisions is low at the site because aircraft fly at a high altitude generally over 1,000 feet when crossing the project site and the relative heights at which most hazardous species regularly fly over the project site.

Under post-project conditions, most hazardous species would occur at low to moderate abundances relative to other habitats regionally. It is near impossible to eliminate all hazardous species from using a site a large as the project site. This is due to the fact that regardless of land uses or treatments, certain hazardous species would continue to find the site suitable. Therefore, it is appropriate to evaluate changes in populations,

and associated hazards posed by those species that occur at higher than typical regional populations.

Species of highest post-project relative abundance, those occurring at greater than moderate relative abundance include; horned lark, mourning dove, nighthawks, and various sparrows. Of these species only the mourning dove regularly flies at higher altitudes. If the standard for concern is lowered to populations that would occur at a moderate level, the following would be included; turkey vulture, red-tailed hawk, blackbirds, European starling, American kestrel, and western meadowlark. These species may at least occasionally fly at heights at which aircraft cross the project site. These species are all terrestrial species that are common within surrounding lands with various land uses. Therefore, it does not appear to be practical to significantly reduce their numbers under the post-project conditions.

The elimination of extensive irrigated agricultural lands would reduce the quality and productivity of habitat for many species, and as a result reduce populations of many of the species that pose potential aircraft hazards. On the other hand, the following species are expected to increase in abundance as a result of the proposed project; horned lark, mourning dove, and various sparrow species, and nighthawks. All of these species characteristically fly at low altitudes except during migratory movements.

The proposed project is expected to result in reduced use by a number of hazardous species that fly at high altitudes, including Canadian geese, great blue heron, great egret, gulls, rock pigeons, American crow, shorebirds, blackbirds, European starlings, western meadowlarks, and swallows.

The potential increase in populations of mourning doves which is the hazardous species that frequently flies at aircraft heights above the project site, is expected to be substantially offset by the decrease in use of the site by many species that could be hazardous to aircraft at the elevation at which aircraft cross the site.

Due to the low number of aircraft that depart and arrive at Mather Airport and that nearly all flights cross the project site at about 1,000 feet of altitude. The existing bird aircraft collision hazard level is low because most bird flights occur below 1,000 feet of altitude. The proposed surface mine will reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher altitudes would decline in abundance. The net effect of the proposed project is to reduce the potential for bird aircraft collisions. Therefore, the project's impacts would not result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft. The projects impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

<u>Impact Evaluation AC-3: Does the project result in a safety hazard for people residing or working in the vicinity of an airport/airstrip?</u>

The airport Comprehensive Land Use Plans (CLUPs) define three safety zones; the Clear Zone, Approach/Departure zoned and the Overflight Zone. The Clear Zone is the area at the end of each runway where noise and risk of off-runway accidents are at their greatest. The Approach/Departure zone is the area between the Clear Zone and the overflight zone where aircraft have either just taken off or are preparing to land. The overflight zone is the area where aircraft maneuver to either exit or enter the airport space for landing or take off.

The project site is located partially within the Overflight Zone and is not near the Clear Zone or the Approach/Departure Zone. The Overflight Zone coincides with the area under the Horizontal Surface, but outside of the Clear and Approach/Departure Zones. For Mather Airport, the perimeter of the Overflight Zone is constructed by swinging arcs of 10,000 foot radii from the center of each end of the primary surface of all runway ends and connecting these arcs by lines tangent to these arcs. The Overflight Zone risk of aircraft accidents is the least of the three safety zones.

The project site is located at the outer edge of the Overflight Zone (Plate AC-1) with most of the project area completely out of the Overflight Zone; mining is a compatible use within the Overflight Zone. Moreover, the Overflight Zone only extends approximately 300 feet into the extreme north-east portion of Aspen VIII while all of Aspen IX is completely out of the Overflight Zone. The operators mining the project site as noted above will be located at the extreme edge of the overflight zone when mining operations commence and will soon be completely out of the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport. The impacts of the project are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

8 PUBLIC SERVICES

REGULATORY CONTEXT

FEDERAL REGULATIONS

CLEAN WATER ACT

The 1972 amendments to the federal Clean Water Act prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The Clean Water Act requires National Pollutant Discharge Elimination System permits for stormwater discharges caused by general construction activity. The purpose of the National Pollutant Discharge Elimination System program is to establish a comprehensive stormwater quality program to manage urban stormwater and reduce pollution of the environment as much as possible. The National Pollutant Discharge Elimination System program involves characterizing the quality of receiving water, identifying harmful constituents, targeting potential sources of pollutants, and implementing a comprehensive stormwater management program. National Pollutant Discharge Elimination System permits are issued by the Regional Water Quality Control Board.

SAFE DRINKING WATER ACT

The federal Safe Drinking Water Act established a national program to protect the quality of drinking water available from municipal and industrial water suppliers. The Act established a program requiring compliance with national drinking water standards for contaminants that may have an adverse effect on human health. It also established programs to protect potable groundwater from contamination.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to protect human health and the environment from potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. Under the Resource Conservation and Recovery Act, the United States Environmental Protection Agency (EPA) has the authority to control hazardous wastes from the “cradle to grave”. This includes the generation, transportation, treatment, storage and disposal of hazardous wastes. The Resource Conservation and Recovery Act also sets a framework for the management of non-hazardous solid wastes. In 1986 amendments to Resource Conservation and Recovery Act enabled the EPA to address underground storage tanks storing petroleum and other hazardous substances.

The Resource Conservation and Recovery Act authorized states to develop and enforce their own waste management programs. State programs must be approved and authorized by the EPA.

FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission is an independent agency that regulates the transmission and sale of electricity, natural gas, and oil; licenses and inspects hydropower projects; reviews proposals to build liquefied natural gas (LNG) terminals; and oversees related environmental matters.

STATE OF CALIFORNIA REGULATIONS

URBAN WATER MANAGEMENT PLANNING ACT

Pursuant to California Water Code Sections 10610-10657, as last amended by Senate Bill 318 in 2004, the Urban Water Management Planning Act requires all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 AFA to submit an Urban Water Management Plan (UWMP) to the California Department of Water Resources every 5 years and update the plan on or before December 31 in years ending in 5 and 0. SB 318 is the 18th amendment to the original bill requiring an Urban Water Management Plan, which was initially enacted in 1983. Amendments to SB 318 have focused on ensuring that the Urban Water Management Plan emphasizes and addresses drought contingency planning, water demand management, reclamation, and groundwater resources.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Act requires the California State Water Resources Control Board to adopt water quality control plans and set waste discharge requirements for dischargers into surface and groundwaters. The Central Valley Regional Water Quality Control Board (Regional Water Board) is responsible for administering and enforcing waste discharge requirements, permits, and water quality control plans.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT AND CALRECYLE (FORMERLY THE CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD)

Regulations for solid waste disposal in California began with the enactment of the Solid Waste Management and Resource Recovery Act of 1972. This statute created the Solid Waste Management Board, giving it authority related to solid waste handling, disposal and reclamation.

The Integrated Waste Management Act of 1989 is the result of two pieces of legislation, AB 939 and SB 1322, which created the California Integrated Waste Management Board which has been, renamed CalRecycle. The Integrated Waste Management Act mandated a goal of 25 percent diversion of each city's and county's waste from disposal by 1995 and 50 percent diversion in 2000, with a process to ensure

environmentally safe disposal of waste that could not be diverted. CalRecycle plays a central role of promoting achievement of the waste diversion as mandated by the Act.

CalRecycle is the State agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. They provide grants and loans to help California cities, counties, businesses and organizations meet the State's waste reduction, reuse and recycling goals. CalRecycle promotes a sustainable environment where these resources are not wasted, but can be reused or recycled. In addition to many programs and incentives, CalRecyle promotes the use of new technologies for the practice of diverting California's resources away from landfills. CalRecyle is responsible for ensuring that State waste management programs are primarily carried out through local enforcement agencies. The California Water Resources Control Board and the Central Valley Regional Water Quality Control Board also regulate waste disposal (the latter actually regulated solid waste prior to CalRecycle).

As reported in the CalRecycle 2008 Annual Report, California has exceeded the goals mandated by the Integrated Waste Management Act of 1989 by diverting 58 percent of its waste stream. This accomplishment is in part due to successful partnership between State government, local government, and the solid waste industry in California.

Senate Bill 1016, signed into law on September 26, 2008, represents a fundamental shift in the way local jurisdictions will be measured for compliance with state diversion mandates. Jurisdictions will be evaluated based on the implementation of programs that measure per capita waste disposal, rather than diversion percentage.

CALIFORNIA PUBLIC UTILITIES COMMISSION

The California Public Utilities Commission regulates the design, installation, and management of California's public utilities, including electric, natural gas, water, transportation, and telecommunications. The California Public Utilities Commission also provides consumer programs and information, such as energy efficiency, low income programs, demand response, and California solar initiative for California's energy consumers.

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

In accordance with California Code and Regulations (CCR) Title 8 Sections 1270, "Fire Prevention" and Section 6773 "Fire Protection and Fire Equipment", the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all firefighting and emergency medical equipment.

EMERGENCY RESPONSE/ EVACUATION PLANS

The State of California passed legislation authorizing the Office of Emergency Services (OES) to prepare a Standard Emergency Management System program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with the Standard Emergency Management System could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency or disaster.

LEROY F. GREENE SCHOOL FACILITIES ACT OF 1998

The "Leroy F. Greene School Facilities Act of 1998", also known as Senate Bill No. 50 (SB 50) established a State program to provide per-pupil funding for new construction and modernization of existing school facilities. The passage of Proposition 1A in 1998 allowed SB50 to be fully implemented.

Senate Bill 50 limited the power of cities and counties to require mitigation of school facilities as a condition of approving new development and authorized school districts to assess fees (at various levels) to directly offset the costs associated with increased capacity as a result of new development.

CALIFORNIA GOVERNMENT CODE SECTION 66477

California Government Code Section 66477 (Quimby Act) allows local governments to exact land dedications or fees in lieu for park purposes from new subdivisions. The law prescribes a standard consistent with the circumstances of each park district based on a minimum of 3 acres and a maximum of 5 acres per 1,000 residents. Sacramento County Department of Community Development oversees these requirements in the unincorporated area.

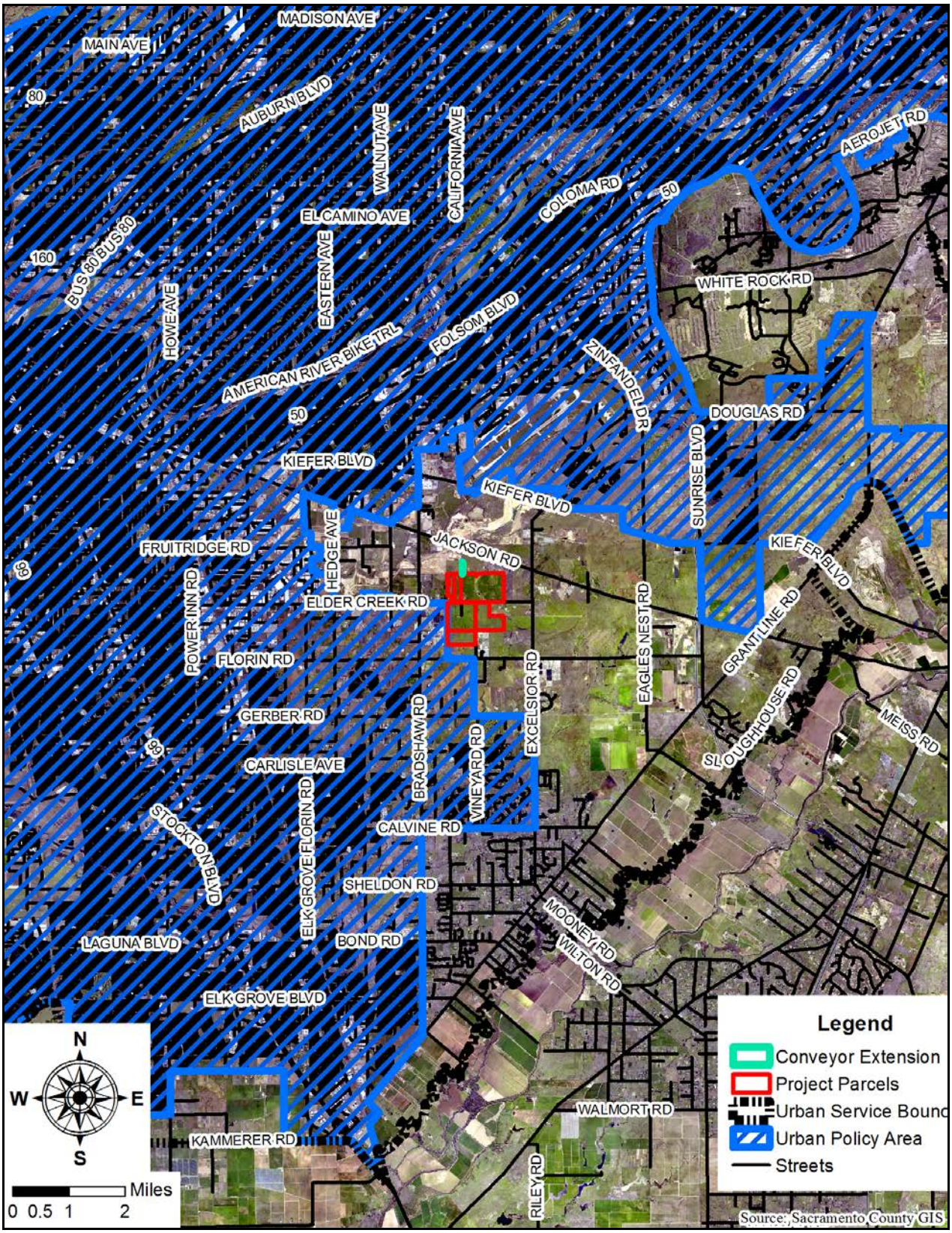
LOCAL REGULATIONS

SACRAMENTO COUNTY URBAN SERVICE BOUNDARY (USB) AND URBAN POLICY AREA (UPA)

The Urban Service Boundary (USB) (Plate PS-1) indicates the ultimate boundary of the urban area in the unincorporated County. This boundary is based upon jurisdictional, natural and environmental constraints to urban growth. It is intended to be a permanent growth boundary not subject to modification except under extraordinary circumstances. The Urban Service Boundary should be used by urban infrastructure providers for developing very long-range master plans that can be implemented over time as the urbanized area expands. It is anticipated that the Urban Service Boundary and construction schedules will be incorporated into master plans for the provision of public services and infrastructure to the urban area.

The Urban Policy Area (UPA) (Plate PS-1) defines the area within the Urban Service Boundary expected to receive urban levels of public infrastructure and services within the planning period. The General Plan states that the area within the Urban Policy Area must be able to accommodate growth projected for the 25-year planning period. If it cannot, the Urban Policy Area must be expanded to accommodate the anticipated growth. Defining the Urban Policy Area is of key importance in the provision of urban services and infrastructure to the unincorporated County, as it provides the geographic basis for infrastructure master plans, particularly for public water and sewerage, which require large capital investment and relatively long lead time for the installation of capital improvements.

Plate PS-1: Urban Service and Urban Policy Area Boundaries



The Urban Policy Area and the Urban Service Boundary are designed to promote maximum efficiency of land uses and protection of the County's natural resources. The Urban Service Boundary allows for the permanent preservation of agriculture and rangelands, critical habitat and natural resources, while the Urban Policy Area concentrates and directs growth within previously urbanized areas, limiting arbitrary and sprawling development patterns. These two growth boundaries work in tandem to manage and direct future development, as well as provide infrastructure and service providers with intermediate and ultimate growth boundaries to use to plan for future expansion.

Sacramento County Department of Waste Management and Recycling

The Sacramento County Department of Waste Management and Recycling (DWMR) is responsible for maintaining a waste management system for residents and businesses in the unincorporated areas of the County. The Department of Waste Management and Recycling has responsibility for residential refuse, recyclable material, and green waste collection, transfer, disposal, and recycling programs. The Department of Waste Management and Recycling also operates Kiefer landfill, the North Area Recovery Station, and the South Area Transfer Station. The Department of Waste Management and Recycling oversees the waste management collection and disposal services for approximately 155,000 residential customers every week. In 2014, the Department of Waste Management and Recycling collected and disposed/processed approximately 128,000 tons of trash, 70,000 tons of green waste, and 37,000 tons of recyclables.

Sacramento County Integrated Waste Management Plan

The County of Sacramento adopted the Sacramento County Integrated Waste Management Plan in March 1996, and it was approved by CalRecycle in May 1998. The plan was reviewed in 2013 as part of a mandatory 5-year review process by the Sacramento County Local Task Force. The Sacramento County Integrated Waste Management Plan was then re-approved by CalRecycle, in May of 2014. This plan consists of the following:

- Siting Element (entire county: cities and unincorporated areas)
- Summary Plan (entire county: cities and unincorporated areas)
- Source Reduction & Recycling Elements (by city or County, respectively)
- Household Hazardous Waste Elements (by city or County, respectively)
- Non-disposal Facility Elements (by city or County, respectively)

These documents are the main sources and references for solid waste facility planning in Sacramento County. The Siting Element and Summary Plan are prepared and administered by the County of Sacramento, Department of Waste Management &

Recycling. The remaining documents are prepared and administered by each individual jurisdiction or regional agency.

SACRAMENTO REGIONAL SOLID WASTE AUTHORITY

The Sacramento Regional Solid Waste Authority is a joint powers authority of Sacramento County and the City of Sacramento. The Solid Waste Authority was formed in December 1992 to assume the responsibility for solid waste, recycling, and disposal needs for businesses and apartment complexes in the Sacramento area. The Solid Waste Authority regulates commercial solid waste collection by franchised haulers and offers recycling services to multi-family dwelling units. The Solid Waste Authority is governed by a Board of Directors consisting of elected officials from the City of Sacramento and the unincorporated area of Sacramento County.

SOLID WASTE AUTHORITY ORDINANCES

The Solid Waste Authority has adopted three recycling ordinances that target three distinct waste streams: (1) The Business Recycling Ordinance, adopted in 2007 for commercial generators who subscribe to 4 cubic yards or more of refuse service per week; (2) The Certification of C&D [Construction and Demolition] Debris Sorting Facilities Ordinance, adopted in 2008, that creates a program for mixed C&D facilities that dovetails with both City and County C&D Ordinances for builders; and (3) The Multifamily Recycling Ordinance, adopted in 2009, that requires owners of multifamily properties with over 5 units to subscribe to a recycling service for their tenants.

LOCAL ENFORCEMENT AGENCY

Local enforcement agencies have the primary responsibility for ensuring the correct operation and closure of solid waste facilities in the state. They also have responsibilities for guaranteeing the proper storage and transportation of solid wastes. The Sacramento County Environmental Management Department (EMD) is authorized as the Local Enforcement Agency under Division 30 of the Public Resources Code and Title 14 of the California Code of Regulations (CCR).

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to public services that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-114:

> Protect stream corridors to enhance water quality, provide public amenities, maintain flood control objectives, preserve and enhance habitat, and offer recreational and educational opportunities.

CO-115:

> Provide setbacks along stream corridors and stream channels to protect riparian habitat functions (Plate PS-2).

- A functional setback of at least 100 feet and measured from the outside edge of the stream bank should be retained on each side of a stream corridor that prohibits development or agricultural activity. This buffer is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates that are known to degrade water quality. This buffer also provides for the protection of vegetation along the stream bank which provides bank stability, erosion control and flood attenuation.

- A transitional setback of at least 50 feet in width beyond the functional buffer should be retained along all stream corridors. This buffer is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. This buffer also provides corridors to facilitate the movement of wildlife.

- An extended setback of at least 50 feet in width beyond the transitional setback should be retained along all stream corridors. This setback will allow for recreational uses such as bike, pedestrian and/or equestrian trails and will allow for the placement of infrastructure such as water and sewer lines.

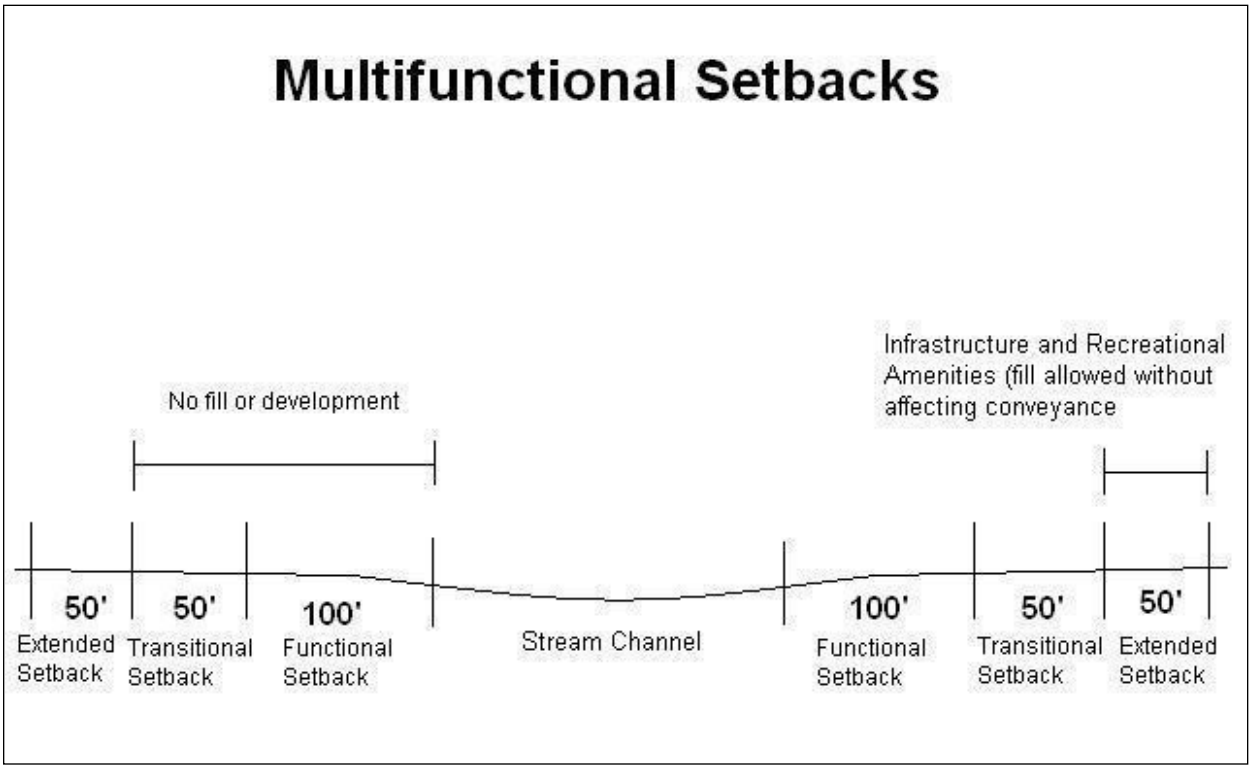
- Stormwater discharge ponds or other features used for improving stormwater quality may be located within the extended or transitional setback area. However, in order to protect stream habitat and floodplain value, the width of the setback shall not be based upon the width of the pollutant discharge pond. The ponds shall be landscaped and maintained with vegetation native to the surrounding area. Detention ponds or other features implementing pollutant discharge requirements, other than approved regional stormwater quality practices that are designed

and operated to complement the corridor functionally and aesthetically, are prohibited.

- Setback averaging within individual development projects or as otherwise specified in a County-adopted master plan will be permitted except when riparian woodland will be lost. The minimum width of setbacks cannot fall below 50 feet.

- Master drainage plans may provide for other standards that meet the intent of this policy.

Plate PS-2: Policy CO-115 Setback Diagram



OS-11:

Establish trail connections and linkages within the County and across jurisdictional boundaries that are compatible with existing land uses. These trail connections shall have the capability of being Class I trails (off-street, separated facilities) with grade separations wherever feasible.

OS-12:

The County shall seek to establish greenbelts to serve as habitat corridors and community separators. These shall be located:

- Between agricultural-residential communities within the unincorporated County; and
- Where feasible, between the unincorporated County and adjacent cities.

PF-120:

The County will work cooperatively with the local recreation and park districts to help assure that the provision of additional parks and recreation facilities keeps pace with urban growth within the County.

PF-121:

The County supports the adoption and implementation of Parks and Recreation Master Plans by local recreation and park districts to establish goals and policies for community-oriented parks and recreation facilities that are consistent with the goals and policies of this General Plan.

PF-122:

To help assure that local recreation and park district Master Plan standards for levels of service may be achieved and maintained, the County may require new development to dedicate land, pay in-lieu fees, development impact fees, or otherwise contribute a fair share to the acquisition and development of parks and recreation facilities. For development in infill areas where land dedication may not be practical, the County in cooperation with the affected park district may explore creative alternatives for providing park and recreation facilities.

CI-1:

Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.

CI-2:

Promote continued mobility for individuals whose access to automobile transportation is limited by age, illness, income, desire, or disability.

CI-3:

Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.

CI-4:

Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

CI-5:

Land use and transportation planning and development should be cohesive, mutually supportive, and complement the objective of reducing per capita vehicle miles travelled (VMT).

CI-6:

Provide support for community based corridor planning processes on existing roadways with excess vehicle capacity within built communities to optimize the public right-of-way by utilizing the excess width for other modes of travel or public amenities such as bike lanes, landscaping, walkways, parking, or medians.

CI-13:

Collaborate with regional transportation planning agencies and neighboring jurisdictions to provide cross jurisdictional mobility.

CI-32:

Develop a comprehensive, safe, convenient and accessible bicycle and pedestrian system that serves and connects the County's employment, commercial, recreational, educational, social services, housing and other transportation modes.

CI-33:

Adopt, implement and periodically update the Sacramento County Bicycle Master Plan for unincorporated Sacramento County that sets forth the goals, policies, guidelines, programs and improvements necessary to accomplish the goals of this section.

CI-34:

Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.

CI-35:

The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.

CI-36:

Collaborate with neighboring jurisdictions and regional agencies to coordinate planning and development of the County's bikeways, pedestrian facilities and multi-use trails with those of neighboring jurisdictions, and to support a regional bicycle and pedestrian network.

CI-37:

Pursue all available sources of funding for the development, improvement, and maintenance of bikeways, pedestrian facilities and multi-use trails, and to support bicycle and pedestrian safety, education, encouragement and enforcement programs.

CI-38:

Design and construct pedestrian facilities to ensure that such facilities are accessible to all users.

SOUTHGATE RECREATION AND PARK DISTRICT

The project site is located in the Southgate Recreation and Park District (Southgate). The district serves 52 square miles and includes 47 parks, 6 community centers, two aquatic facilities, a golf course and many pathway and landscape corridors within the district boundary.

Southgate has reviewed the proposed project and has provided comments. They requested analysis to determine how the proposed project conforms to the above General Plan polices, the Sacramento County Bicycle Master Plan, and the Sacramento Area Council of Government’s Regional Bicycle, Pedestrian and Trails Mater Plan.

The Sacramento County Bicycle Master Plan is intended to guide and influence bikeway policies, programs, and development standards to make bicycling in Sacramento County more safe, comfortable, convenient and enjoyable for all bicyclists.

The ultimate goal is to increase the number of people who bicycle in Sacramento County for transportation to work, school, errands, and for recreation.

The Sacramento Area Council of Governments Regional Bicycle, Pedestrian and Trails Mater Plan envisions a complete transportation system that supports healthy living and active communities where bicycling and walking are viable and popular travel choices in a comprehensive, safe, and convenient network.

Currently, Southgate is acquiring means to construct the Elder Creek multi-use trail which is shown on Plate PS-3, downstream of the project site and wishes to have connectivity through the project site. The proposed project offers the opportunity to create, through General Plan Polices, another important interconnected section of the multi-use trial. Southgate has provided a trail standards document that depicts the details of the trail system; the Southgate Trail Standards dated January 13, 2015 and is included in appendix PS-1 Trail Standards. The applicant and Southgate have collaborated on the placement of the multi-use trial easement on the project site. The Southgate multi-use trail easement is depicted on Aspen VIII (Plate PS-5), Aspen VIII multi-use trail details (Plate PS-6), Aspen IX (Plate PS-7), and Aspen IX multi-use trail details (Plate PS-7).

Plate PS-3: Southgate Trails

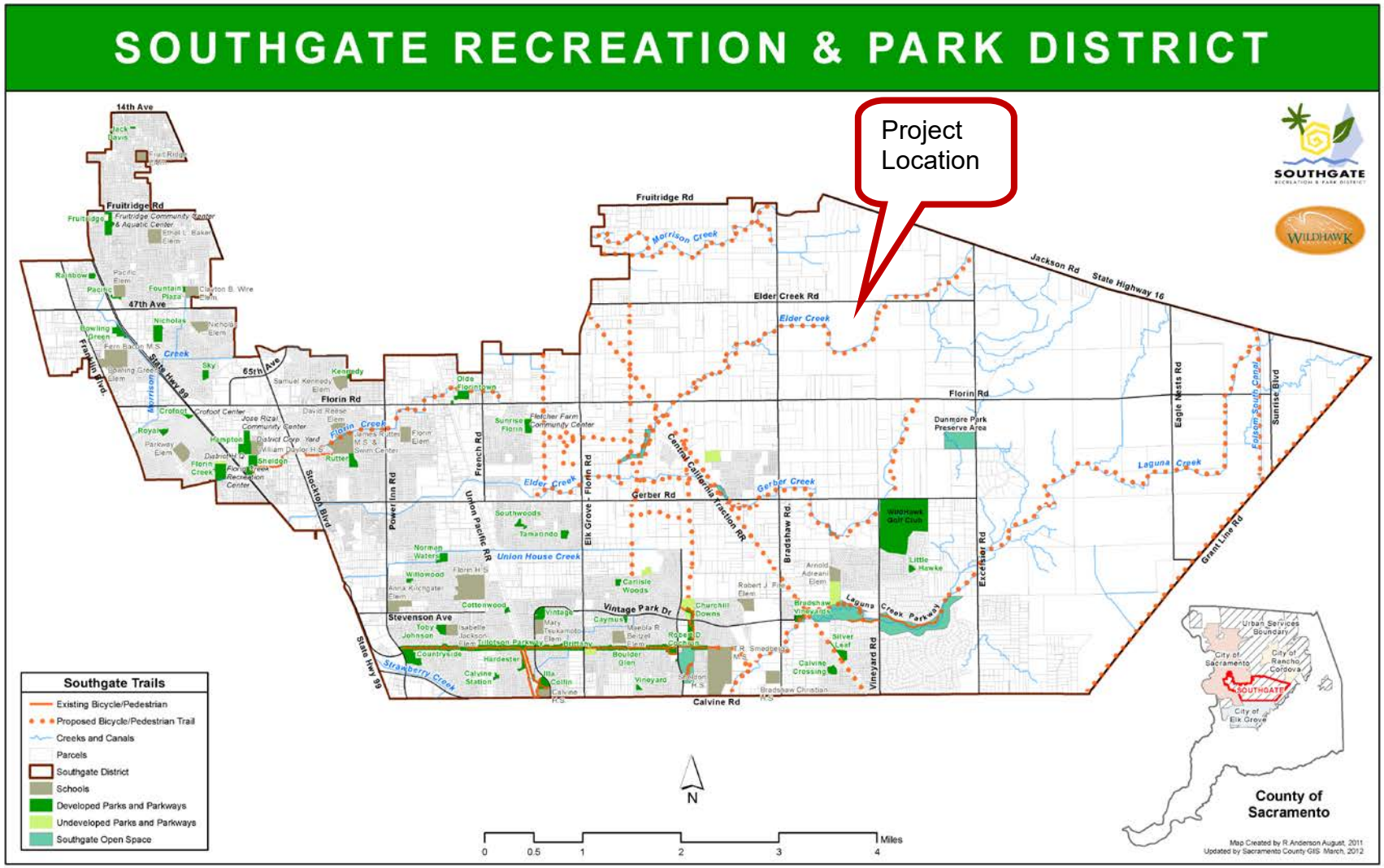


Plate PS-4: Aspen VIII

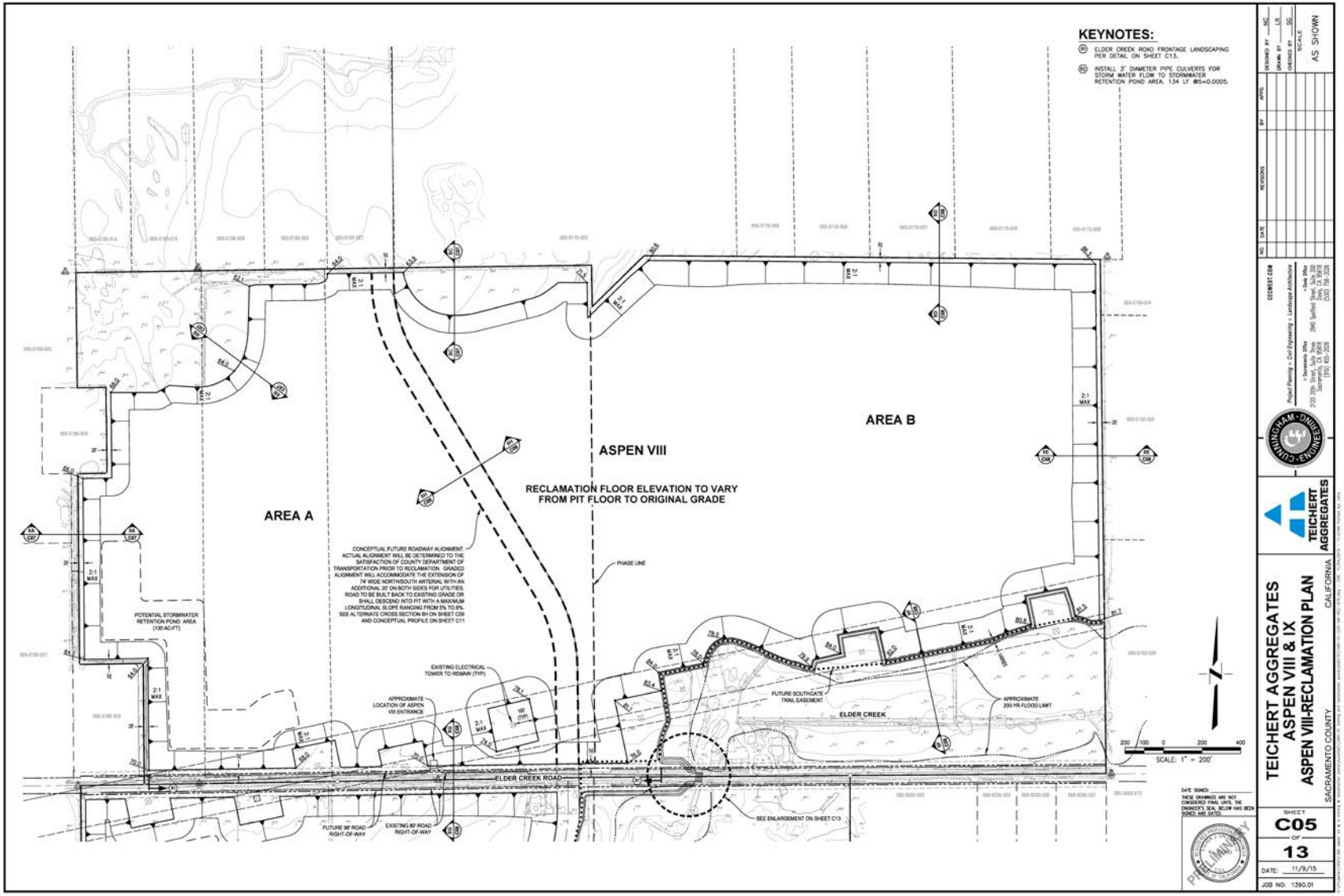


Plate PS-5: Aspen VIII Multi-Use Trail Details

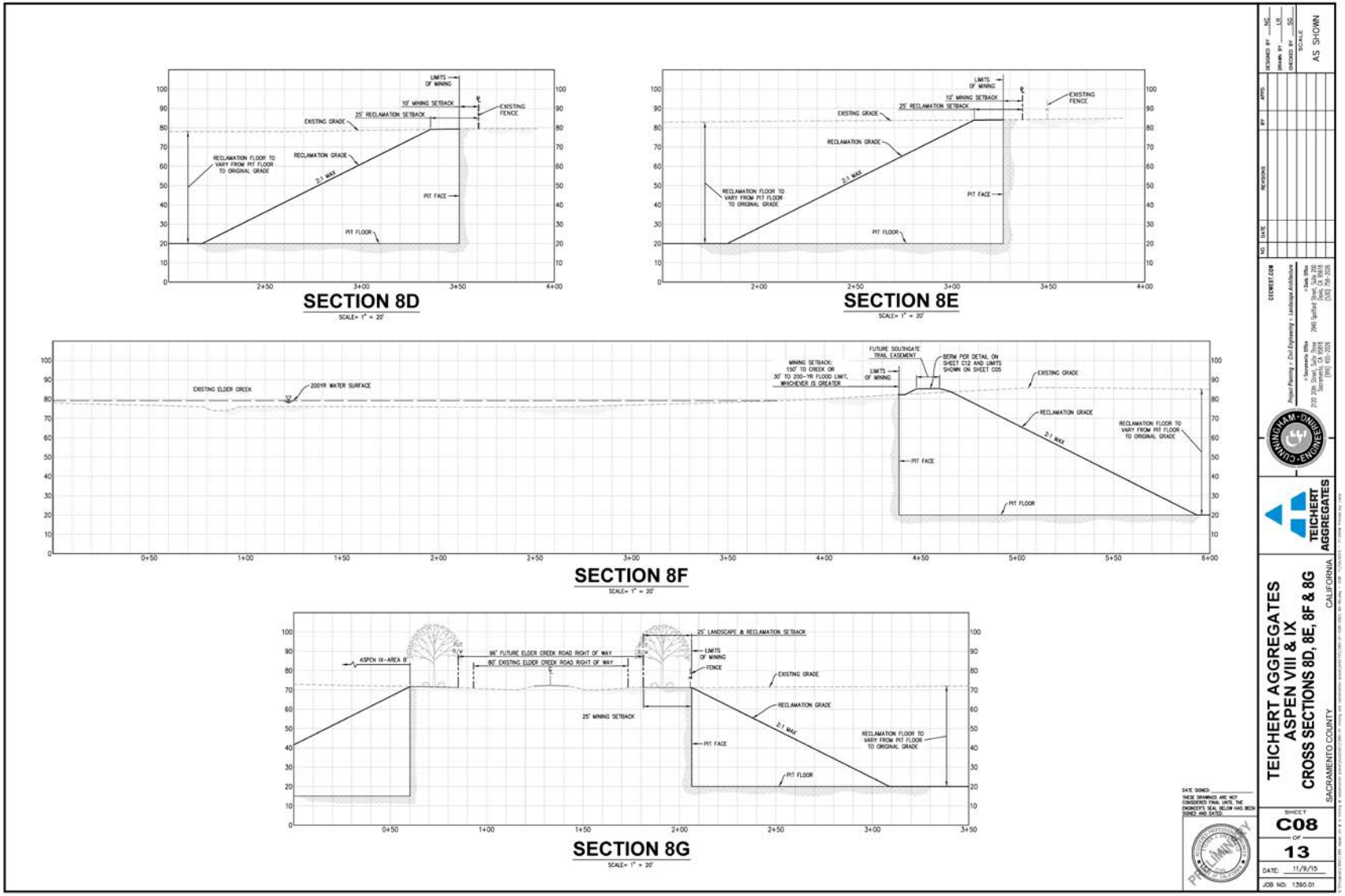


Plate PS-6: Aspen IX

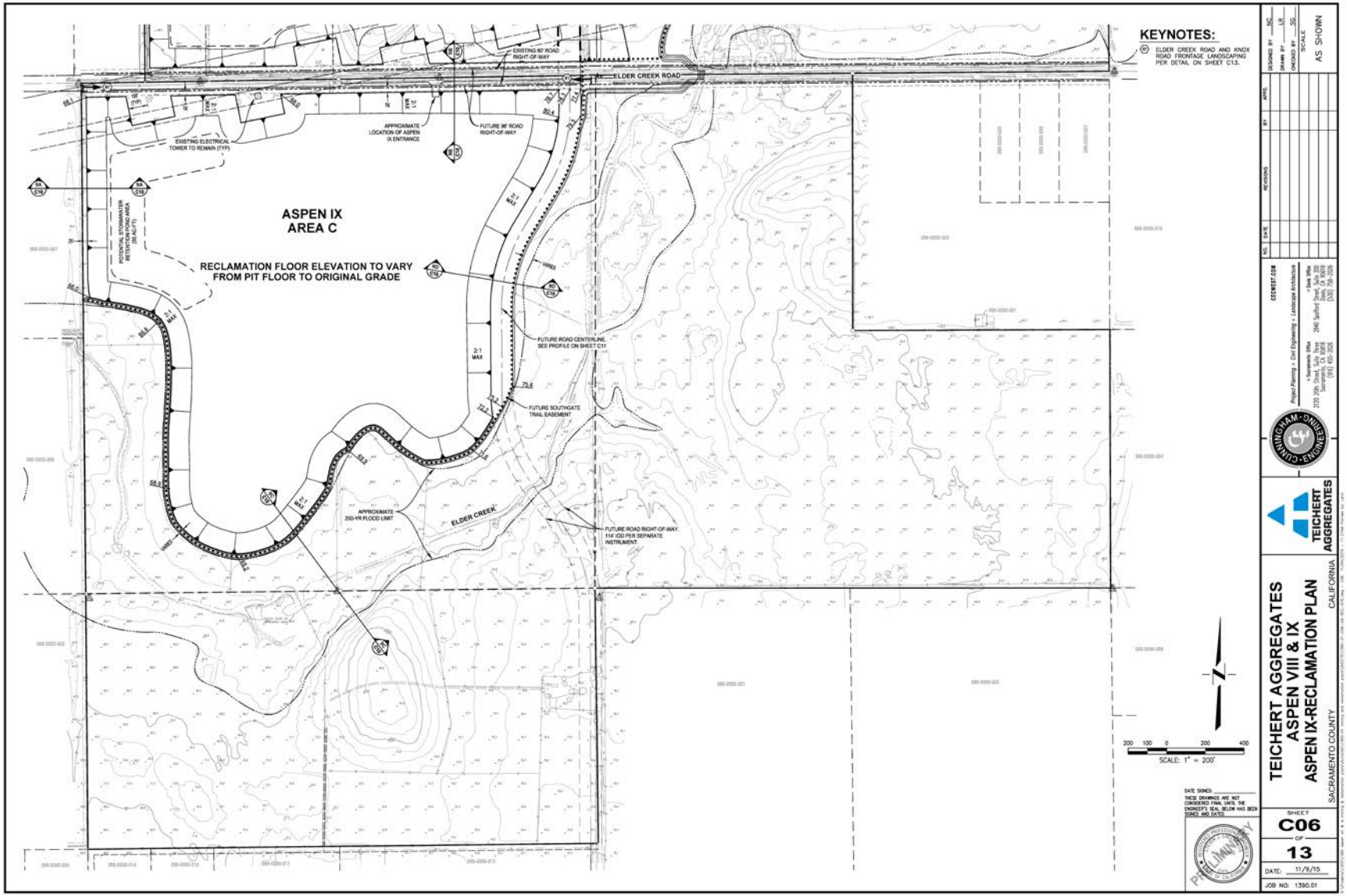
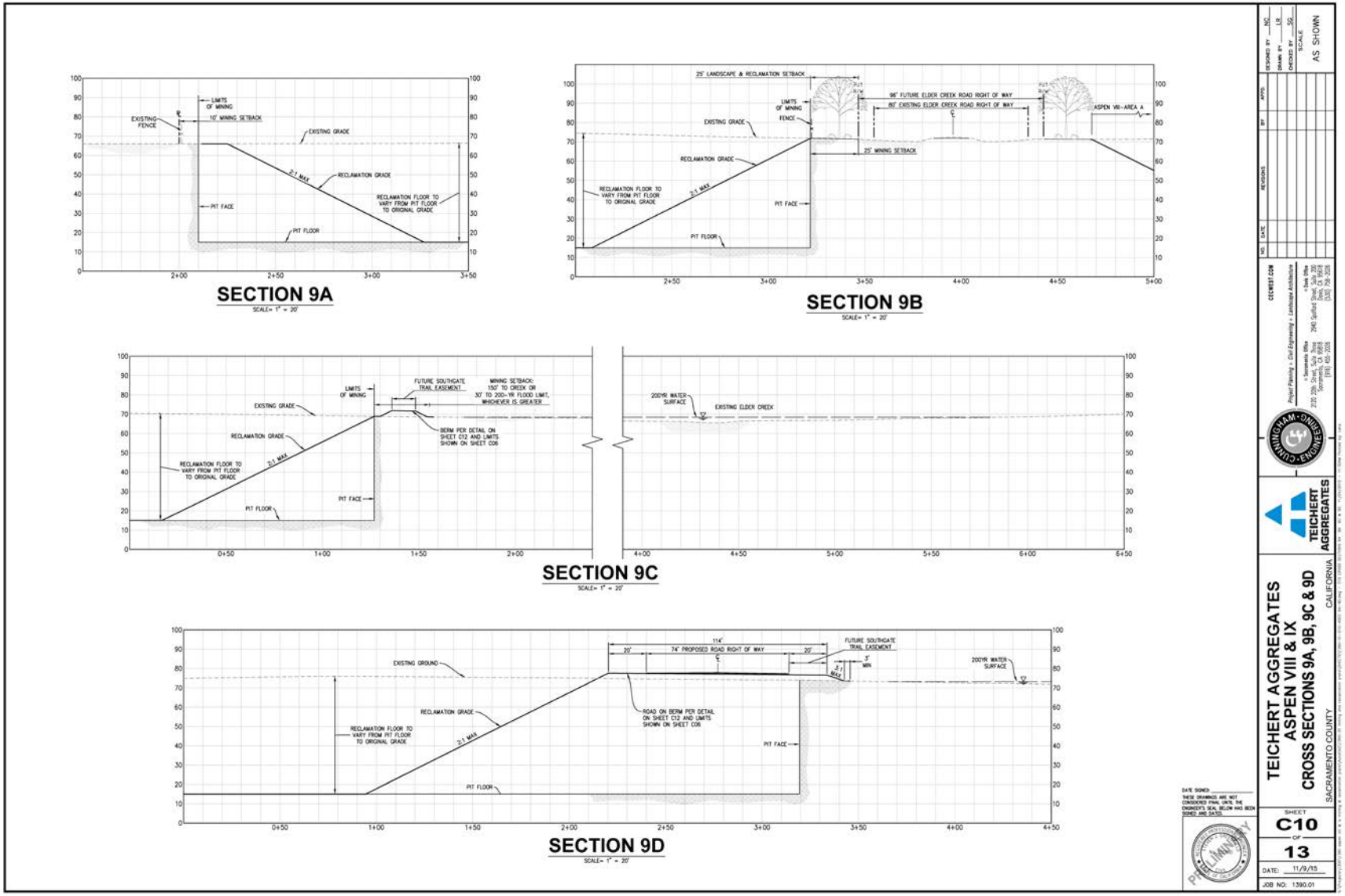


Plate PS-7: Aspen IX Multi-Use Trail Details



ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community and the majority of the project site is currently used as irrigated pasture and rangeland for livestock.

The project site includes three residences that utilize septic tanks for their sewer wastewater and use on-site wells for their domestic water service as well as farm irrigation. The residence located at 10151 Elder Creek Road (063-0160-001) will remain after project implementation while the other two residences will be removed. The residences are also supplied with electrical power via overhead power lines; the existing electrical service is provided by the Sacramento Municipal Utility District (SMUD). The project site is provided with emergency services through the Sacramento Metropolitan Fire District. Southgate Recreation and Park District (Southgate) provides park services for the project area and lastly Environmental Management District (EMD) has jurisdiction over the on-site wells, septic systems and hazardous materials/wastes.

The project site is located within the Urban Service Boundary (USB) but outside the Urban Policy Area (UPA). Moreover, the project site is within active service area of a variety of public utilities and services districts. Service providers were provided an opportunity to review and comment on the proposed project through the Notice of Preparation (NOP) process and through application distribution by Department of Community Development, Planning and Environmental Review Division. The following agencies commented on the proposed project:

- Sacramento Metropolitan Fire District (letter dated January 12, 2015)
- Southgate Recreation and Park District (letter dated May 6, 2015)
- Sacramento Area Sewer District (letter dated January 20, 2015)
- Environmental Management District (EMD) (letter dated January 22, 2015)

FIRE PROTECTION

The project is serviced by the Sacramento Metropolitan Fire District. Staff (M. Olcese) submitted a letter stating that the Fire District does not have any comments or recommendations for conditions of approval for the project.

PARKS AND RECREATION

The project site is located within the Southgate Recreation and Park District (Southgate) service area. Staff (V. King) reviewed the proposed project and submitted comments and conditions of approval for the project. Southgate commented that the District is acquiring means to construct the Elder Creek multi-use trail downstream of the project site. Furthermore, the District requested analysis to demonstrate how the project fulfills the pertinent General Plan policies. The applicant and Southgate collaborated on the placement of the multi-use trail easement within the project site using the General plan polices as a guideline. Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7 show the multi-use trail easement on the project site along with details indicting the width of the easement for the multi-use trail.

SOLID WASTE SERVICE

The project is within the Sacramento Area Sewer District (SASD). Staff (S. Moore) submitted a letter stating that since the project does not involve any additional sewer facilities being constructed or existing facilities being altered; the District has no additional comments or conditions for the project.

ENVIRONMENTAL MANAGEMENT

Sacramento County Environmental Management Department (EMD) regulates the on-site wells, septic tanks, as well as hazardous materials/wastes. Staff (C. Hunley) submitted a letter with comments to preform abandoned well surveys and conditions pertaining to the on-site wells and hazardous materials/waste.

ENERGY SERVICES

Existing electrical service is provided from the Sacramento Municipal Utility District (SMUD). No comment letter has been received to date from SMUD.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Public Services the proposed project would have a significant impact if it:

PS-1: Does not have an adequate water supply for full buildout of the project; or

PS-2: Does not have adequate wastewater treatment and disposal facilities for full buildout of the project; or

PS-3: Is not served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or

PS-4: Results in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities; or

PS-5: Results in substantial adverse physical impacts associated with the provision of storm water drainage facilities; or

PS-6 Results in substantial adverse physical impacts associated with the provisions of electric or natural gas service; or

PS-7 Results in substantial adverse physical impacts associated with the provision of emergency services; or

PS-8 Results in substantial adverse physical impacts associated with the provisions of public school services; or

PS-9 Interferes with adopted plans or results in substantial adverse physical impacts associated with the provision of park and recreation services.

IMPACTS AND ANALYSIS

Impact Evaluation PS-1: Does the project have an adequate water supply for full buildout of the project?

The project will not result in an increase demand for water supply at build out because the end use of the mine is open space grassland. The temporary use of water for dust suppression will be insignificant and is countered by the temporary stop in irrigated agriculture on the project site. The proposed project will utilize water from the on-site

wells for the water needs. Therefore, the proposed project will have an adequate water supply.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-2: Does the project have adequate wastewater treatment and disposal facilities for full buildout of the project?

The proposed project is a surface mining facility. The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities that are commonly referred to as port-o-potties. Furthermore, the current project site utilizes septic tanks and not the County sewer system. Therefore, the project will not require additional wastewater services and will have adequate facilities.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-3: Will the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030. Furthermore, the project will not generate substantial amounts of waste to the landfill. Therefore, the project will not exhaust the capacity of the Kiefer Landfill.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-4: Does the project result in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities?

The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Additionally, the Sacramento Area Sewer District has reviewed the proposed project and determined the project does not impact future sewer projects.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-5: Does the project result in substantial adverse physical impacts associated with the provision of stormwater drainage facilities?

The implementation of the proposed project will add new stormwater facilities to the project site. The new facilities are discussed in greater detail in the Hydrology and Airport Compatibility chapters. The applicant is proposing to construct stormwater ~~detention ponds~~ ***retention basins*** to serve as on-site stormwater detention basins for the mining pits. The stormwater ***retention*** ~~detention~~ basins will be approximately 14.2

acres in size and at least one stormwater ***retention*** ~~detention~~ basin will be at each of the proposed mine pits. They will be designed to provide minimum surface area and have steep-sides that will discourage wildlife use and shoreline vegetation growth (see the Airport Compatibility chapter for additional details). The facilities are expected to adequately handle the drainage needs of the project without resulting in substantial adverse physical impacts. Therefore, there are no substantial adverse physical impacts associated with the provision of stormwater drainage facilities.

> Note: Larger culverts will be installed under Elder Creek Road as part of the project. The discussion about the culvert impacts are in the Hydrology chapter of this EIR.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-6: Does the project result in substantial adverse physical impacts associated with the provisions of electric or natural gas service?

Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project, two of the homes will be removed. The applicant is proposing to use temporary structures for an office/employee trailer, security trailer, and an electric conveyor system. The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system. This will not result in an adverse physical impact because the project will not require the addition of substantial electrical power infrastructure at the site. In other words, the project does not require any new construction to the public electrical or natural gas infrastructure but instead may construct a minor extension to serve the mine's electrical needs. Therefore, there are no substantial adverse physical impacts associated with the electric or natural gas service.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-7: Does the project result in substantial adverse physical impacts associated with the provision of emergency services?

The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation PS-8: Does the project result in substantial adverse physical impacts associated with the provisions of public school services?

The project will not require the use of public school services.

Level of Significance: Less than Significant – No Mitigation Required

Impact EvaluationPS-9: Does the project interfere with adopted plans or result in substantial adverse physical impacts associated with the provision of park and recreation services?

The proposed project site is in the Southgate Recreation and Park District (Southgate). The Southgate master trails plan includes a multi-use trail located on the project parcels along Elder Creek. Plate PS-3 shows the proposed multi-use trail in red dots running adjacent to Elder Creek through the project site. The proposed project will excavate two large mining pits at the project site which could severely limit Southgate's ability to place an at-grade trail in a location consistent with the master trails plan.

Southgate has reviewed the proposed project and provided comments. Southgate has requested the multi-use trail be added to the project site plans in order for the project to comply with General Plan polices in regards to trails. Applicable standards for multi-use trails are contained in the Southgate Recreation and Park District, Trail Standards (Appendix PS-1 Trail Standards) and include an easement width of 20 feet, a compacted base rock foundation and paved surface. The grade and slopes of the multi-use trail easement should also be designed to provide for the safe use and safe entry and exit by the public.

Additionally, the Southgate guidelines and General Plan policy CO-115 require setbacks from the stream channel (Elder Creek) to the multi-use trail easement to have a functional setback of 100 feet, a transitional setback of 150 feet, and extended setback of 200 feet. The functional setback of 100 is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates. This buffer also provides for protection of the vegetation along the stream bank which provides bank stability erosion control and flood attenuation. The transitional setback is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. The transitional setback also provides corridors to facilitate the movement of wildlife. Finally the extended setback will allow for recreational uses such as bike/pedestrian (multi-use trail) and/or equestrian trail and will allow for the placement of infrastructure such as water and sewer lines.

The project as proposed includes a 20-foot wide at-grade easement for a future multi-use trail adjacent to the mine boundary and Elder Creek. The proposed trail location is generally consistent with the trail location shown on the Southgate master trails plan. The proposed multi-use trail will be set back from the channel (Elder Creek) by at least 200 feet, consistent with General Plan Policy CO-115. However, the project proposes only a 12-foot wide section of compacted base rock, rather than the 20 feet width specified in Southgate's Trail Standards.

In summary, the excavation of mining pits at the site could preclude Southgate's ability to provide a planned multi-use trail for the area. This impact is considered potentially significant. Although a trail easement is already proposed as part of the project's

reclamation plans, mitigation is recommended to ensure that the easement is in place prior to any on-site excavation and that the area within the easement is structurally appropriate for future trail use after reclamation of the site. With mitigation the impacts are reduced to less than significant.

Level of Significance Before Mitigation: Potentially Significant

PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure

A. ***Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant intends to fully comply with mitigation measure B and C below to the satisfaction of Sacramento County Department of Community Development.***

B. ~~A.~~ Prior to ~~issuance of Work Authorization Permit~~ ***sign-off of the reclamation plan*****,** the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District.

C. ~~B~~. Prior to signoff of the reclamation plan the applicant shall ~~install a~~ ***improve the trail easement area by constructing a trail surface*** 20-foot wide**,** ***which will include a 12-foot wide section of*** suitably compacted base rock foundation for the multi-use trail along Elder Creek, ~~the grade and slopes of which shall be designed to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be~~ to the satisfaction of Southgate Recreation and Park District**;** ***it is anticipated that the trail easement should be consistent with Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7*****.**

Level of Significance After Mitigation: Less than Significant

9 TRANSPORTATION AND TRAFFIC

REGULATORY CONTEXT

STATE PLANS, POLICIES, REGULATIONS AND LAWS

The *Guide for the Preparation of Traffic Impact Studies* from the California Department of Transportation (Caltrans) identifies circumstances under which Caltrans believes that a traffic impact study would be required, information that Caltrans believes should be included in the study, analysis, scenarios, and guidance on acceptable analysis methodologies.

If a traffic study is warranted then the roadway operating conditions are needed for the traffic study. Determination of the roadway operating conditions is based on comparison of traffic volumes to roadway capacity. Levels of service (LOS) describe roadway operation conditions. Level of service is a qualitative measure of traffic operating conditions, whereby a letter grade from A to F is assigned with A being the best and F being the worst. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions.

In addition to the guidelines, Caltrans prepares Transportation Concept Reports (TCRs) for each of its facilities. A Transportation Concept Report is a long-term planning document that each Caltrans district prepares for every State highway or portion thereof in its jurisdiction. This document usually represents the first step in Caltrans' long-range corridor planning process. The purpose of a Transportation Concept Report is to determine how a highway will be developed and managed so that it delivers the targeted level of service (LOS) and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept". In addition to the 20-year route concept level, the Transportation Concept Report includes an "ultimate concept", which is the ultimate goal for the route beyond the 20-year planning horizon. Ultimate concepts must be used cautiously, however, because unforeseen changes in land use and other variables make forecasting beyond 20 years difficult.

The standards for Caltrans' facilities in the study area are detailed in the U.S. 50 Corridor System Management Plan and the U.S. 50 Transportation Concept Report. The U.S. 50 Corridor System Management Plan documents the existing route conditions and future needs, including existing and forecasted travel data and a concept level of service standard, addressing mobility needs over the next 20 years. The U.S. 50 Corridor System Management Plan contains the 20-year improvement concept for U.S. 50 and forecasted LOS. For the segment of U.S.

50 within the study area (Folsom Boulevard to Sacramento/El Dorado County Line), the ultimate facility concept is a ten lane freeway with four mainline lanes and one high occupancy vehicle (HOV) lane in each direction. According to this document, the concept service level for this facility is LOS F because improvements necessary to achieve LOS E are not considered feasible due to environmental, right-of-way, financial, and other constraints.

Caltrans considers project traffic increases that cause the freeway level of service to deteriorate beyond the level of service threshold defined in the Transportation Concept Report for the facility to be a significant impact. Since the Transportation Concept Report concept level of service is F, an impact will be considered if the project worsens this condition.

Regional and Local Plans, Policies, Regulations and Laws

Metropolitan Transportation Plan for 2036

The Metropolitan Transportation Plan (MTP) is a long range planning document for identifying and programming roadway improvements throughout the Sacramento region. The current MTP is the 2016 Metropolitan Transportation Plan/Sustainable Communities-Strategy (MTP/SCS) which was adopted by the Sacramento Area Council of Governments (SACOG) in February 2016. The 2016 MTP/SCS, prepared in coordination with cities, counties, and other public agencies in the SACOG region, is a long-range transportation plan and sustainable communities strategy to serve existing and projected residents and workers within the Sacramento region through the year 2036. The 2016 MTP/SCS accommodates another 811,000 residents, 439,000 new jobs, and 285,000 new homes with a transportation investment strategy of $35 billion. SACOG is required under federal and state law to update the MTP/SCS every four years. The 2016 MTP/SCS is an update to the first MTP/SCS adopted by SACOG in 2012, and focuses on the refinement and implementation of the 2012 plan. The 2016 MTP/SCS and the associated EIR cover the area within the counties of Sacramento, Yolo, Yuba, Sutter, Placer and El Dorado (excluding the Lake Tahoe basin).

Sacramento County Department of Transportation

The Sacramento County Department of Transportation's (SacDOT) Traffic Impact Guidelines (July 2004) define the significance thresholds for traffic and circulation impacts in the County. Sacramento County defines the minimum acceptable operation level for its roadways and intersections to be LOS D for rural areas and LOS E for urban areas. The urban areas are those areas within the Urban Service Boundary (USB) as shown in the Land Use Element of the County General Plan. The areas outside the USB are considered rural.

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to Traffic/Transportation that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CI-8:

> Maintain and rehabilitate the roadway system to maximize safety, mobility, and cost efficiency.

CI-9:

> Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

CI-10:

> Land development projects shall be responsible to mitigate the project's adverse impacts to local and regional roadways.

Environmental Setting

Existing

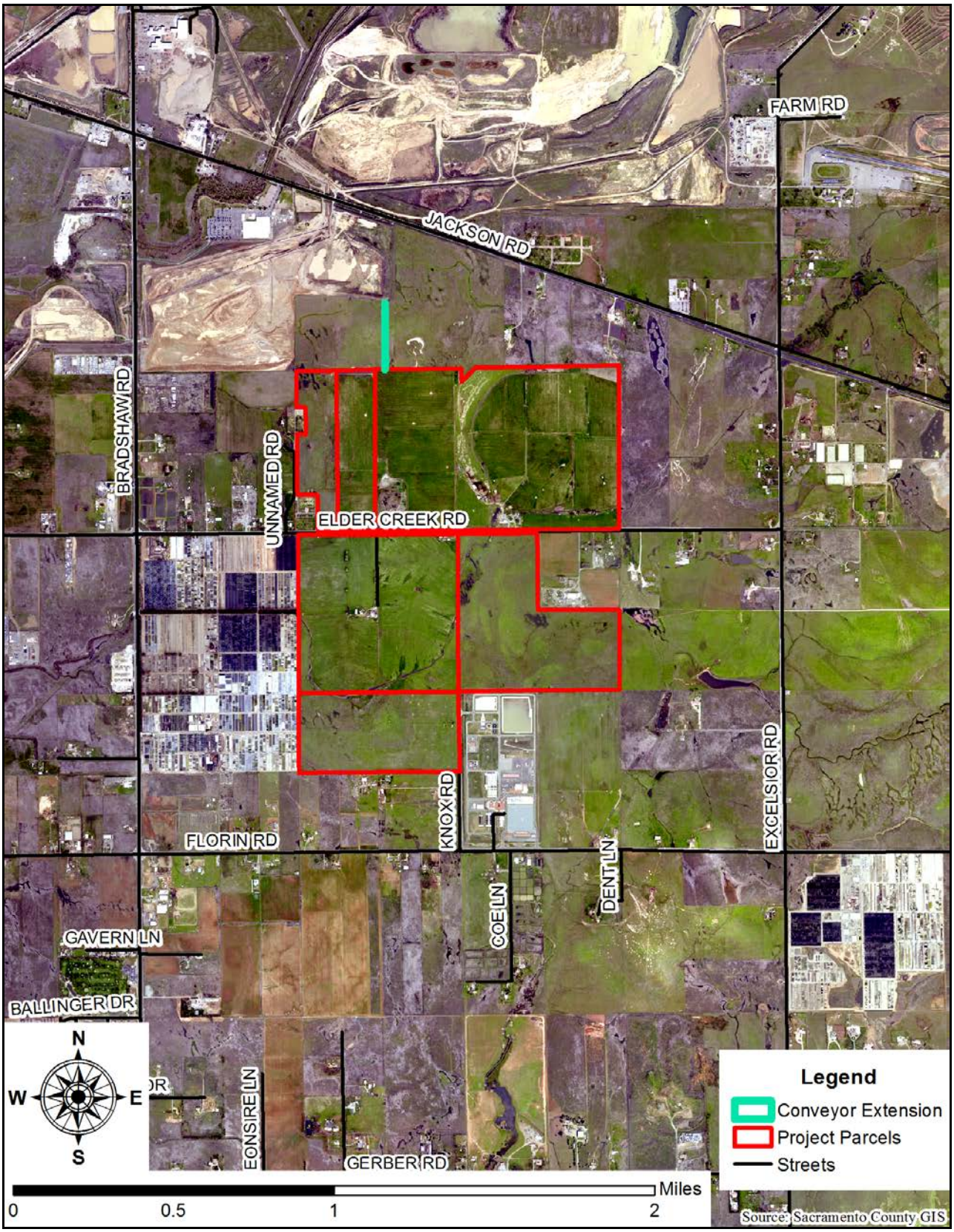
The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Road (State Route 16) and approximately one-half mile east of Bradshaw Road (Plate TT-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of

Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The applicant proposes using heavy duty haul-trucks to remove overburden material which is the top five to ten feet of topsoil/clay/silt that overlies the sand and gravel aggregate deposit from the site. The topsoil will be separated from the overburden and stockpiled for reclamation of the project site; the overburden will also be stockpiled at the site and on Aspen V South located directly north of proposed Aspen VIII. The overburden needs to be removed prior to extraction of aggregate material. The applicant anticipates a maximum of 500,000 cubic yards of overburden material to be transported off-site via haul-trucks. The overburden haul trucks will transport the overburden to the Aspen V South site located directly north of the Aspen VIII site. The overburden haul route is slightly less than a two mile round trip. Moreover, the overburden haul will not be conducted upon the County roadway system.

The mined aggregate material will be transported off-site via an electric conveyor system. Access to the site will be provided via entrance driveways located on Elder Creek Road. Both Aspen VIII and IX will each have an entrance driveway. Aspen VIII will have ~~a sinuous~~ ***an access*** driveway that ***includes a paved employee parking area and several design features that*** will aid in eliminating tracking out of mud and other materials onto the County roadway system. The applicant estimates that seven employees will be required for mining operations.

Plate TT-1: Location Map



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Transportation/Traffic the proposed project would have a significant impact if it:

TT-1: Results in substantial adverse impact due to inadequate parking capacity or;

TT-2: Conflicts with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks) or;

TT-3: Results in a substantial adverse impact to public safety on area roadways or;

TT-4 Results in a substantial increase in peak hour vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County or;

TT-5 Results in a substantial adverse impact to access and/or circulation.

IMPACTS AND ANALYSIS

Impact Evaluation TT-1: Does the project result in substantial adverse impacts due to inadequate parking capacity?

The project is a surface mining operation and no new parking facilities are required. There will be a limited number of mine employees and parking for employee vehicles may be near the temporary employee and security trailers. A purpose built permanent parking lot is not required for this project. The project is temporary and the nature of mining operations does necessitate the need for permanent parking facilities as the mining operation moves on the site. Some of the employee parking will move along with the mining operations. The site is over 600 acres in size and adequate parking should not be an issue for the small amount of employees (less than ten employees) commuting to the site. Therefore, the project impacts to inadequate parking capacity are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-2: Does the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?

There are no conflicts with adopted policies, plans, or programs supporting alternative transportation that have been identified. The project is not a development that attracts customers to the site. Only a limited number of employees (less than ten) will access the site on a daily basis. The proposed project does not need additional bus turnouts or bicycle racks. Furthermore, there are no conflicts with adopted polices supporting alternative transportation. Therefore, the projects impacts to adopted policies and plans supporting alternative transportation are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-3: Does the project result in a substantial adverse impact to public safety on area roadways?

The project will not substantially impact public safety on the roadway. There will be approximately ten employees who will commute to the site for employment. This small amount of increased employee traffic should not pose a safety threat on the public roads. The proposed project includes heavy equipment for excavating the site and haul trucks to remove the overburden. The aggregate materials will be removed from the site via an electric conveyor system. The heavy equipment may be brought to the site via public roads and the number of deliveries will be limited because the equipment will operate on the site for some time. In some cases, the heavy equipment will be transferred to the site via internal access roads from the neighboring mines and not on the public roadway. The overburden haul trucks will not operate upon the County roadway system to haul overburden. The overburden will be hauled to Aspen V South which is located directly north of proposed Aspen VIII site. The overburden haul route is less than two miles and will utilize internal access roads and not the public roadway. Therefore, the project will not result in a substantial adverse impact to public safety on area roadways; the impact is less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-4: Does the project result in a substantial increase in peak hour or daily vehicle trip-ends that could exceed, either individually or cumulatively, a level of service standard establish by the County?

In Sacramento County, the Level of Service standards are defined by Sacramento County General Plan Circulation Element Policy CI-9. According to this policy, an acceptable Level of Service is E on urban roadways. Level of Service (LOS) is a term that describes the operating performance of an intersection or roadway segment. LOS is reported on a scale from A to F, with A representing the best and F representing the worst performance. If a proposed

project would cause a roadway currently operating at an acceptable LOS to decline to an unacceptable LOS, impacts are significant. If a roadway is already operating at an unacceptable LOS and a project increases traffic by more than 5% (referred to as a volume-to-capacity increase of 0.05), then the impact is also significant.

Sacramento County Department of Transportation (SacDOT) has developed a screening methodology to help determine whether it is likely that a project will exceed these significance thresholds. The potential traffic generated by the proposed project is compared with the existing (developed or undeveloped) use and/or existing zoning. Zoning is typically used in this screening to approximate ultimate build-out in accordance with the General Plan, because ultimate roadway configurations are based on full build-out of the County in accordance with the existing General Plan. If a project would produce more traffic than existing zoning, ultimate General Plan roadway configurations may not be designed to accommodate the traffic.

The screening methodology indicates that if a proposed project is expected to increase PM peak hour vehicle trips by 100 or more, or daily trips by 1,000 or more, over existing use or existing zoning of the subject property, a detailed traffic study is required to further analyze impacts. Even if a project does not meet the screening thresholds, SacDOT may request a traffic study if there are localized traffic hazards or other system constraints. SacDOT staff has reviewed the project and provided comments and recommended conditions of approval for the staff report. The applicant anticipates ten employees will report to the project site for work. The new peak hour trips generated from ten employees will be less than 100, and therefore would not necessitate a traffic study. The amount of traffic generated by the ten employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips. Therefore, the project's impacts to peak hour trips or daily trip-ends are less than significant.

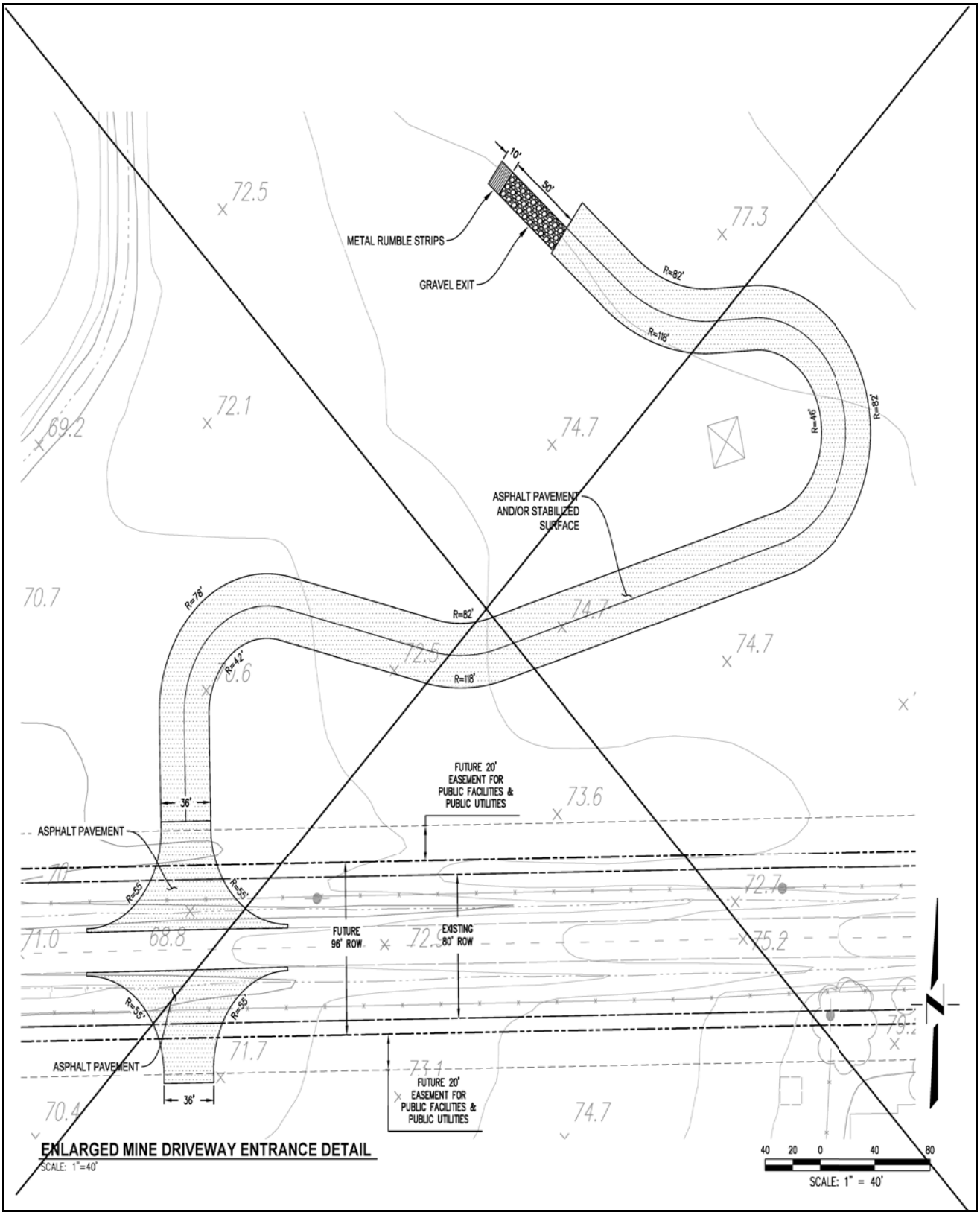
Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation TT-5: Does the project result in a substantial adverse impact to access and/or circulation?

Access

The applicant is proposing to construct access driveways on both Aspen VIII and IX from Elder Creek Road (Plate TT-2). Elder Creek Road carries relatively light traffic volumes of about 2,200 vehicles per day. The access driveways will be where employees gain entrance and egress to and from the project site. No overburden haul trucks will use the entrances to access the County roadway system to haul overburden, instead the overburden haul trucks will haul the overburden along internal access roads to the mine located directly north of Aspen VIII. This

P TT A Dr


10'
50'
METAL RUMBLE STRIPS
GRAVEL EXIT
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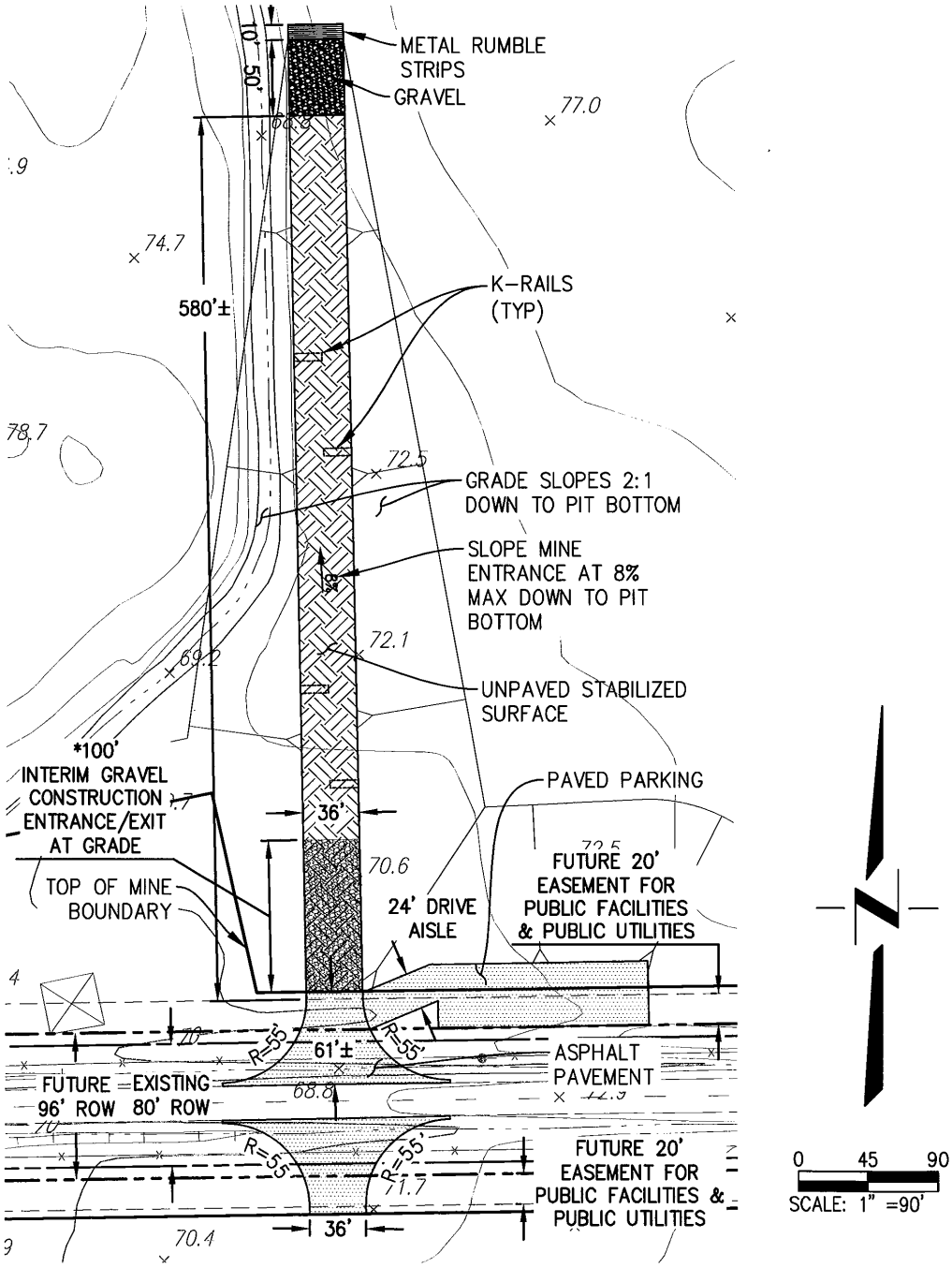
R=82'
ASPHALT PAVEMENT AND/OR STABILIZED SURFACE
R=78'
R=82'
R=42'
R=118'
36'
ASPHALT PAVEMENT
FUTURE 20' EASEMENT FOR PUBLIC FACILITIES & PUBLIC UTILITIES
R=55'
R=55'
FUTURE 96' ROW
EXISTING 80' ROW
R=55'
R=55'
ASPHALT PAVEMENT
36'
FUTURE 20' EASEMENT FOR PUBLIC FACILITIES & PUBLIC UTILITIES
ENLARGED MINE DRIVEWAY ENTRANCE DETAIL
SCALE: 1"=40'
40 20 0 40 80
SCALE: 1" = 40'

Plate TT-3: Access Driveways



ENLARGED MINE DRIVEWAY ENTRANCE DETAIL

* INTERIM GRAVEL CONSTRUCTION ENTRANCE/EXIT TO BE IN PLACE AT EXISTING GRADE UNTIL SUCH TIME THAT MINING REACHES PIT BOTTOM IN THIS PORTION OF ASPEN VIII

internal haul route is slightly less than a two mile round trip. Furthermore, no aggregate haul trucks will access the County roadway system via the access driveways because all the aggregate material will be conveyed via an electric conveyor system to an existing processing plant located off-site.

The proposed project will construct access driveways on both sides of Elder Creek Road. As stated above the access driveways will be used by the employees and to a limited extent the arrival of heavy equipment and other delivery's and supplies. These access driveways are not a substantial deviation to present circulation pattern.

Circulation

The Circulation Element of the Sacramento County General Plan includes a Transportation Plan – a planned network of major roadways to serve the County's needs throughout the General Plan planning period. Knox/Vineyard Road is shown on the County's Transportation Plan at the project site location. PlateTT-3 shows the County-wide Transportation Plan and Plate TT-4 shows a close up of the project area indicated by a green square and the future Knox/Vineyard Road shown as a blue dashed line going through the project area in a north/south direction. Knox/Vineyard Road is to be an arterial with four lanes and is proposed for post 2030. This future roadway will provide north/south circulation to the County's roadway system. The proposed project will excavate two large mining pits at the project site which could limit Sacramento County's ability to place the future roadway consistent with the County's Transportation Plan.

The project applicant has worked with the Sacramento County Department of Transportation (SacDOT) in placing the future roadway on their site plans in a manner intended to achieve a roadway that is safe for the public to use. On the Aspen IX portion of the project site the roadway will be at the current grade and located near the eastern edge of the mine pit. The road portion on Aspen VIII will either be located down in the pit below the current grade or the roadway will be elevated to near the existing grade. SacDOT will determine which configuration the final roadway will ultimately take. Moreover, the proposed Knox/Vineyard Road will extend in a northerly direction from the existing Knox Road located south of the Aspen IX portion of the project site at Florin Road. The Knox/Vineyard Road will traverse through Aspen IX and Aspen VIII and terminate at Jackson Road (Hwy 16); an intersection for the new roadway will be created where the new road crosses Elder Creek Road. Plate TT-6 shows Knox/Vineyard Road on the Aspen VIII portion of the project site; Plate TT-7 shows Knox/Vineyard Road on the Aspen IX portion of the project site. Finally, Plate TT-8 shows the details of the roadway.

PlateTT-4: Sacramento County Transportation Plan

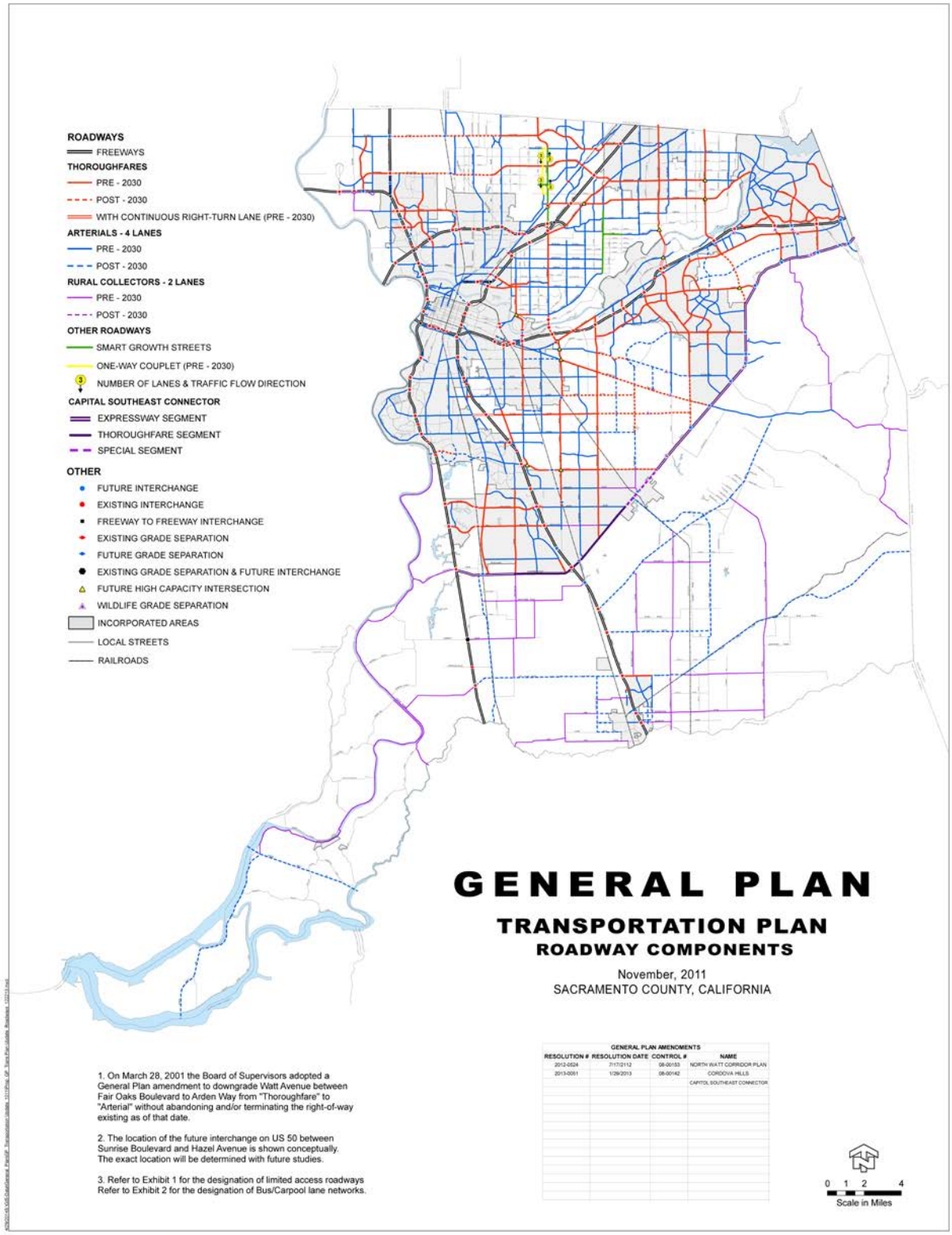
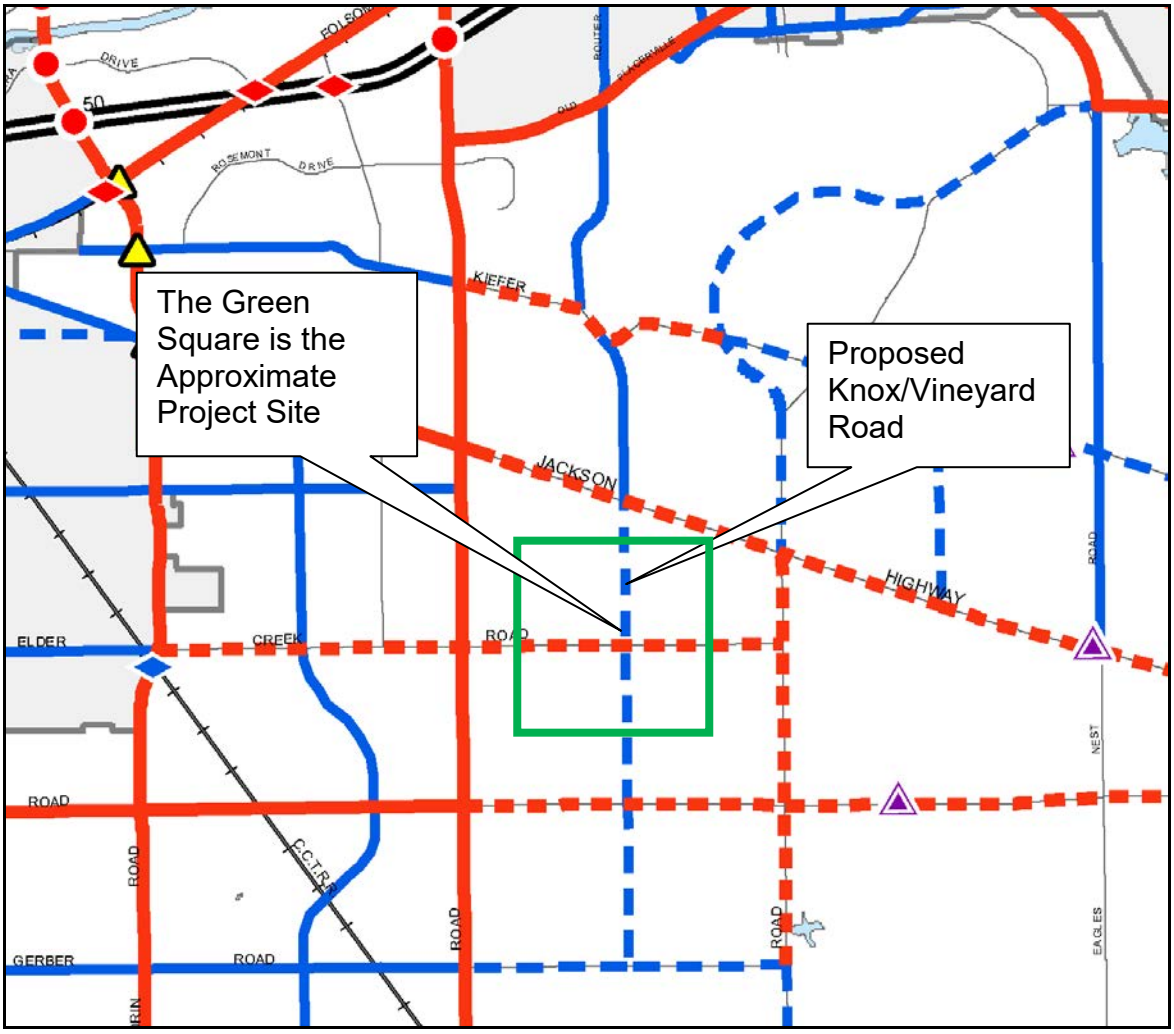


Plate TT-5: Sacramento County Transportation Plan Close-up of Project Area



The excavation of the site could pose issues with positioning the Knox/Vineyard Road on the project site. The large excavation could potentially alter the location of the future road on the site. The applicant has worked with SacDOT in the placement of the future roadway to achieve a roadway that is safe for the public to use. As mentioned above SacDOT has reviewed the project and worked with the applicant to place the new road.

SacDOT has recommended conditions that prior to approval of Improvement Plans or prior to Work Authorization Permit the applicant is required to make improvements to the access drives on both Aspen VIII and Aspen IX, to the upsized drainage culvert under Elder Creek Road, to modify Elder Creek Road based on a 96-foot standard thoroughfare, and to create 20 foot wide public utility easements on both sides of Elder Creek Road.

Plate TT-6: Knox/Vineyard Road Alignment

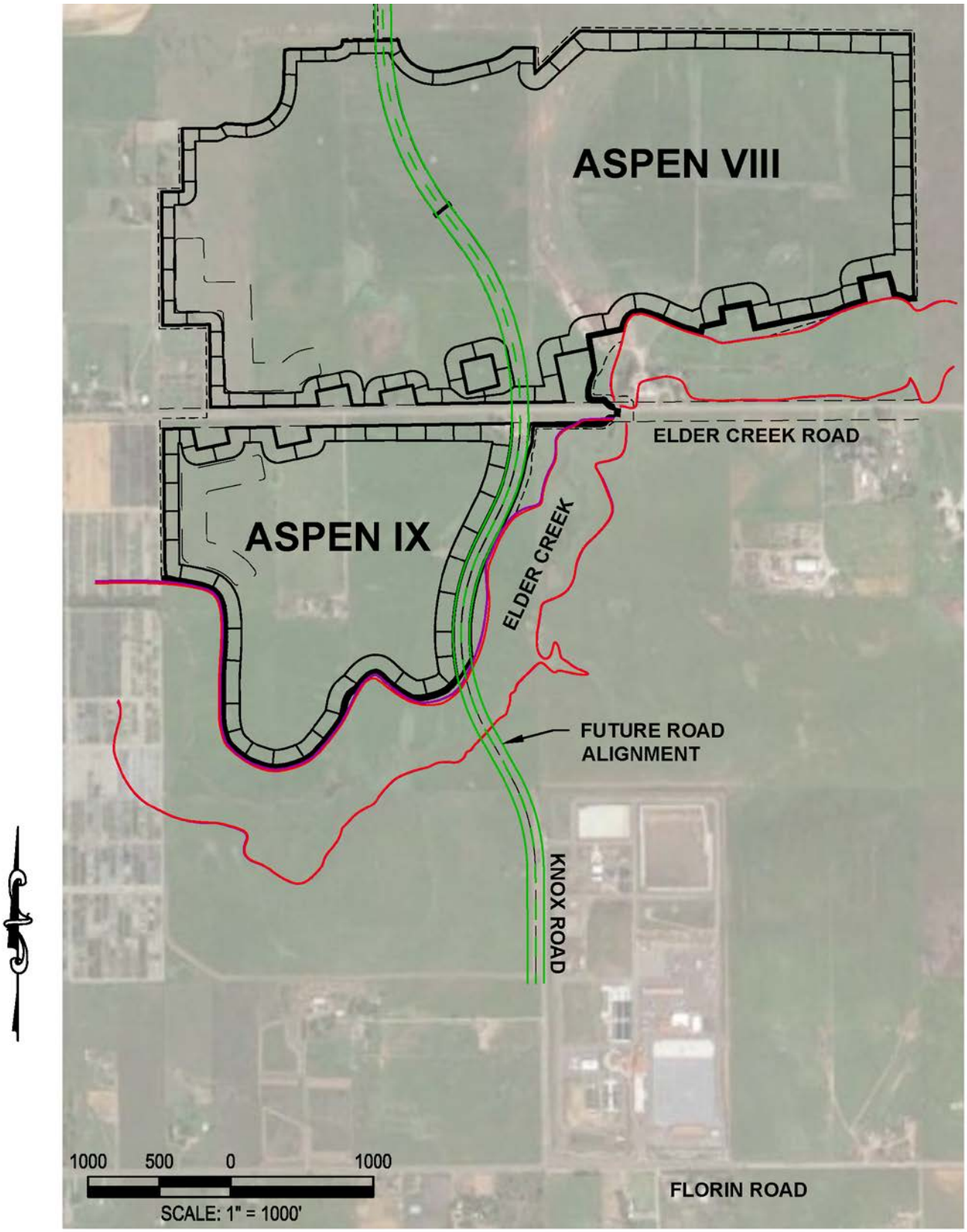


Plate TT-7: Knox/Vineyard Road on Aspen VIII

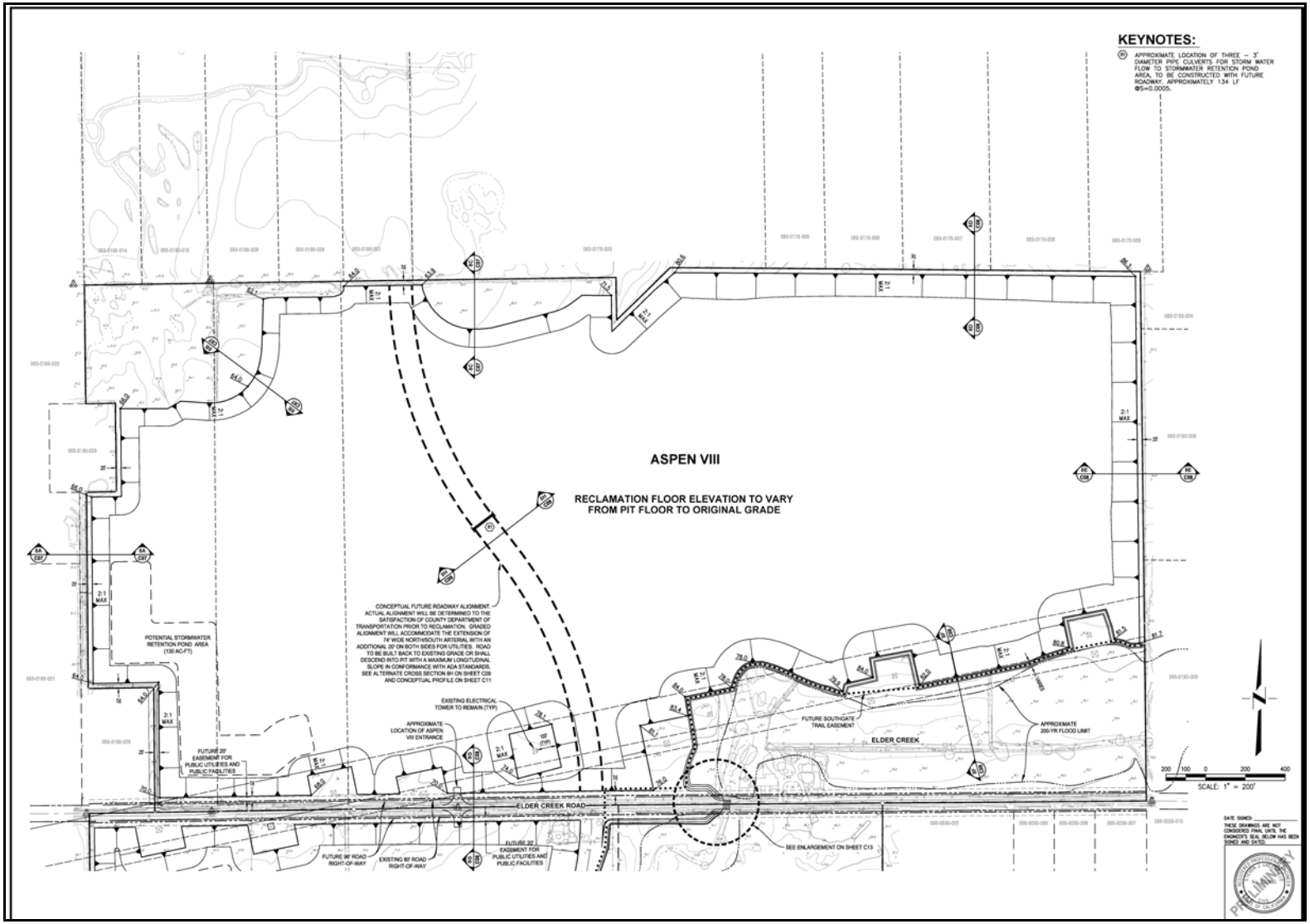


Plate TT-8: Knox/Vineyard Road on Aspen IX

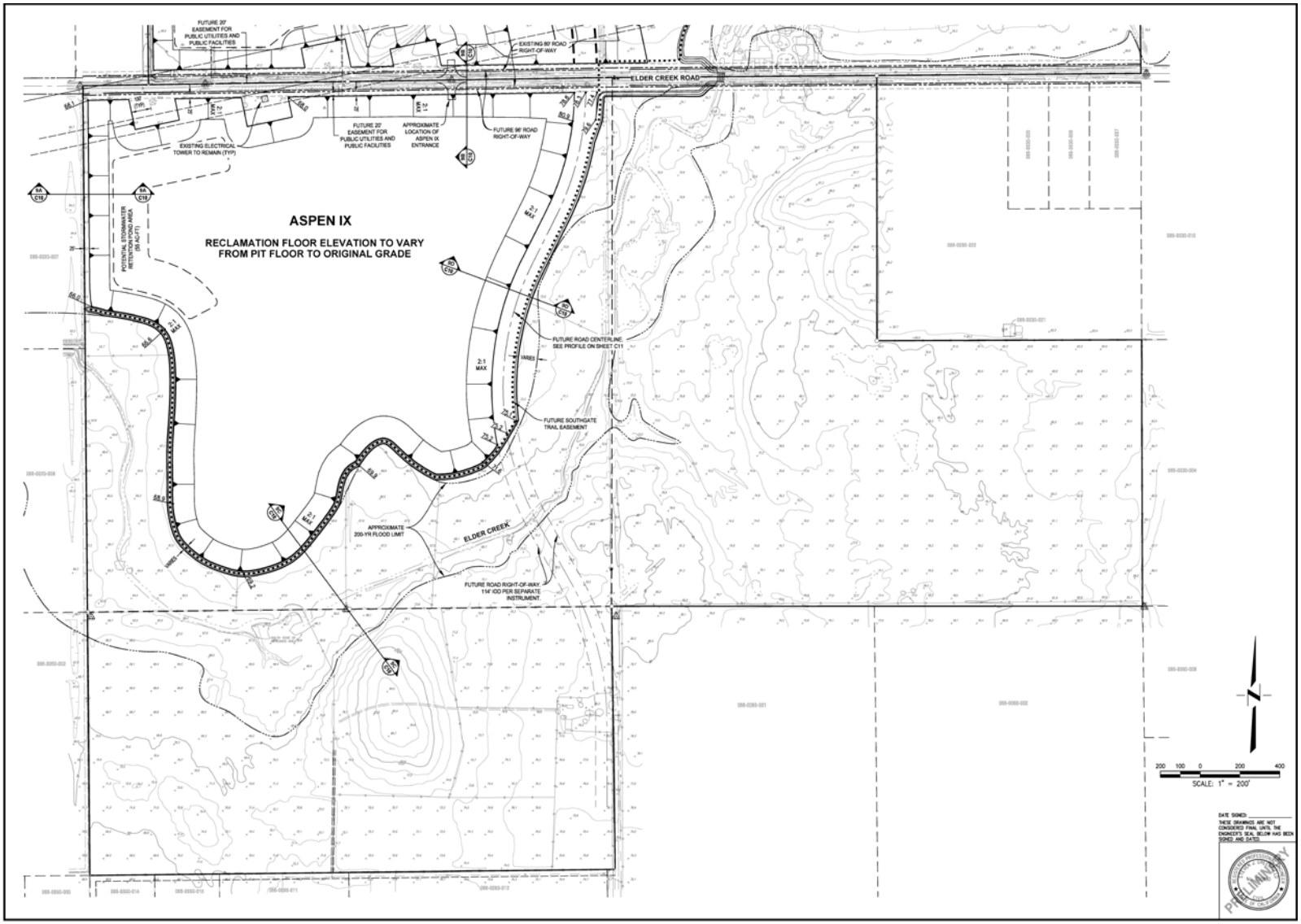
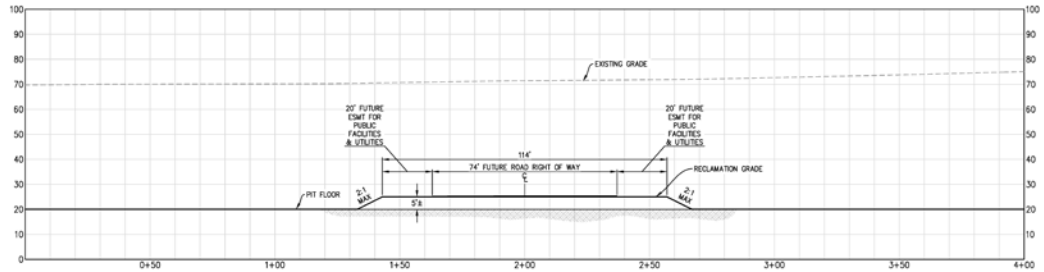
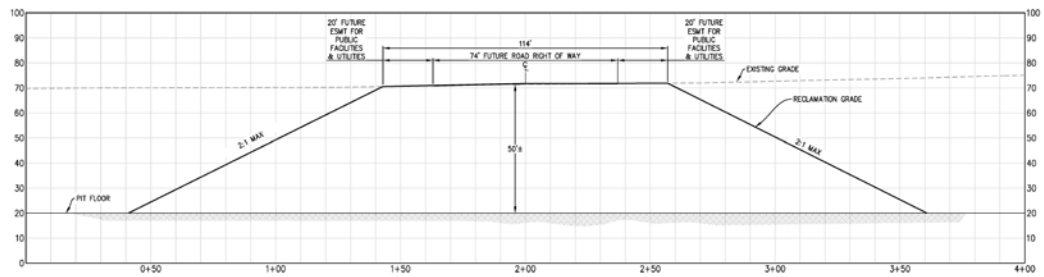


Plate TT-9: Knox/Vineyard Road Details



SECTION 8H - ROAD AT PIT BOTTOM

SCALE= 1" = 20'



SECTION 8H ALTERNATE - ROAD AT EXISTING GRADE

SCALE= 1" = 20'

DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

PRELIMINARY

SacDOT has also recommended as conditions of approval that, prior to sign-off of the Reclamation Plan, the applicant is required to return-to-grade, dedicate, and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek road. The applicant is also required to dedicate and rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard road. Furthermore, if the County adopts a trails master plan requiring easements the applicant shall dedicated and rough grade for the future easements along Knox/Vineyard Road. Finally the applicant shall dedicate the necessary slope easements for the Knox/Vineyard roadway.

In summary, the excavation of the mining pits at the project site could preclude SacDOT's ability to provide a planned roadway extension (Knox/Vineyard Road). This impact is considered potentially significant. Although a roadway easement is currently shown on the site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation and that SacDOT has the flexibility to modify the future roadway as needed to achieve their transportation goals.

Level of Significance Before Mitigation: Potentially Significant

TT-1: Knox/Vineyard Road Mitigation Measure

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by the Sacramento County Department of Transportation, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Transportation.

B. Prior to signoff of the reclamation plans, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements, the applicant shall dedicate those easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation.

C. Prior to signoff of the reclamation plan, the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of Transportation. The applicant shall return-to-grade and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek Road to the satisfaction of Sacramento County Department of Transportation.

Level of Significance After Mitigation: Less than Significant

10 AIR QUALITY

REGULATORY CONTEXT

FEDERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

FEDERAL CLEAN AIR ACT

The Clean Air Act (CAA) requires the EPA to establish national ambient air quality standards (NAAQS), as shown in Table AQ-1. The EPA has established primary and secondary national ambient air quality standards for the following criteria air pollutants, ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The Clean Air Act also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP).

The federal Clean Air Act Amendments of 1990 added requirements for states with non-attainment areas to revise their State Implementation Plans to incorporate additional control measures to reduce air pollution. The State Implementation Plan is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulation of the air basins as reported by their jurisdictional agencies. The EPA is responsible for reviewing all State Implementation Plans to determine if they conform to the mandates of the Clean Air Act and its amendments, and whether implementation will achieve air quality goals. If the EPA determines a State Implementation Plan to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the non-attainment area. If an approvable State Implementation Plan is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table AQ-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	-[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppn (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10mg/m^3)	9 ppm (10mg/m^3)	
Nitrogen dioxide (NO_2) [f]	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppd (188 µg/m^3)	-
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m$^{3)}$	0.14 ppm (for certain areas)	-
	3-hour	-	-	0.5 ppm (1300 µg/m$^{3)}$
	1-hour	0.25 ppm (655 µg/m$^{3)}$	75 ppb (196 µg/m^3)	-
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	-	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	-	35 µg/m^3	Same as primary standard
Lead [f]	Calendar quarter	-	1.5 µg/m^3 (for certain areas)	Same as primary standard

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
	30-Day average	1.5 μg/m^3	-	-
	Rolling 3-Month Average	-	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	25 μg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million

a California standards for ozone, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b Concentration expressed first in units in which it was issued. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm Accessed 9-2-15

TOXIC AIR CONTAMINANTS / HAZARDOUS AIR POLLUTANTS

Air quality regulations also focus on toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs). In general, for those toxic air contaminants that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established (Table AQ-1). Instead, the EPA and, in California, the California Air Resources Board (ARB) regulate hazardous air pollutants and toxic air contaminants, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. These in conjunction with additional rules set forth by the Sacramento Metropolitan Air Quality Management District (SMAQMD), the primary agency in charge of air quality in the project area, described below under Local, Sacramento Metropolitan Air Quality Management District," establish the regulatory framework for toxic air contaminants.

The EPA has programs for identifying and regulating hazardous air pollutants. Title III of the Clean Air Act Amendments of 1990 directed the EPA to promulgate national emissions standards for hazardous air pollutants. The national emissions standards for hazardous air pollutants for major sources may differ from that for area sources of hazardous air pollutants. Major sources are defined as stationary sources with potential to emit more than 10 tons per year of any hazardous air pollutant or more than 25 tons per year of any combination of hazardous air pollutants; all other sources are considered area sources. The emissions standards were to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA was required to promulgate health risk–based emissions standards when deemed necessary to address risks remaining after implementation of the technology-based national emissions standards for hazardous air pollutants standards.

STATE OF CALIFORNIA AIR RESOURCE BOARD CRITERIA AIR POLLUTANTS

The California Air Resource Board (ARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The California Clean Air Act was adopted in 1988 and requires the California Air Resource Board to establish California ambient air quality standards (CAAQS) as contained in Table AQ-1.

The California Air Resource Board has established California ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the California ambient air quality standards are more stringent than the national ambient air quality standards (NAAQS). The differences in the standards are generally explained by the

health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the California ambient air quality standards incorporate a margin of safety to protect sensitive individuals.

The California Clean Air Act requires all local air districts in the state achieve and maintain the California ambient air quality standards by the earliest date possible. The act specifies that local air districts should focus their attention on reducing the emissions from transportation and area wide emissions sources, and provides air districts with the authority to regulate indirect sources.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) in California are regulated primarily through Assembly Bill 1807 (AB 1807) and the Air Toxic Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (AB 2588). AB 1807 sets forth a formal procedure for California Air Resources Board to designate substances as toxic air contaminants. Before a substance can be designated a toxic air contaminant, the California Air Resources Board preforms research, public participation, and scientific peer review. To date, the California Air Resources Board has identified more than 21 toxic air contaminants and adopted the EPA's list of hazardous air pollutants as toxic air contaminants. Most recently, particulate matter exhaust from diesel engines (diesel PM) was added to the California Air Resources Board list of toxic air contaminants.

Once a toxic air contaminant has been identified, the California Air Resources Board then adopts an airborne toxic control measure for sources that emit that particular toxic air contaminant. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology (BACT) for toxics to minimize emissions.

AB 1807 requires existing facilities that emit toxic substances above a specified amount prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risks levels, and prepare and implement risk reduction measures.

The California Air Resource Board has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment such as tractors and generators. The replacement of older vehicles, over time, will result in a vehicle fleet that produces substantially lower levels of toxic air contaminants than under current conditions. Mobile source emissions of toxic air contaminants such as benzene, 1-3 butadiene, and diesel PM have been reduced significantly over the last decade. The emissions will be reduced further in California through a progression of regulatory measures such as Low Emission Vehicles, Phase II reformulated gasoline regulations, and control technologies. With implementation of California Air Resource Board's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 when compared to 2000. The adopted regulations are also expected to continue

to reduce formaldehyde emissions from cars and light-duty trucks. Furthermore, as emissions are reduced, it is expected that the risks associated with exposure to emissions will be reduced as well.

LOCAL

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary agency responsible for meeting federal and State ambient air quality standards in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the State Implementation Plan for ozone. The State Implementation Plan is a compilation of plans and regulations that govern how the region and State will comply with the federal Clean Air Act requirements to attain and maintain the federal ozone standard. Ozone plans in the Sacramento Metropolitan region include in the 1994 Sacramento Area Regional Ozone Attainment Plan and the 2009 Eight-Hour Ozone Attainment and Reasonable Further Progress Plan. These plans were produced to develop a strategy to attain the federal one-hour and eight-hour ozone standards. The Sacramento Region has been designated as a "severe" eight-hour ozone non-attainment area with an extended attainment deadline of June 15, 2019. Table AQ 2 shows Sacramento County's attainment status designation.

Table AQ 2: Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone (O_3)	Non-attainment (1-hour)[1] Classification= Severe	Non-attainment (1-hour) Classification Seriours[2]
	Non-attainment (8-hour)[3] Classification= Severe	Non-attainment (8-hour)
	Non-attainment (8-hour)[4] Classification= Severe	
Respirable Particulate Matter (PM_{10})	Attainment (24 hour)	Non-attainment (24 hour)
		Non-attainment (Annual)
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment (24 hour)	(No State Standard for 24-hour)
	Unclassified/Attainment (Annual)	Non-attainment

		(Annual)
Carbon Monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment (1-hour)	Attainment (1-hour)
	Unclassified/ Attainment (Annual)	Attainment (Annual)
Sulfur Dioxide (SO_2)[5]	(Attainment Pending) (1-hour)	Attainment (1-hour)
		Attainment (24 hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24 hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:

1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

2 Per Health and Safety Code (HSC) 40921.5(C), the classification is based on 1989 – 1991 data, and therefore does not change.

3 1997 Standard

4 2008 Standard

5 Cannot be classified

Source: http://airquality.org/aqdata/attainmentstat.shtml Accessed 9-3-15

SMAQMD's Sacramento Area Regional Ozone Attainment Plan commits to obtaining one ton per year of reactive organic gas (ROG) reductions and one ton per year of oxides of nitrogen (NO_x) reductions from Land Use and Transportation Control Measures. The plan lists land use mitigation and transit-oriented development as examples of the types of programs that SMAQMD will use to reach the one ton goal. SMAQMD does not develop specific rules to implement these programs, but instead does so mostly through the CEQA process. SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The

guidelines contain threshold of significance for criteria pollutants and toxic air contaminants, and also makes recommendations for conducting air quality analysis. Once SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the project may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD to determine if a permit is required, and to start the permit application process. Portable construction equipment such as generators, compressors, pile drives, and lighting equipment with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or California Air Resources Board portable equipment registration.

- Rule 402: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.

- Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, effective as of October 10, 2005, if modeled construction-generated emission for a project's ROG or NOx emissions are not reduced to SMAQMD's threshold of significance (85 pounds per day) after the standard construction mitigation is applied, then an off-site construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies. For mining projects grading permits are not used; instead a Work Authorization Permit (WAP) takes the place of the grading permit.

At the local level, air pollution control or management districts may adopt and enforce California Air Resources Board control measures. Under SMAQMD Rule 201, General Permit Requirements; Rule 202, New Source Review; and Rule 207, Federal Operation Permit, all sources that possess the potential to emit toxic air contaminates are required to obtain permits from the air district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SMAQMD limits emission and public exposure to toxic air contaminants through a number of programs. SMAQMD prioritizes toxic air contaminants, emitting from stationary sources, based on the quantity and toxicity of the toxic air contaminants emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people or facilities that generally house people such as schools, hospitals and residences that may experience adverse effects from unhealthful concentration of air pollutants.

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generate citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 (Nuisance) regulates odorous emissions.

SACRAMENTO VALLEY AIR BASIN

Because the Sacramento Valley Air Basin is in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, the SMAQMD requires the implementation of the following Basic Construction Emission Control Practices, regardless of the project's significance determination under the California Environmental Quality Act (CEQA).

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil stockpiles, graded areas, unpaved parking areas, staging areas, and access roads;
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, overburden, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph);
- All roadways, driveways, sidewalks, and parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;

- Minimize idling time by either shutting equipment off when not in use or reducing time of idling to 5 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site; and

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

If implementation of Basic Construction Emission Control Practices does not reduce construction emissions to below the regulatory thresholds, the following Enhanced Construction Emission Control Practices should be included to further reduce project NO_X, PM_{10}, and $PM_{2.5}$ emissions.

- The project shall provide a plan for approval by the District demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction and a 45 percent particulate reduction compared to the most recent California Air Resource Board fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available;

- The project shall ensure that emissions from all off-road, diesel-powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity shall be repaired immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey;

- If, at the time of construction, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this regulation. Consultation with the District prior to construction will be necessary to make this determination;

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site;

- Suspend excavation, grading, and/or demolition activities when wind speeds exceed 20 mph;

- Install wind breaks (e.g., plant trees, solid fencing) on windward sides of construction areas;

- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established;
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Treat site access to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads; and
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

SMAQMD issued its 2015 *Triennial Report* in May of 2015, which identifies "all feasible measures" SMAQMD would study or adopt over the ensuing three years to make progress toward attainment of state ozone standards. The measures include additional control programs for mobile and stationary sources, land use and transportation programs, community education programs, and ozone transport mitigation in order to reduce NO_X and ROG emissions and in order to achieve the State ozone standard. The 2015 Triennial Report shows the actual NO_X emission reductions were reduced to 3.53 tons per day which exceeded the projected estimates of 1.68 tons per day. The actual ROG emissions reductions achieved 1.30 tons per day. Which fell slightly short of the projected 1.32 tons per day this is due to delays in adopting and implementing two rules.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to air quality with applicability to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

AQ-3:

> Buffers and/or other appropriate mitigation shall be established on a project-by-project basis and incorporated during review to provide for

protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective", and the Air Quality Management's approved Protocol (Protocol for Evaluating the Location of Sensitive Land uses Adjacent to Major Roadways) shall be utilized when establishing these buffers.

AQ-16:

Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

AQ-19:

Require all feasible reductions in emission for the operation of construction vehicles and equipment on major land development and roadway construction projects.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures all development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8.11.E, Air Pollution Control Measures, states, the application for mining operations shall include dust control measures designed to comply with any relevant rules of the Sacramento Metropolitan Air Quality Management District (SMAQMD), including Rules 402 and 403. The air pollution control measures shall include signage and other notification that provides neighbors with information needed for reporting nuisance dust concerns to the operator and to SMAQMD. Such signage shall be placed at intervals of not more than 500 feet.

The Zoning Code gives further guidelines for suppressing dust in Section 4.8.14.H Guidelines for Suppressing Dust. This section states, the goal is to minimize the impacts of dust to surrounding residential and agricultural uses.

1) Overburden Stockpiles

   a) Should be treated with appropriate dust suppressants, watered regularly, or otherwise treated to minimize wind erosion.

   b) Every effort should be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water-spraying equipment should be used to cut dust emissions. Water-spraying equipment should likewise be used, as needed, when removing aggregate.

c) Seeding of stockpile overburden and exposed soils is required at the next appropriate planting time unless the site is excavated within six months of overburden removal, or if site has been partially excavated, but is to remain dormant for a period of more than one year. Saleable aggregate products produced by the processing plant are exempt for this provision.

2) Unpaved Haul Roads

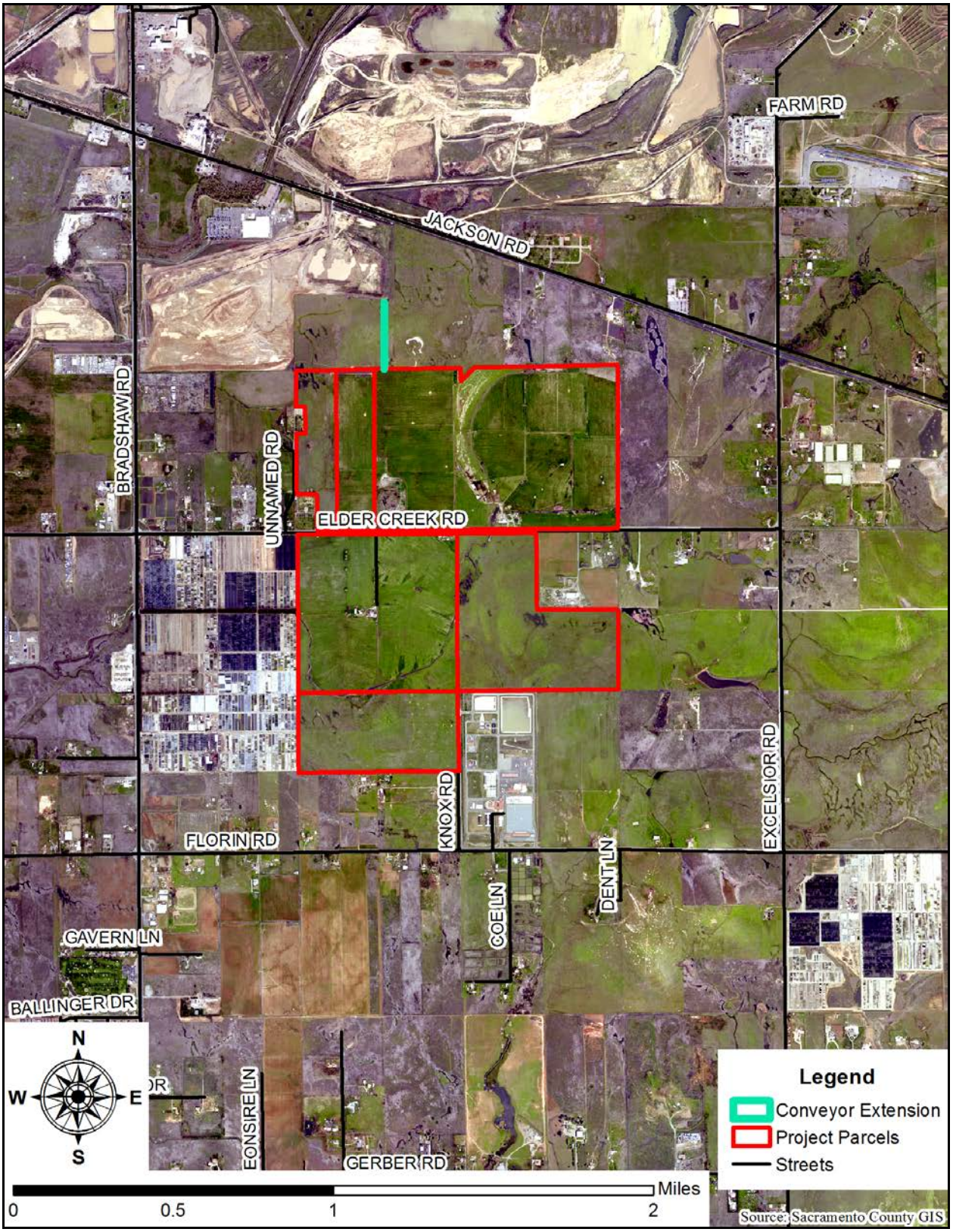
a) Unpaved haul roads should be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliative). The frequency of application should vary according to the water and moisture level of the soils on the site, but should be frequent enough to avoid visible dust plumes.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Road (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate AQ-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The project site is also located within the Sacramento Valley Air Basin (SVAB). The Sacramento Valley Air Basin also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties as well as the western portion of Placer County and the eastern portion of Solano County. The ambient concentrations of air pollutant emission are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight.

Plate AQ-1: Location Map



Topography, Meteorology, and Climate

Sacramento Valley Air Basin is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada Mountains to the east. Air flows into the Sacramento Valley Air Basin through the Carquinez Strait, the only breach in the western Costal Range mountain barrier, and moves across the Sacramento River – San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Sacramento Valley Air Basin has a Mediterranean climate that is characterized by hot, dry summers and cool, rainy winters. During the summer months the daily temperatures range from 50°F to more than 100°F. The inland location and surrounding mountains shelter the Sacramento Valley Air Basin from some of the ocean breezes that keep the coastal region's temperatures moderate. During the winter months the majority of the rain results from air masses that move in from the Pacific Ocean from the west or northwest. Furthermore, more than half of the total rain fall occurs during the winter rainy season which is from November through February. The average winter temperature is 49°F. Dense low-level fog also occurs in the Sacramento Valley Air Basin during winter. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Sacramento WSO station (one of the weather stations in Sacramento County; it is located at 11480 Riley Road, Wilton, CA 95693 apn: 134-0280-074). The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40° F to a normal maximum of 54° F. July temperatures range from a normal minimum of 59° F to a normal maximum of 92° F and the predominant wind direction is from the south.

The mountains surrounding the Sacramento Valley Air Basin create a barrier to airflow, which leads to the entrapment of air pollutants. The highest frequency of poor air movement occurs in the fall and winter when high pressure is present. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the Sacramento Valley Air Basin. This period is characterized by poor air movement in the morning with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_x, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the Sacramento Valley Air Basin. However, there is a phenomenon known as the Schultz Eddy that prevents this from occurring approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift

southward and blow air pollutants back into the Sacramento Valley Air Basin. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient air quality standards.

Existing Air Quality

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A description of key criteria of air pollutants in the Sacramento Valley Air Basin are provided below in Table AQ 3. Sacramento County's attainment status for the California ambient air quality standards and the national ambient air quality standards are shown in Table AQ 4. Monitoring data applicable to the project site is provided in Table AQ 5.

Table AQ 3: Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone (O_3)	Secondary pollutant resulting from reaction of ROG and NO_x in presences of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels: NO_x results from the combustion fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possible of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen Dioxide (NO_2)	Combustion devices: e.g. boilers, gas turbines, and mobile and stationary reciprocation internal combustion engines	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts

Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, and premature death	Alterations to the immune system, carcinogenesis
Lead (Pb)	Metal processing	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases.

1 “Acute” refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentration.

2 “Chronic” refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: http://www.epa.gov/airquality/urbanair/ Accessed 9-3-15

Table AQ 4: Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone (O_3)	Non-attainment (1-hour)[1] Classification= Severe	Non-attainment (1-hour) Classification Seriours[2]
	Non-attainment (8-hour)[3] Classification= Severe	Non-attainment (8-hour)
	Non-attainment (8-hour)[4] Classification= Severe	
Respirable Particulate Matter (PM_{10})	Attainment (24 hour)	Non-attainment (24 hour)
		Non-attainment (Annual)
Fine Particulate Matter ($PM_{2.5}$)	Non-attainment (24 hour)	(No State Standard for 24-hour)
	Unclassified/Attainment (Annual)	Non-attainment (Annual)
Carbon Monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment (1-hour)	Attainment (1-hour)
	Unclassified/ Attainment (Annual)	Attainment (Annual)
Sulfur Dioxide (SO_2)[5]	(Attainment Pending) (1-hour)	Attainment (1-hour)
		Attainment (24 hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24 hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:

1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.

2 Per Health and Safety Code (HSC) 40921.5(C), the classification is based on 1989 – 1991 data, and therefore does not change.

3 1997 Standard

4 2008 Standard

5 Cannot be classified

Source: http://airquality.org/aqdata/attainmentstat.shtml Accessed 9-3-15

Table AQ 5: Summary of Annual Data on Ambient Air Quality (2011-2013)[1]

	2011	2012	2013
Ozone (O_3)			
Maximum concentration (1 hour/8 hour average ppm)	0.123/0.094	0.125/0.107	0.105/0.084
Number of days state standard exceeded (1 hour/8 hour)	9/27	10/25	2/5
Number of days national standard exceeded (8 hour)	19	18	2
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24 hour µg/m^3)	50.7	29.0	40.0
Number of days nations standard exceeded (24 hour measured[2])	4	0	3
Respirable Particulate Matter (PM_{10})			
Maximum concentration (µg/m^3)	73.0	60.0	63.0
Number of days state standard exceeded (measured/calculated[2])	2/12.2	3/17.8	1/6.1
Number of days national standard exceeded (measured/calucated$_2$)	0/0	0/0	0/0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

1 Measurements from the Sloughhouse station for Ozone. Measurements of respirable particulate matter (PM_{10}) obtained from the Sacramento-Branch Center Road #2 air monitoring station. Measurements of fine particulate matter ($PM_{2.5}$) obtained from Sacramento – Health Department Stockton Blvd. station.

2 Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard year.

Source: http://www.arb.ca.gov/adam/index.html Accessed 9-3-15

OZONE

Ozone (O_3) is a photochemical oxidant which is a substance whose oxygen combines chemically with another substance in the presence of sunlight and is the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

CARBON MONOXIDE

Carbon monoxide (CO) is a colorless, odorless gas that forms when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes roughly 56 percent of all carbon monoxide emissions nationwide. Other sources of carbon monoxide emissions include industrial processes including metals processing and chemical manufacturing, residential wood burning, and natural sources such as forest fires. The highest levels of carbon monoxide in the outside air typically occur during the colder months of the year when inversion conditions are more frequent and the air pollution becomes trapped near the ground beneath a layer of warm air.

NITROGEN DIOXIDE

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human made sources of nitrogen dioxide are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devises emit primary nitric oxide (NO), which reacts through oxidation in the atmosphere to form nitrogen dioxide. The combined emission of nitric oxide and nitrogen dioxide are referred to as NO_X and are reported as equivalent nitrogen dioxide. Because nitrogen dioxide is formed and depleted by reaction associated with photochemical smog (ozone), the nitrogen dioxide concentration in a particular geographical area may not be representative of the local sources of NO_X emission.

PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors. Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the Sacramento Valley Air Basin are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the Sacramento Valley Air Basin between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the Sacramento Valley Air Basin are dominated by the same sources as emissions of PM_{10}.

SULFUR DIOXIDE

Sulfur dioxide (SO_2) is one of a group of highly reactive gasses known as oxides of sulfur. The largest sources of sulfur dioxide emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of sulfur dioxide emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur-containing fuels by locomotives, large ships, and non-road equipment.

LEAD

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent during the same time period. Today, the highest levels of lead in air are usually found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the Sacramento Valley Air Basin. The Sloughhouse station is the closest station to the project site with recent data for ozone. The closest station to the project site with data for PM_{10} is the Sacramento - Branch Center Road # 2 air monitoring station while $PM_{2.5}$ is monitored at the Sacramento – Health Department monitoring station. In general, the ambient air quality measurements from these stations are representative of the air quality near the project site. Table AQ 5 summarizes the air quality data from the last three years (2011-2013).

Both the California Air Resource Board and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants; the attainment designations are summarized in Table AQ 2.

TOXIC AIR CONTAMINANTS

Concentrations of Toxic Air Contaminants (TACs) are also used to indicate the quality of ambient air. A toxic air contaminant is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. Toxic air contaminants are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations.

The majority of the estimated health risks from toxic air contaminants can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other toxic air contaminants in that it is not a single substance, but rather a complex mixture of hundreds of substances. Unlike the other toxic air contaminants, no ambient monitoring data is available for diesel PM because no routine measurement method currently exists.

The California Air Resources Board has made preliminary concentration estimates based on a PM exposure method; this method uses the California Air Resource Board emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the toxic air contaminants for which data is available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among the 10 toxic air contaminants listed above. Based on receptor modeling techniques, the California Air Resource Board estimated the diesel PM health risk to be 360 excess cancer cases per million people in the Sacramento Valley Air Basin in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most toxic air contaminants, except para-dichlorobenzene and formaldehyde, have decreased since 1990.

The project area consists of multiple surface mining operations. Sources of toxic air contaminants near the project could include off-road diesel equipment, on-road diesel equipment and stationary sources such as aggregate processing plants and other industrial uses.

ODORS

Odors are generally regarded as on annoyance rather that a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological, such

as irritation, anger or anxiety, to physiological, such as circulatory and respirator effects, nausea, vomiting and headache.

The human nose is the sole sensing device for odors. The ability to detect odors varies considerable among the population and overall is quite subjective. Some people have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another. It is important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue. Odor fatigue is when a person becomes desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants.

For the proposed project, the nearest sensitive receptor is the Slavic Missionary Church which is located on the south side of Jackson Road (Hwy 16), approximately a quarter of a mile east of Bradshaw Road. There are a few rural residential properties located northeast and west of the project site.

METHODOLOGY

Ascent Environmental prepared the *Aspen VIII and Aspen IX Mining Project, Air Quality and Greenhouse Gas Study* that examined the air quality and greenhouse gas impacts for the project. The study can be found in Appendix AQ-1. Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from toxic air contaminants, CO (carbon monoxide) concentrations, and odors were assessed in accordance with SMAQMD recommend methodologies.

The project would not involve the construction of any permanent structures. The proposed project will have some site preparation activities that occur for a limited time before mining can begin. These include demolition of two homes and associated outbuildings, installation of perimeter landscaping, fencing, and assembly of the electric conveyors. These activities would require limited use of off-road equipment and emissions generated during this time-period would be minimal. The analysis presents emissions for a worst-case day when maximum on-site equipment use and off-site hauling would occur simultaneously, along with an average operations day.

Mining operations will begin on the Aspen VIII portion of the project site and generally move south onto Aspen IX. The applicant proposes to mine between one million and three million tons of material per year depending on market conditions with a maximum of 4.5 million cubic yards of material per year. Mining operations would begin in 2017 and proceed over a 15-year period. Mining operations will begin with the removal of approximately five to ten feet of topsoil and overburden that overlies the sand and gravel. The topsoil will be salvaged and stored on-site to be used for reclamation.

Originally the applicant proposed to sell up to one million cubic yards of overburden from the Aspen VIII site to be hauled via public County roads. After consulting with County staff, the applicant instead has chosen to transport via haul trucks on interior roads to the Aspen V South mine up to 500,000 cubic yards of overburden for use on-site and not for sale.

Removal of the up to 500,000 cubic yards of overburden is the first phase of the mining operation. This will involve the removal and salvage of topsoil and then the overburden material that lies above the aggregate material that will be mined. The applicant estimates that the overburden haul will use off-road diesel trucks that have a 20 cubic yard capacity. The haul route is approximately a two mile round trip on internal access roads.

The aggregate mining would occur over an area of 353 acres that will encompass two mining pits; Aspen VIII and Aspen IX. The applicant estimates the total material mined over the life of the project to be approximately 15 million cubic yards. A maximum of 4.5 million cubic yards of materials could be mined in a single year depending on market conditions. Moreover, the applicant estimates that average mining rates would

be 2.2 million cubic yards per year which is equivalent to approximately 7,500 cubic yards per day.

After the initial removal of the overburden has occurred, the mining of the aggregate material will begin. The mining operation's daily hours could range from eight to fourteen hours per day. A fourteen-hour day is the maximum amount that would occur under extremely favorable market conditions. Based on current market conditions the applicant will operate closer to a typical eight hour work day. In order to characterize the worst-case scenario, emissions were estimated based on the maximum levels of activity.

The applicant determined that the maximum daily off-road equipment operation would consist of six scrapers, two loaders, and one dozer along with a water truck. The equipment will be refueled on-site using a mobile fuel truck.

Quantification of air pollutant emissions were based on a combination of methods, including the use of emission factors from the EPA published AP-42 and emission rates for OFFROAD 2011 and EMFAC 2011 as contained in the Californian Emission Estimator Model (CalEEMod) Version 2013.2.2. Project-generated operational phase emissions were modeled based on this information and information provided in the project description to estimate reasonable worst-case conditions. The applicant's current fleet, used at other facilities is Tier 1 compliant; therefore, emission factors reduced from the California Air Resource Board's default fleet mix were used in the analysis.

In accordance with SMAQMD-recommended methodologies, ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions generated by the project were modeled using the methodology described above. It should be noted that NO_x emissions are the focus of SMAQMD's efforts to bring the Sacramento Valley Air Basin into attainment of the California Ambient Air Quality Standards and National Ambient Air Quality Standards for ozone. Emissions of PM_{10} and $PM_{2.5}$ were estimated based on the detailed construction parameters explained above.

The project involves a mining operation that utilizes heavy-duty off-road equipment and does not represent a construction project but instead is considered for analysis purposes as an operational phase. The applicant anticipates that up to one acre of the project site would be disturbed daily. The project proposes to implement all Basic Construction Emission Control Practices recommended by SMAQMD.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Air Quality the proposed project would have a significant impact if it:

AQ-1: Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard; or

AQ-2: Exposes sensitive receptors to pollutant concentrations in excess of standards; or

AQ-3: Creates objectionable odors affecting a substantial number of people.

Sacramento Metropolitan Air Quality Management District (SMAQMD) has guidelines of thresholds of significance for the operational phase that are as follows: NO_x 65 pounds per day; ROG 65 pounds per day; PM_{10} 80 pounds per day; and $PM_{2.5}$ 82 pounds per day. Table AQ 6 below shows the SMAQMD Thresholds of Significance for emissions of NO_x, ROG, PM_{10}, and $PM_{2.5}$. Note: the mining phase of the project was modeled using the operational phase standards.

Table AQ 6: SMAQMD Thresholds of Significance

	Construction Phase	Operational Phase
Mass Emission Thresholds		
NO_x (ozone precursor)	85 pounds/day	65 pounds/day
ROG (VOC) (ozone precursor	None	65 pounds/day
PM_{10}	Zero (0). If all feasible BACT/BMPs are applied, then 80 pounds/day and 14.6 tons/year	Zero (0). If all feasible BACT/BMPs are applied, then 80 pounds/day and 14.6 tons/year
$PM_{2.5}$	Zero (0). If all feasible BACT/BMPs are applied, then 82 pounds/day and 15 tons/year	Zero (0). If all feasible BACT/BMPs are applied, then 82 pounds/day and 15 tons/year

Impacts And Analysis

Impact Evaluation AQ-1: Does the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

The proposed project consists of an aggregate mining operation that will involve the use of diesel-powered off-road equipment for excavation and movement of materials. The mining activities will result in project-generated emissions of ROG, NO_x, PM_{10}, and

$PM_{2.5}$ from excavation, off-road equipment, overburden hauling, and worker commute trips.

Fugitive dust (PM_{10}, and $PM_{2.5}$) emissions are associated primarily with soil and aggregate excavation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled on and off the site. Ozone precursor emissions of ROG and NO_x are associated primarily with construction equipment and on-road mobile exhaust; PM_{10}, and $PM_{2.5}$ are also contained in vehicle exhaust.

Both maximum daily and average daily emissions were modeled based on the methodology and assumptions detailed above. Project emissions account for the applicant's cleaner fleet which achieves reductions in exhaust emissions above the California Air Resources Board default construction fleet. Daily construction emission of NO_x, ROG, PM_{10}, and $PM_{2.5}$ for both maximum daily emissions and average daily emissions are summarized in Table AQ 7 below. Detailed input parameters and modeling results are proved in appendix AQ-1. The proposed project will implement all Basic Construction Emission Control Practices.

Table AQ 7: Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_x	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Maximum Daily Emissions						
Off-road Equipment	19.8	270.6	6.7	-	6.3	-
Off-road Trucks (Overburden Haul)	52.3	590.1	21.9	41.6	20.2	4.2
On-road Travel (Worker and Vendor Trips)	0.2	0.6	0.6	<0.1	0.2	<0.1
On-site Fugitive Dust	-	-	-	8.8	-	1.4
Total Emissions	**72.3**	**861.3**	79.6		32.3	
SMAQMD Thresholds of Significance	65	65	80		82	
Average Daily Emissions						
Off-road Equipment	5.2	70.9	1.8	-	1.7	-

	ROG	NO_x	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Off-road Trucks (Overburden Haul)	21.8	245.9	9.1	34.7	8.4	3.5
On-road Travel	0.2	0.6	0.6	<0.1	0.2	<0.1
On-site Fugitive Dust	-	-	-	4.8	-	0.9
Total Emissions	27.2	317.1	51.0		14.7	
SMAQMD Thresholds of Significance	65	65	80		82	

Notes: Maximum daily emissions were calculated based on 14 hours of mining operations. Maximum daily emissions for PM_{10} and $PM_{2.5}$ are shown for disclosure purposes. Fugitive dust emissions from equipment use on-site (dozers and scrapers) area estimated using CalEEMod. Emissions from conveyor loading/unloading and off-road truck use (loading/unloading and travel on unpaved roads) are estimated using AP-42 emission factors. Emissions of PM shown account for application of best available control technology and best management practices

The applicant's construction fleet is Tier 1 compliant. Reduction percentages for each pollutant are based on compliance reports approved by SMAQMD. Detailed calculations are shown in appendix AQ-1.

ROG = reactive organic gases
NO_x = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
lb/day = pounds per day
SMAQMD = Sacramento Metropolitan Air Quality Management District
NA = not applicable
CAAQS = California Ambient Air Quality Standards

The Sacramento Metropolitan Air Quality Management District (SMAQMD) also recommends reporting annual PM_{10} and $PM_{2.5}$ emissions and comparing them to annual threshold of 14.6 tons/year for PM_{10} and 15 tons per for $PM_{2.5}$. The maximum annual PM_{10} emissions would be 10 tons per year while the maximum annual $PM_{2.5}$ emissions would be 4 tons per year. Annual emissions will be below the SMAQMD's applicable threshold and would decline once overburden haul is complete. Moreover, the maximum daily emission would only occur under extremely favorable market conditions.

ROG EMISSIONS

As shown in Table AQ 7 the maximum daily emissions for ROG is 72.3 pounds per day which is over the threshold of 65 pounds per day. The average daily emission for ROG is 27.2 pounds per day which is under the threshold of 65 pounds per day. The maximum daily emissions of ROG generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Therefore, ROG maximum daily emission impacts are significant.

Level of Significance: Significant

NOX EMISSIONS

Table AQ 7 indicates the maximum daily emissions for NOx is 861.3 pounds per day which is substantially above the 65 pound per day threshold and the average daily emissions for NO_X is 317.1 pounds per day which is substantially above the 65 pound per day threshold. The emissions of NO_x generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Therefore, the project's impact of NO_x emissions is significant.

Level of Significance Before Mitigation: Significant

AQ-1.1: Reducing ROG and NO_x Mitigation Measure

To mitigate construction-related ozone precursor emissions, the following shall apply:

A. ***Prior to approval of the Work Authorization Permit, an equipment inventory must be submitted to the Sacramento Metropolitan Air Quality Management District*** ~~The project shall provide a plan for~~ **and approved** ~~approval by the District~~ demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be ***discontinued*** ~~repaired~~ immediately, and the lead

agency and District shall be notified within 48 hours of identification of non-compliant equipment. ***By May 1st of each year and for the duration of the project, an annual summary of all off road equipment used on the site, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the Sacramento Metropolitan Air Quality Management District representing the previous years use.*** ~~A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.~~ The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

D. ~~To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.21, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.~~

Significance after Mitigation

Implementation of exhaust control measures outlined in Mitigation Measure AQ-1.1 would reduce ROG and NO_x emissions from off-road equipment by 20 percent. The 20 percent reduction of the maximum daily emissions for ROG emissions will reduce the emissions from 72.3 pounds per day to 57.84 pounds per day which is below the SMAQMD threshold of 65 pounds per day. However even after applying Mitigation Measure AQ1.1 which would reduce NO_x emission by 20 percent, the maximum and average daily emissions of NO_x will still exceed SMAQMD's recommended thresholds.

Level of Significance After Mitigation for ROG: Less than Significant

Level of Significance After Mitigation for NO_x: Significant and Unavoidable

PM EMISSIONS

As shown in Table AQ 7 the maximum daily emissions for PM_{10} are 79.6 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 32.3 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and $PM_{2.5}$ average daily emission is 14.7 pounds per day. These emissions exceed the SMAQMD significance threshold of zero emissions for both types of particulates. This impact is therefore considered significant.

However, the district's significance thresholds increase to 80 pounds per day for PM_{10} and 82 pounds per day for $PM_{2.5}$ if all feasible Best Available Control Technology (BACT) and Best Management Practices (BMPs) are applied. For the Aspen VIII and IX project, SMAQMD staff (P. Philley) recommended that the district's Basic Construction Emission Control Practices and Enhanced Dust Control Practices would be appropriate BACT/BMPs.

Implementation of BACT/BMPs outlined in Mitigation Measure AQ-1.2 will change the threshold for PM_{10} to 80 pounds per day and change $PM_{2.5}$ to 82 pounds per day. With the BACT/BMP's, the proposed project fugitive exhaust PM emissions are well under the 80 and 82 pounds per day as shown in Table AQ 7. Therefore, with mitigation, impacts are less than significant.

Level of Significance Before Mitigation: Significant

AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions Mitigation Measure

Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including:

- ***All disturbed areas on site shall be treated with appropriate dust suppressants, watered regular, vegetated or otherwise treated to minimize fugitive dust. Comply with Zoning Code Section 4.8.14.H.*** ~~Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.~~

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material ***off the site and onto public roadways*** ~~on the site~~. Any haul trucks that would be traveling along freeways or major roadways should be covered.

- ***Visible trackout of mud or dirt onto adjacent public roads shall be prevented through the incorporation of rumble strips, gravel aprons, appropriate dust suppressant, long sinuous driveway, or a combination thereof. It these measures are not adequate the applicant shall work with the County and***

SMQAMD to implement additional measures. If Trackout is present on public roads adjacent to the mine entrances, wet power vacuum street sweepers shall be used to remove any visible trackout mud or dirt. ~~Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day.~~ Use of dry power sweeping is prohibited.

- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- ~~All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.~~
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- ***All disturbed areas on site shall be treated with appropriate dust suppressants, watered regularly, vegetated, or otherwise treated to minimize fugitive dust*** ~~Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site~~.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- ~~Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.~~
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

UNPAVED ROADS (ENTRAINED ROAD DUST)

- ~~Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.~~

- ~~Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.~~

- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Level of Significance After Mitigation: Less than Significant

MOBILE SOURCE CO CONCENTRATIONS

Local mobile-source carbon monoxide (CO) emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect.

Carbon monoxide (CO) concentration is a direct function of vehicle idling time and thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-use, such as residential areas, schools, and hospitals. As a result, it is recommended that CO not be analyzed at the regional level but at the local level.

The proposed mining operations would result in approximately seven additional full-time employees which would result in up to 14 daily worker commute trips. No overburden will be hauled on public roadways.

SMAQMD provides a screening methodology to determine project impacts from localized CO emissions. This screening methodology was utilized to analyze local CO emissions from construction and operations of the project. The screening methodology has two tiers of screening criteria. If the first set is not met, than the second tier may be applied. It states that the following criteria must be met:

First Tier

The project will result in a less than significant impact to air quality for local CO if:

- Traffic generated by the project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and

- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F.

Second Tier
If all the following criteria are met, the project will result in a less than significant impact to air quality for local CO.

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;

- The project will not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below grade roadway; or other locations where horizontal or vertical mixing of air will be substantially limited; and

- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average as identified by the EMFAC or CalEEMod models.

The proposed project related vehicle trips would not result in level of service (LOS) E or F at any intersection. The first tier can be answered in the affirmative which allows the project to screen out the CO emission impacts. As a result, the impact of project CO emissions would be less than significant.

Level of Significance: Less Than Significant– No Mitigation Required

Impact Evaluation AQ-2: Exposes sensitive receptors to pollutant concentrations in excess of standards?

Mining activities will result in temporary (15 years) project generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for excavation and other miscellaneous activates.

Particulate exhaust emissions from diesel-fueled engines such as diesel PM were identified as a toxic air contaminant by the California Air Resource Board in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts, so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Table AQ 7 above, the maximum daily exhaust emissions of $PM_{2.5}$ considered a surrogate for diesel PM will be 23.4 lb/day.

The dose to which receptors are exposed is the primary factor used to determine health risks. The dose is a function of the concentrations of a substance or substances in the environment and the duration of exposure to the substance. The dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor.

Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental

Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic air contaminant emissions, should be based on a 30-year exposure period. However, such assessments should be limited to the period/duration of activities associated with the project. Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to a period of 15 years, with peak daily activity occurring very rarely under extremely favorable market conditions.

The mine, if approved as is, could be in operation for 15 years and during this time the site will be excavated by heavy equipment such as scrapers and excavators for the life of the mine (15 years). The overburden haul is anticipated to take place during the first five years of the mining operations and is limited to 500,000 cubic yards of overburden material. Diesel haul trucks will be used to transport the overburden to the mine located directly north of the project site. The use of diesel powered haul trucks at the site would diminish substantially but the heavy equipment used to excavate the site will still be in use at the site.

Studies show that diesel PM is highly dispersive, for example, diesel PM emissions dissipate by 70% at 500 feet from the source. The nearest existing off-site sensitive receptors are residential units near the project site with the closest residence located 250 feet from the site.

Sacramento Metropolitan Air Quality Management District (SMAQMD) Toxic Air Contaminants thresholds for cancer risk for stationary sources, states that a significant impact would result from, “An incremental increase in cancer risk greater than ten in one million at any off-site receptor” and for non-cancer a significant impact would result from, “Ground-level concentrations of project-generated Toxic Air Contaminants that would result in a Hazard Index greater than one at any off-site receptor”.

Diesel PM emissions dissipate at 70% at 500 feet from the source. The nearest residence or sensitive receptor is located 250 feet from the mining pit edge. Mitigation is recommended in the Noise chapter of this EIR (Mitigation Measure NO-1.0) that would limit the number of pieces of heavy equipment operating within 850 feet of this residence to a single piece of equipment. This mitigation for noise will also help lessen the cancer risks by reducing diesel PM emissions within 850 feet of the residence.

Given the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, combined with the limitation on heavy equipment usage in the vicinity of nearby residences, it is not anticipated that mining related toxic air contaminant emissions would expose nearby, off-site sensitive receptors to an incremental increase in cancer, chronic, and acute risk that exceeds applicable thresholds. Therefore, the project’s impacts to sensitive receptors from pollutants would be less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation AQ-3: Does the project create objectionable odors affecting a substantial number of people?

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; atmospheric conditions; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to distress among the public and sometimes generating citizen complaints to local government.

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and would not be generated at any one location for an extended period because the equipment and trucks will be moving around the mining site. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Mining activities utilizing off-road equipment will not result in the frequent exposure of objectionable odorous emission. Therefore, the impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

11 NOISE

NOISE FUNDAMENTALS AND TERMINOLOGY

Noise is often described as unwanted sound, and thus is a subjective reaction to the physical phenomenon of sound. Sound is variations in air pressure that the ear can detect. Sound levels are measured and expressed in decibels (dB), which is the unit for describing the amplitude of sound[1]. Because sound pressure levels are defined as logarithmic numbers, the values cannot be directly added or subtracted. For example, two sound sources, each producing 50 dB, will produce 53 dB when combined, not 100 dB. This is because two sources have two times the energy (not volume) of one source, which results in a 3 dB increase in noise levels.

Most environmental sounds consist of several frequencies, with each frequency differing in sound level. The intensities of each frequency combine to generate sound. Acoustical professionals quantify sounds by “weighting” frequencies based on how sensitive humans are to that particular frequency. Using this method, low and extremely high frequency sounds are given less weight, or importance, while mid-range frequencies are given more weight, because humans can hear mid-range frequencies much better than low and very high frequencies. This method is called “A” weighting, and the units of measurement are called dBA (A-weighted decibel level). In practice, noise is usually measured with a meter that includes an electrical “filter” that converts the sound to dBA. The threshold at which one hears sounds is considered to be zero (0) dBA. The range of sound in normal human experience is 0 to 140 dBA. Decibels and other technical terms are defined in Table NO-1.

The ambient noise level is defined as the noise from all sources near and far, and refers to the noise levels that are present before a noise source being studied is introduced. A synonymous term is pre-project noise level.

[1] Equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

Table NO-1: Acoustical Terminology

TERM	DEFINITION
Ambient Noise Level:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
Intrusive Noise:	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
Community Noise Equivalent Level, CNEL*:	The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening form 7:00 p.m. to 10:00 p.m and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
Day/Night Noise Level, L_{dn}*:	The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
Equivalent Noise Level, L_{eq}:	The average noise level during the measurement or sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
L_{max}, L_{min}:	The maximum or minimum sound level recorded during a noise event.
L_n :	The sound level exceeded "n" per percent of the time during a sample interval. L_{10} equals the level exceeded 10 percent of the time (L_{90}, L_{50} , etc.)
Noise Exposure Contours:	Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and L_{dn} contours are frequently utilized to describe community exposure to noise.
Sound Exposure Level, SEL; or Single Event Noise Exposure Level, SENEL:	The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time integrated A-weighted squared sound pressure level for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.
Sound Level, dBA:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

REGULATORY CONTEXT

STATE OF CALIFORNIA

The California Department of Health Services (DHS) office of Noise Control has studied the relationship between noise levels and different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land use. Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the "conditionally acceptable" range, some mitigation of exposure (as established by an acoustical study) would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it cannot be mitigated.

Title 24 of the California Administrative Code establishes standards governing interior noise levels that apply to all new multifamily residential units in California. The standards require that acoustical studies be performed prior to construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} noise levels to 45 dBA in any inhabitable room. The U.S. Department of Housing and Urban Development (HUD) has set an L_{dn} of 45 as its goal for interior noise in residential units built with HUD funding.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide County-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to noise that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

Policy NO-6:

> Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table NO-2 at existing noise-sensitive areas in the project vicinity.

Table NO-2: Noise Element Non-Transportation Noise Standards Median (L_{50})/Maximum (L_{max})[1]

New Land Use	Outdoor Area[2]		Interior[3]
	Daytime (L_{50})/Maximum (L_{max})	Nighttime (L_{50})/Maximum (L_{max})	Day and Night (L_{50})/Maximum (L_{max})
All Residential	55 / 75	50 / 70	35 / 55
Transient lodging[4]	55 / 75	---	35 / 55
Hospitals and nursing homes[5,6]	55 / 75	---	35 / 55
Theaters and auditoriums[6]	---	---	30 / 50
Churches, meeting halls, schools, libraries, etc.[6]	55 / 75	---	35 / 60
Office buildings[6]	60 / 75	---	45 / 65
Commercial buildings[6]	---	---	45 / 65
Playgrounds, parks, etc[6]	65 / 75	---	---
Industry[6]	60 / 80	---	50 / 70

1. Table NO-2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table NO-2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the acoustic terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Policy NO-13:

> Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code (Zoning Code) implements the land use policies of the County. The Zoning Code ensures development conforms to these policies by regulating land use and providing development standards.

Zoning Code Section 4.8.12, Operating Standards for Aggregate Mining Operations, states all aggregate mining operations, including sand and gravel mines, hard rock quarries and dredger tailings mining operations, shall be subject to the requirements in this section. Section 4.8.12.A requires hours of operation for mining activities to be from 6:00 am to 9:00 pm Monday through Friday and maintenance operations beyond mining hours may occur from 9:00 pm to midnight Monday through Friday. On Saturdays the mine may operate from 7:00 am through 3:00 pm and maintenance operations beyond mining hours may occur from 3:00 pm to 4:00 pm. On Sundays and labor union holidays, no mining, processing or maintenance may be performed.

Zoning Code Section 4.8.12.E, Noise Standards, states that sound levels created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand and aggregates. A violation to the noise standard will occur if the noise level at the property line exceeds:

1. The noise limit for a cumulative period of more than 30 minutes in any hour, or;

2. The noise limit plus 5 dBA for a cumulative period of more than one minute per hour, or the noise limit plus 20 dBA for any period.

ENVIRONMENTAL SETTING

PROJECT SITE

The project includes two proposed mine pits that the applicant calls Aspen VIII and Aspen IX. Aspen VIII is approximately 319 acres and Aspen IX is approximately 363 acres in size. The project also includes an approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The proposed project is near many active mining operations. There are active mines located to the east, north and west of the project site. South of the proposed Aspen IX site is a water treatment facility and to the west is a whole sale plant nursery. A cemetery is located just to the west of the Aspen VIII site. The project site is located south of Mather Airport. There are six residences near the perimeter of the proposed site. Two of these residences will be removed as part of this project. And finally Elder Creek Road and Jackson Road are another source of noise in the project area.

EXISTING AMBIENT NOISE ENVIRONMENT

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Elder Creek Road and Jackson Road (Hwy 16), and by the intermittent aircraft overflights from Mather Airport.

To quantify the existing ambient noise environment near the project boundaries, Bollard Acoustical Consultants conducted continuous noise level measurement at three locations in August and October, 2013. The noise measurement sites are shown on Plate NO-1. Weather conditions present during the monitoring program were typical for the measurement periods. A summary of the ambient noise level measurements is provided in Table NO-3. The results of the ambient noise level measurements along with the Environmental Noise Analysis prepared by Bollard Acoustical Consultants are provided in Appendix NO-1.

Plate NO-1: Noise-Sensitive Receivers and Ambient Monitoring Locations

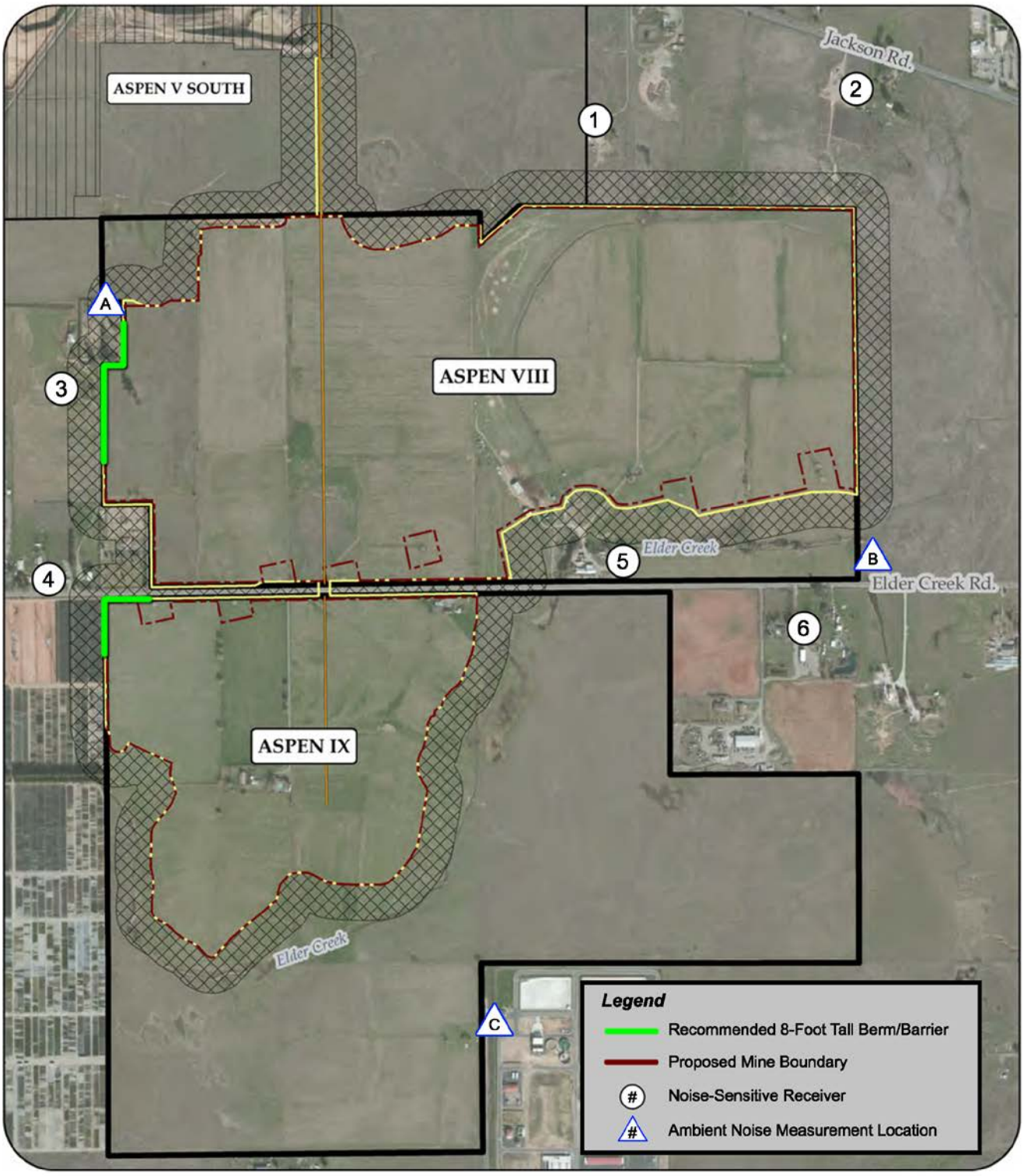


Table NO-3: Summary of Ambient Noise Measurement Results

Summary of Ambient Noise Measurement Results Teichert Aspen VIII and IX Excavation Site Property Lines					
Site	**Description**	**Date**	**L_{dn}**	**L_{50}[1]**	**L_{max}[1]**
A	Near Northwest Corner Aspen VIII	10/22/13 – 10/24/13	56-58	45-46	69-76
B	Southeast Corner Aspen VIII	8/30/13 – 9/2/13	53-59	39-43	69-73
C	Southern Portion of Aspen IX	8/30/13 – 9/2-13	48-53	42-43	60-63

1. See Table NO-1 for an explanation of acoustical terminology.
2. Because excavation activities would not occur during nighttime periods, the hourly maximum and median noise levels shown in this Table are provided for daytime hours only.

The data contained in Table NO-3 indicates that the existing ambient noise environment at the perimeter of the project site during the survey period consisted of fairly typical noise levels for rural areas affected mainly by local and distant traffic. Ldn values along the site perimeter ranged from 48-59 dB. Daytime median noise levels typically ranged from the mid to upper 30's to mid-40's, with average maximum values ranging from 60-76 dB Lmax.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Noise the proposed project would have a significant impact if it:

NO-1: Results in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies; or

NO-2: Results in a substantial temporary increase in ambient noise levels in the project vicinity.

IMPACTS AND ANALYSIS

Impact Evaluation NO-1: Does the project result in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies?

PROJECT-RELATED NOISE GENERATION

Table NO 4 shows the types of equipment which may be used at the project site and the reference maximum noise levels corresponding to the operation of that equipment. These noise levels were obtained from Bollard Acoustical Consultants; the noise level measurements were conducted at various locations in recent years.

Table NO 4: Major Noise-Producing Equipment and Anticipated Noise Emissions Levels

	Approximate Noise Level, dBA @ 100 feet Reference Distance		
Equipment Type	**Maximum (L_{max})**	**Average (Leq)**	**Median (L_{50})**
Excavating Equipment: (Combinations of loaders, scrapers, dozers, graders, and water trucks)	80	70	65
Note: Average noise levels represent any one-hour period and assume continuous operations of the excavation equipment.			

PROJECT NOISE LEVELS AT MINE BOUNDARIES

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the project site would be approximately 50 feet. At this distance the consultant estimated that the excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. Zoning Code Section 4.8.12.E states a violation to the noise standard will occur if the noise level at the property line exceeds the noise limit of 70 dBA for a cumulative period of more than 30 minutes in an hour (thus setting a L_{50} standard of 70 dBA) or if the noise level at the property line exceeds 70 dBA plus 20 dBA for any period of time (thus setting a L_{max} standard of 90 dBA). The noise levels for the project site would satisfy the Zoning Code requirements of less than 90 dB L_{max} and 70 dB L_{50} at the project site boundaries. Therefore, no noise mitigation measures would be required to meet the Zoning Code standards.

PROJECT NOISE LEVELS AT NEAREST RESIDENCES

The nearest six residences to the project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site's property lines vary. The closest residence to the proposed excavation is residence 3 (9895 Elder Creek Road: APN 063-0180-022) as

shown on Plate NO-1. Table NO 5 below shows the predicted outdoor noise levels during initial mining activities at the closest positions to the receivers (residences) identified in Plate NO-1. It should be noted that residential structures with windows closed typically attenuate noise levels by approximately 20dB. The General Plan interior noise standards for residences (shown in Table NO-2, above) are 20 dB less than the applicable exterior noise standards; therefore, the interior noise standards would be met so long as the exterior noise standards are met.

The initial mining activities are considered to be worst-case since mining noise levels will decrease as the equipment descends deeper into the mining pit and the pit walls begin to serve as noise barriers.

Table NO 5: Predicted Noise Levels at Nearest Sensitive Receivers

Residence	Distance (Feet)	Maximum (L_{max})	Median (L_{50})
1	490	65	50
2	750	61	46
3	250	72	**57**
4	300	70	55
5	320	69	54
6	830	60	45
Sacramento County Daytime Noise Limits		**75**	**55**

1. The locations of the nearest residences are indicated on Plate NO-1.

The data contain in Table NO 5 indicates that the General Plan standard of 75 dB L_{max} applicable to outside residential uses during daytime hours would be satisfied at each of the nearest residences. Furthermore, the table indicates the General Plan standard of 55 dB L_{50} for outside areas would be satisfied at each of the nearest residences with the exception of Residence 3. Residence 3 is located 250 feet from the proposed excavation and the predicted median hourly outside noise level is 57 dB which would exceed the County's outside or exterior noise standard by 2 dB. With the noise mitigation measures below, the project's impacts are less than significant.

The noise consultant recommended mitigation restricting nighttime operations. Nighttime is defined as 10:00 pm to 7:00 am. This mitigation was to lessen the impacts of nighttime operations noise levels. This mitigation is not needed as the Zoning Code does not permit mining operations after 9:00 pm and the applicant has not requested

night operations as part of the project. Therefore, the mitigation measure was not included in the EIR.

Level of Significance Before Mitigation: Significant

NO-1: Median Noise Levels Mitigation Measure

A. ~~One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time. B.~~ All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

B. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.

C. ***For excavation operations that occurs within 400 feet of the property line of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) or Residence 4 (9897 Elder Creek Road: APN 063-0180-021), the number of scrapers shall be limited to a maximum of three until the mining pit has reached a sufficient depth that the scrapers are shielded from view of these residences.***

D. ***An 8-foot tall earthen berm or temporary noise barrier shall be constructed at the property line between initial excavation operations and Residence 3 (9895 Elder Creek Road: APN 063-0180-022) and between initial excavation operations and Residence 4 (9897 Elder Creek Road: APN 063-0180-021) as shown in* Plate NO-1.**

Level of Significance After Mitigation: Less Than Significant

Impact Evaluation NO-2: Does the project result in a substantial temporary increase in ambient noise levels in the project vicinity?

According to Appendix G of the CEQA guidelines, a project will normally have a significant impact if it results in a substantial increase in ambient noise levels in the project vicinity above levels existing without the project. It is generally recognized that an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable; a common practice is to assume that a clearly noticeable increase of 5 dB is required for a finding of significance.

Ambient Noise Measurement Location Sites A and B (see Plate NO-1) generally represent the ambient noise conditions at the nearest residences to the project site.

For the analysis of ambient noise levels the L_{max} will not be utilized because the site is near the Mather Airport and the L_{max} may be affected by the small number of aircraft that fly near the project site. According to Table NO-3, the L_{50} ambient noise measurement for Site A is 45-46 dB; Site A and residence 3 are located within approximately 400 feet of one another and are to the west of proposed Aspen VIII. As shown on Table NO 5, residence 3 has a L_{50} level of 57 dB.

When determining if the addition of the project's mining noise would significantly elevate the ambient noise levels at the nearest receivers, the two noise levels, ambient plus predicted project noise, must be added together. Since the decibel scale is logarithmic, decibels cannot be added, subtracted, multiplied or divided arithmetically. Decibels must be converted back to sound energy prior to manipulating them mathematically. In simpler terms, the following conventions, as shown in Table NO 6 can be used for decibel addition.

Table NO 6: Decibel Addition

When two dB values differ by:	Add the following to the higher value:
0 to 1	3
2 or 3	2
4 to 8	1
9 or more	0

When the ambient noise measurement for Site A (45-46 dB) is combined with the predicted noise level at residence 3 (57 dB), the resulting total is approximately 57 dB (existing ambient noise and project noise)**.** ***Because the threshold of significance for a project-related noise increase is 5 dB, the allowable ambient conditions with the project would be 5 dB above existing ambient levels without the project or approximately 51 dB (46 dB plus the 5 dB increase). Provided the noise generation of the project does not exceed 49 dB at Residences 3 and 4, existing plus project noise levels would not exceed 51 dB at those locations and the noise impact would be less than significant (46 dB ambient noise plus 49 dB of project noise will result in 50.76 dB which is less than ambient threshold of 51 dB). Therefore, the noise attenuation required for the project to mitigate this impact to a level of less than significant would be 8 dB (57 dB – 49 dB) at Residence 3 and 6 dB at Residence 4 (55 dB – 49 dB). Without mitigation, noise generated by initial excavation operations is predicted to exceed 49 dB L_{50} within 800 feet of Residences 3 and 4. Excavation activities beyond this distance would not trigger a significant increase in ambient noise levels or require additional mitigation*****.** ~~which is an increase of approximately 11 dB to ambient noise.~~ As noted above an increase of 5 dB for the ambient noise is considered an impact. Thus, the project is predicted to result in a significant increase of ambient noise levels.

In order to reduce the ambient noise levels impacts to less than significant the ambient noise will have to be reduced by approximately ***8 dB for Residence 3 and 6 dB for Residence 4***~~11 dB~~. ~~Using the Fixed and Moving Noise Attenuation Model, the distance to the residence from the noise sources needs to be increased to 850 feet. Therefore, the mitigation measure sets the distance at 850 feet from the residence where only one piece of equipment is permitted to operate~~. The mitigation measure **above** to reduce the noise impacts that are in excess of standards ***(Mitigation Measure NO-1.0)*** can be used to mitigate this impact as well ***if both measure are implemented.*** Therefore, the project impacts to ambient noise levels are significant but with mitigation the impacts are reduced to less than significant.

Level of Significance Before Mitigation: Significant

NO-2: Increases in Ambient Noise Mitigation Measure

See Mitigation Measure NO-1.0.

Level of Significance After Mitigation: Less Than Significant

12 HYDROLOGY AND WATER QUALITY

REGULATORY CONTEXT

WATER QUALITY LEGISLATION

Government agencies regulate potential impacts to water quality in order to comply with legislative acts such as: the Clean Water Act (CWA), the Porter-Cologne Water Quality Act (Porter-Cologne), the Rivers and Harbors Act, and the California Environmental Quality Act (CEQA). The Clean Water Act contributes to the dramatic improvement of surface water bodies in the United States. The Rivers and Harbors Act prevents obstructions to navigation, including dumping of trash and sewage. CEQA prevents avoidable damage to water quality by requiring changes in projects through the use of alternatives or mitigation measures [15002(a)(3)]. Coordinated efforts by the following agencies protect water supplies from degradation:

- County of Sacramento
- Sacramento Area Flood Control Agency (SAFCA)
- California Department of Fish and Wildlife (CDFW)
- State Water Resources Control Board (State Water Board)
- Regional Water Quality Control Board (Regional Water Board)
- State Lands Commission
- U.S. Coast Guard (Coast Guard)
- National Park Service (NPS)
- State Department of Water Resources Reclamation Board
- U.S. Army Corps of Engineers (Army Corps)

FEDERAL

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

Federal Emergency Management Agency (FEMA) maintains and updates the National Flood Insurance Program maps, called the Federal Insurance Rate Maps (FIRM), that define areas of federal flood hazard. In Sacramento County and elsewhere the floodplains are identified based on U.S. Army Corps of Engineers (Army Corps) studies. Federal Insurance Rate Maps denote the location of the federal 100-year flood area, 500-year flood area, and the Base Flood Elevation. In a 100-year floodplain, there is a 1% chance of flooding in a given year, and in a 500-year floodplain, there is a 0.2% chance of flooding in a given year. If an area

is within a 100-year floodplain, flood insurance is required by most mortgage companies. FEMA is also responsible for the accreditation of levee systems (certification is by the Army Corps).

CLEAN WATER ACT

The Clean Water Act (CWA) is the Federal regulation covering surface water quality – it does not address either groundwater or water quantity. Surface waters protected by the Clean Water Act must either be navigable or hydrologically connected to a navigable water. The provisions of the Clean Water Act are administered and regulated primarily by the Environmental Protection Agency (EPA), the California EPA (Cal EPA), the Army Corps, and the State and Regional Water Boards. Under the "umbrella" of Cal EPA, the State and Regional Water Boards are responsible for administration of the National Pollutant Discharge Elimination System program, which deals with stormwater pollution from construction, industrial areas, and municipal areas. The Army Corps is responsible for issuance of the Clean Water Act Section 404 permit, which deals with the discharge of dredged or fill material in a surface water, and the State and Regional Water Boards are responsible for issuance of the Clean Water Act Section 401 permit, which covers the same activity. Section 303(d) of the Clean Water Act also requires States to identify waters that do not meet water quality standards, and to develop plans to address polluted water bodies on the 303(d) list (called Total Maximum Daily Load plans, or TMDLs).

STATE OF CALIFORNIA

STREAMBED ALTERATION

Section 1603 of the Fish and Wildlife Code requires applicants to notify the California Department of Fish and Wildlife (CDFW) before beginning a project if the project will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed. Notification is generally required for any project that will take place in the vicinity of a river, stream, or lake. The recommendations of CDFW may include steps to protect water quality.

PORTER-COLOGNE WATER QUALITY ACT

Porter-Cologne is enacted as part of the California Water Code, and is intended to protect the quality of waters within the State. Porter-Cologne covers many of the same issues as the Federal Clean Water Act (see above), but is specific to the needs and objectives of the State. Waters protected by the Clean Water Act must be navigable or hydrologically connected to navigable waters, whereas Porter-Cologne protects non-navigable, or "isolated", waters. The State Water Resources Control Board (Water Board) and the Regional Water Quality Control

Boards (Regional Water Board) are responsible for the coordination and control of water quality protection efforts related to Porter-Cologne.

LOCAL REGULATIONS

SACRAMENTO COUNTY DEPARTMENT OF WATER RESOURCES

Not all 100-year floodplains are mapped by FEMA, because the focus of the FEMA Federal Insurance Rate Maps is to provide information for insurance programs. Areas that have very little development that would be at risk from flooding, such as rural areas and wilderness areas, typically are not mapped. In Sacramento County, some of the rural areas of the eastern part of the County with watersheds that are generally less than 1 square mile in size have not been mapped by FEMA. Areas not mapped by FEMA, or areas where there are additional site-specific constraints that change the shape of the floodplain, are referred to as local floodplains in this Environmental Impact Report (EIR).

Though not mapped by FEMA, many local 100-year floodplains have been identified by the Sacramento County Department of Water Resources (County DWR). Local floodplains in the County are typically mapped either in response to an area having flooding problems, or in response to a request by a property owner to make modifications to their parcel. In such circumstances, Sacramento County Department of Water Resources staff investigate the property and either decide if there is sufficient existing information to determine the floodplain elevation on the property or that a drainage study is required before a determination can be made. Floodplains, whether local or FEMA, are regulated by the provisions of the Sacramento County Floodplain Management Ordinance, Improvement Standards, and Local Floodplain Management Plan.

SACRAMENTO COUNTY LAND GRADING AND EROSION CONTROL ORDINANCE

Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) permit program to prohibit the unauthorized discharge of pollutants from a point source to U.S. waters. The County of Sacramento has obtained a Municipal Stormwater National Pollutant Discharge Elimination System permit from the Central Valley Regional Water Quality Control Board under the requirements of the Clean Water Act, to reduce pollutants found in urban stormwater runoff to the maximum extent practicable. The County complies with this permit by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff from areas within the County.

Sacramento County must verify compliance with permit requirements by monitoring effluent, maintaining records, and filing periodic reports. A provision of the National Pollutant Discharge Elimination System permit is the requirement that Sacramento County develop a Construction Site Management Program. The Construction Site Management Program is intended to help protect the water

quality of surface waters by minimizing the amount of sediment runoff from a construction site. This is accomplished by enforcement of the existing County Land Grading and Erosion Control Ordinance.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. In the case of mining permits such as the proposed project, the work authorization permit (WAP) takes the place of a grading permit. To obtain a grading permit or work authorization permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to SCC 16.44 are subject to the Stormwater Ordinance (SCC 15.12) described above.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities. The Construction General Permit is issued by the State Water Resources Control Board (http://www.waterboards.ca.gov/stormwtr/construction.html Accessed 3-8-16) and enforced by the Regional Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Board prior to construction. The General Permit requires preparation and implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on site at all times during construction for review.

Applicable projects applying for a County grading permit must show proof that a Notice of Intent (NOI) has been filed and must submit a copy of the Stormwater Pollution Prevention Plan. Although the County has no enforcement authority related to the Construction General Permit, the County is required by its Municipal Stormwater Permit (Order Number R5-2008-0142) to verify that the Stormwater Pollution Prevention Plan program includes six minimum components (public education and outreach on storm water impacts, public involvement participation, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management in new development and redevelopment, and pollution prevention/good housekeeping for municipal operations).

In addition to the above construction controls, new development is required to include treatment of urban runoff using the best management practices (BMPs) required by the current standard defined in the *Stormwater Quality Design Manual*

for the Sacramento and South Placer Regions, 2007. The BMPs include a number of options for treatment including simple grassy swales and rain gardens, to more complex systems that use cisterns, pumps, and sand filters. Updates and background on the County's requirements for post-construction stormwater quality treatment controls, along with several downloadable publications, can be found at the following websites (accessed 1-26-16):

http://www.waterresources.saccounty.net/stormwater/Pages/construction.aspx

HTTP://WWW.WATERRESOURCES.SACCOUNTY.NET/STORMWATER/PAGES/NEWDEVELOPMENT.ASPX

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to hydrology and water quality that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CI-65 Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc. LID techniques may include but are not limited to:

- Bioretention techniques, such as filtration strips, swales, and tree filters
- Permeable Hardscape
- Green roofs
- Erosion and sediment controls
- Reduced street and lane widths where appropriate

CO-24 Comply with the Sacramento Areawide National Pollutant Discharge Elimination System Municipal Stormwater Permit (NPDES Municipal Permit) or subsequent permits, issued by the Central Valley Regional

Water Quality Control Board (Regional Board) to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership [SSQP]).

CO-28 Comply with other water quality regulations and NPDES permits as they apply to County projects or activities, such as the State's Construction General Permit and Aquatic Pesticides Permit.

CO-30 Require development projects to comply with the County's stormwater development/design standards, including hydromodification management and low impact development standards, established pursuant to the NPDES Municipal Permit.

CO-31 Require property owners to maintain all required stormwater measures to ensure proper performance for the life of the project.

CO-93 Discourage fill in the 100-year floodplain (Please also refer to CO-117).

CO-117 Public roads, parking, and associated fill slopes shall be located outside of the stream corridor, except at stream crossings and for purposes of extending or setting back levees. The construction of public roads and parking should utilize structural materials to facilitate permeability. Crossings shall be minimized and be aesthetically compatible with naturalistic values of the stream channel.

CO-118 Development adjacent to waterways should protect the water conveyance of the system, while preserving and enhancing the riparian habitat and its function.

CO-126 Prohibit obstruction or underground diversion of natural waterways.

ENVIRONMENTAL SETTING

PROJECT SITE CHARACTERISTICS

The project site (Plate HW-1) is in the central portion of unincorporated Sacramento County and consists of fields for cattle grazing and feeding, three residences, agricultural buildings, and high-voltage power transmission lines. Elder Creek traverses the project site from a northeasterly to southwesterly direction. Site topography generally slopes gently downward from east to west.

The project site consists of 683 acres of land, of which 355 acres will be mined. The limits of disturbance for the project, which includes mining and all site preparation activities, will be 383 acres. The project also includes an

approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system. The site includes irrigated pasture, annual grassland, irrigation ditches and ponds, ephemeral drainage, seasonal wetlands and vernal pools. In the early 1950s, ranchers channelized the portion of Elder Creek in the eastern part of Aspen VIII and created an artificial pond for ranching use. Downstream of this pond, the creek continues in its natural channel under Elder Creek Road and flows through the Aspen IX property. However, due to extensive agricultural uses on-site and on surrounding properties, the entire stretch of Elder Creek is heavily manipulated.

Plate HW-2 shows that the project site includes four FEMA flood zones: AO, AE, X (shaded), and X. Zone AO is an area subject to inundation by a 1-percent-annual-chance of shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Zone AE is an area subject to inundation by the 1-percent-annual-chance flood where base flood elevations are known. Shaded Zone X is an area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. Finally, Zone X is an area of minimal flood hazard usually depicted on flood insurance rate maps as above the 500-year flood level (0.2% annual chance).

The northwest corner of Aspen IX is FEMA Zone AO and the southwest corner of Aspen VIII is FEMA Zone X (shaded). These areas will be mined but the culvert improvements on Elder Creek Road are expected to remove them from the floodplain (Plate HW-3). FEMA Zone AE occurs along Elder Creek and will not be mined. The remainder of the site is in FEMA Zone X which is the main area to be mined.

After implementation of the culvert improvements, the entire area proposed for mining will be outside of Elder Creek's 200-year flood limits.

Plate HW-1: Project Location

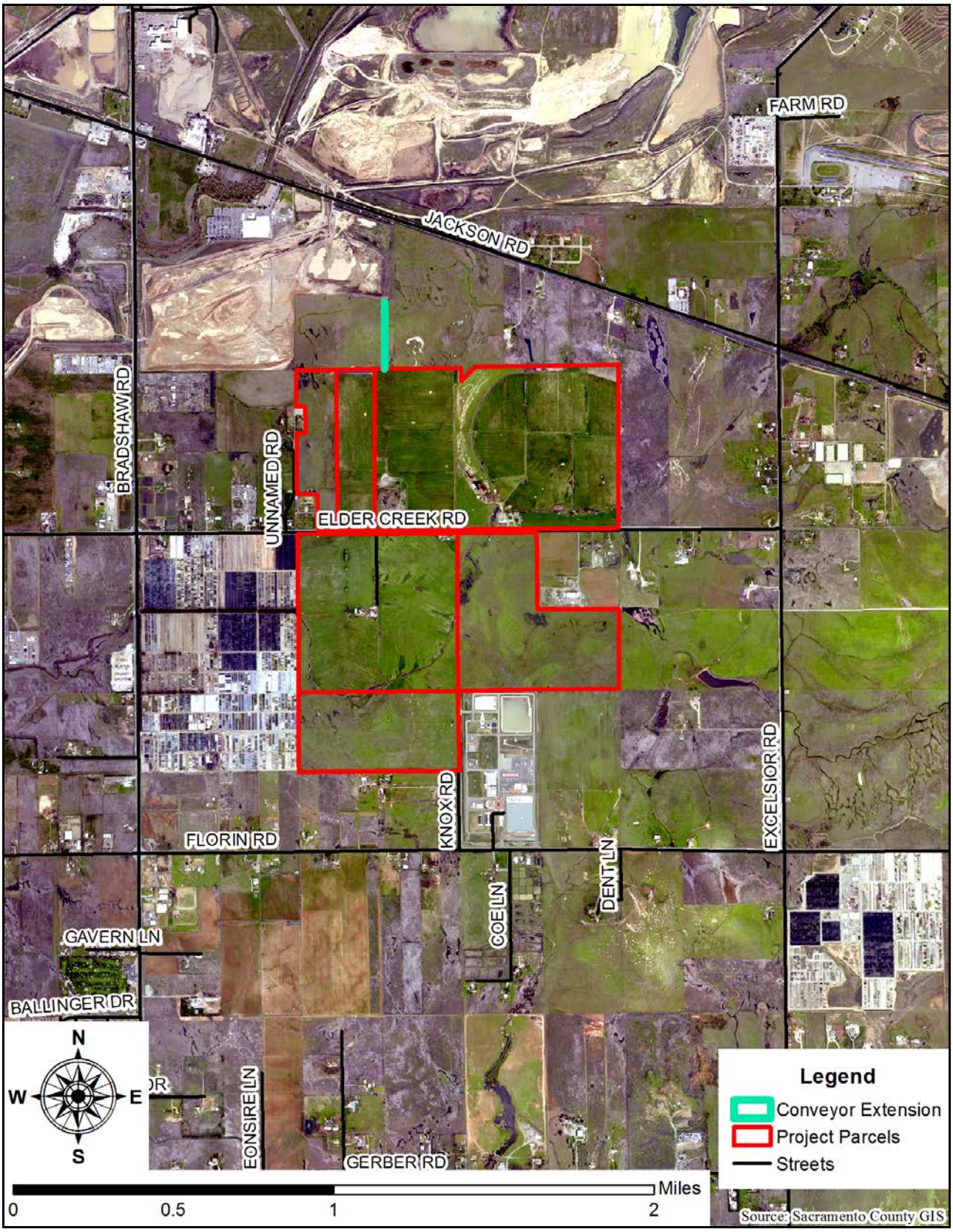


Plate HW-2: Existing FEMA Flood Limits

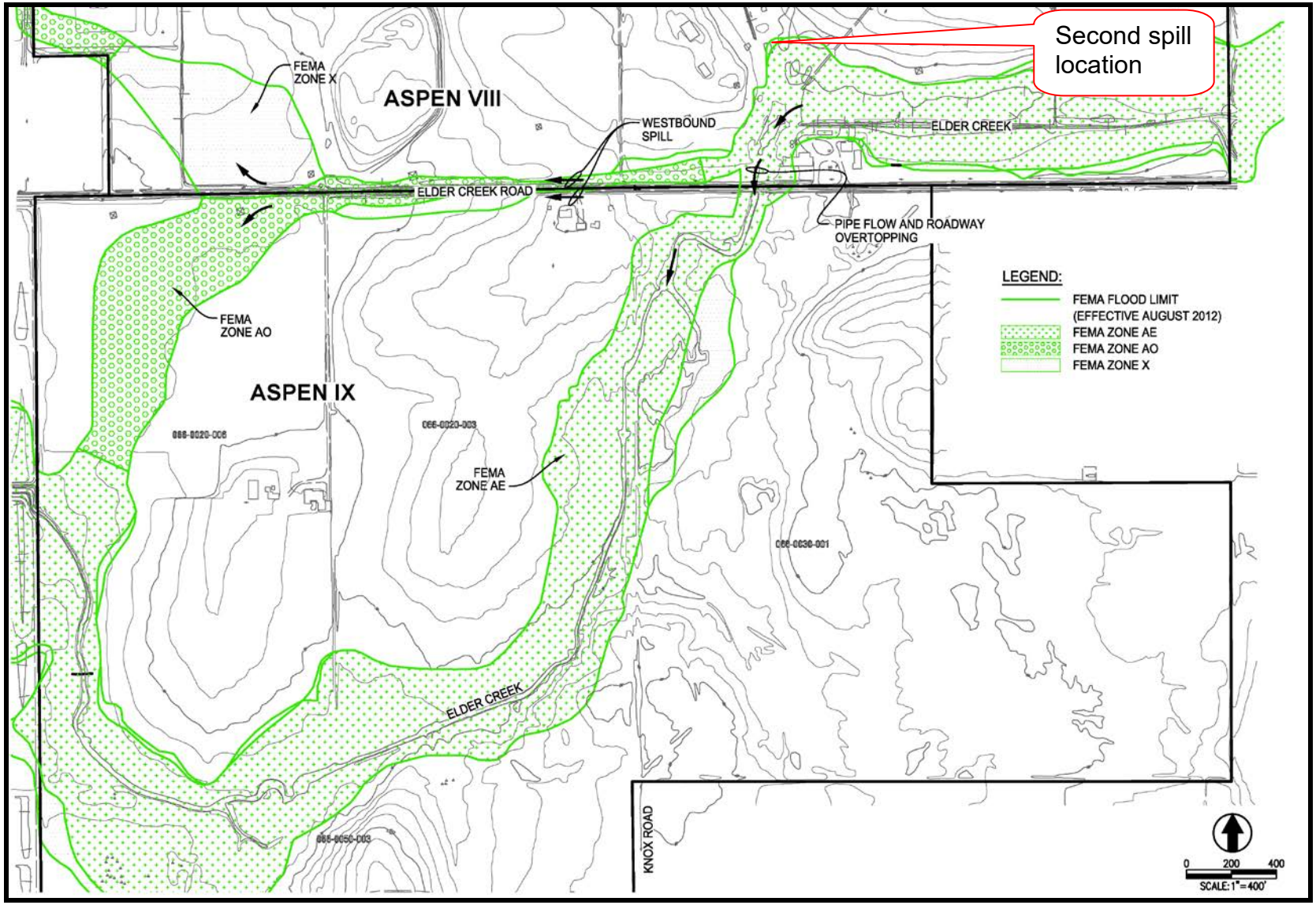
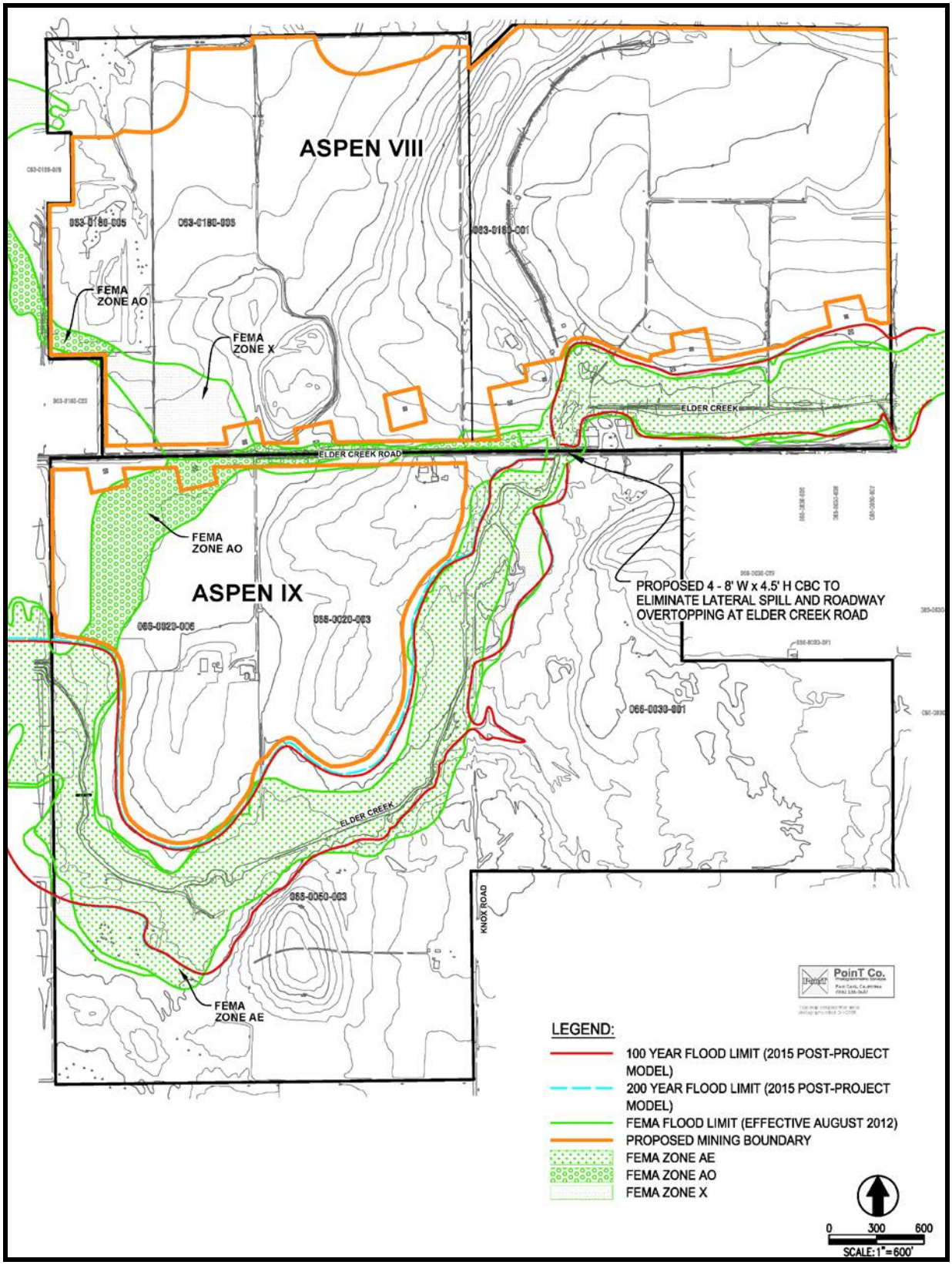


Plate HW-3: Proposed Flood Limits and Mining Boundary



Existing Conditions (Pre Mining)

Within existing stream systems, hydrologic conditions can be modeled using software that allows predictions of future conditions (water surface elevations) to be made in response to proposed projects such as this one.

Elder Creek has been the subject of previous hydraulic studies and the hydraulic models used for such studies have changed over time. The Sacramento County Department of Water Resources (DWR) updated its system-wide hydrology and hydraulics models for Elder Creek in 2015. The model uses updated hydrological input, and the model's stream geometry is based on more detailed and current topographical information (sourced in part from Sacramento County lidar and Central Valley Floodplain Evaluation and Delineation (CVFED) lidar data). The 2015 DWR model was used for Cunningham Engineering's hydrological analysis for the Aspen VIII and IX project. Their analysis is summarized in a report titled *Aspen VIII and IX Hydraulic Analysis of Elder Creek, dated January 13, 2016.* The report can be found in Appendix HW-1.

In May 2016, an updated baseline (pre-project) hydraulic model of Elder Creek was developed by Sacramento County DWR. This model is still in the process of being refined.

Hydrology and Hydraulics

For the 100-year event, the 2015 DWR existing-conditions Hydrologic Engineering Center – River Analysis System (HEC-RAS) model yields results that indicate a right-bank westbound spill (westbound spill) between river station (RS) 10.65 and RS 10.619 on the Aspen VIII site immediately upstream of Elder Creek Road. Furthermore, the model indicates this spilled floodwater generally flowing west along the Elder Creek Road corridor. Most of this spilled water continues overland in the northwest part of the Aspen IX site, returning to Elder Creek on the Aspen IX site near its western boundary. This is shown on Plate HW-2, as the FEMA Zone AO areas along Elder Creek Road and on the northwest portion of Aspen IX.

The 2015 DWR model's 100-year analyses predicted a second spill on the Aspen VIII site. This spill is also located along the creek's right bank, located between river station (RS) 10.720 and RS 10.65 which is roughly 300 to 400 feet upstream of Elder Creek Road. During high flows, the 2015 DWR model indicates water from this second spill flowing northward along an existing south-to-north irrigation ditch corridor that bisects the Aspen VIII site and eventually discharges north from the Aspen VIII site at its northerly boundary.

For the 100-year event, the 2015 DWR model estimates a peak northbound spill rate of 62 cfs (cubic feet per second) at the second spill location. In the model, this northbound spill is represented via a lateral weir element, whose crest profile is based on the Central Valley Floodplain Evaluation and Delineation (CVFED) topographic mapping. Cunningham Engineering reviewed the CVFED lidar mapping near the

second spill location and the Cunningham Engineering interpretation of the CVFED topographic results in a slightly different lateral weir definition. This in turn produced a lower peak spill rate of 18 cfs for the second spill than was predicted by the 2015 DWR model.

Cunningham Engineering modified the 2015 DWR model's overbank elevations. The purpose of this change is to reflect the engineer's lower bank elevation. The modified bank elevation will result in a slightly lower computed peak water surface elevation (WSEs).

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Hydrology and Water Quality the proposed project would have a significant impact if it:

HW-1: Substantially alters the existing drainage pattern of the project area and/or increases the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site; or

HW-2: Develops within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard; or

HW-3: Creates substantial sources of polluted runoff or otherwise substantially degrades ground or surface water quality; or

HW-4 Substantially depletes groundwater supplies or substantially interferes with groundwater recharge; or

HW-5 Places structures that would impede or redirect flood flows within a 100-year floodplain; or

HW-6 Exposes people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

HW-7 Creates or contributes runoff that would exceed the capacity of existing or planned stormwater systems.

The project is not proposing any type of structures that impede or redirect flood flows within the floodplain. Additionally, the project will not expose people or structures to a substantial risk of loss due to flooding. The mining operations will have only limited

structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather. In other words, if there is a chance for the mine pit to flood the employees will have ample time remove the equipment and themselves for danger. Finally the project would not contribute runoff to the stormwater system. The mine is a pit in the ground that would collect water and will not add to the existing stormwater system. Therefore, HW-5, HW-6, and HW-7 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation HW-1: Does the project substantially alter the existing drainage pattern of the project area and/or increase the rate of or amount of surface runoff in a manner that would result in flooding on- or off-site?

This impact analysis is based on the results of modeling conducted by Cunningham Engineering; the detailed report can be found in Appendix HW-1. The proposed project will mine into the FEMA-mapped Zone X and Zone AO on-site. The proposed project will eliminate the westbound ***and northbound*** spill**s** from Elder Creek's right bank just upstream of the Elder Creek Road culvert. The modeling indicates that by upsizing the Elder Creek Road culvert as proposed it will increase its conveyance capacity. In addition, some minor fill (6 to 12 inches) will be needed on the right overbank extending about 100 linear feet upstream of the culvert entrance, in order to contain the creek flows on the culvert approach.

The existing Elder Creek Road culvert currently experiences significant roadway overtopping in flood events, the proposed increase in culvert capacity will eliminate the existing overtopping. The existing corrugated metal pipe (CMP) will be replaced with a 4-8 foot wide by 4.5 foot high concrete box culvert (CBC). The intent of the up sized culvert is to prevent pit capture due to roadway overtopping. The existing culvert length is approximately 45 feet and it is recognized that future widening of Elder Creek Road may occur. The CEC 2015 post project model confirms that the proposed concrete box culvert will provide sufficient capacity to pass the 200-year peak flow (956 cfs) under Elder Creek Road. The new concrete box culvert's corresponding maximum headwater elevation is at an elevation 77.1 feet at the model cross-section immediately upstream of the concrete box culvert entrance. For the 100-year peak flow (983 cfs), the corresponding headwater elevation is at 76.8 feet.

The proposed mining and reclamation plans for Aspen VIII and IX call for the construction of a low, compacted-earth berm located near the top of the proposed mining slope. The berm will lie generally outside the 200-year flood limit, will have a ~~12~~***20***-foot minimum top-width and 2H:1V (2 units of horizontal to on unit of vertical) side slopes, and is intended to provide the proposed mining pit with three feet of freeboard in the 200-year event. The proposed pit-side berm will run the full length of the creek on both the Aspen VIII and IX mining sites. At the proposed concrete box culvert crossing of Elder Creek Road, the Aspen VIII and IX berms will each tie to the west

wingwalls of the new culvert structure, maintaining three feet of freeboard on the pit-side of the Elder Creek.

While the berms are expected to provide some flood protection for the proposed mining operations, it is not intended that the berms will be certified with a FEMA accreditation. Absent such FEMA accreditation, all mining pit areas that will lie below the base flood elevation will be mapped into a 'Zone A' Special Flood Hazard Area. Sacramento County Department of Water Resources (DWR) staff requested that this statement be added to the drainage study conducted by Cunningham Engineering so it is clearly understood that the mine areas which lie below the base flood elevation will be mapped into the FEMA floodplain. Moreover, DWR staff also requested these conditions to be added to the mining Use Permit.

On the non-pit-side of Elder Creek, the peak 100-year water surface elevations (WSE) will continue to be naturally contained within limits of the Aspen VIII and IX properties. As such, abutting properties are not impacted by the local increase in peak water surface elevations within Aspen VIII and IX.

The elimination of the right-bank (second spill) northbound spill on Aspen VIII will result in the flow component being conveyed downstream in Elder Creek. This will result in a flow increase downstream in Elder Creek. The increase in downstream peak flow is accompanied by a small increase in Elder Creek's computed peak water levels. Downstream from the project site to Bradshaw Road, the computed average increase in Elder Creeks' peak water surface elevation is 0.01 feet for (100-year) and 0.04 feet (200-year) and from Bradshaw Road to Florin Road the average increase is 0.00 feet (100-year) and 0.01 feet (200-year). DWR also modeled Elder Creek's down stream flow and peak water elevations. DWR's modeling indicated a slight increase of peak water surface elevations above what the Cunningham Engineering model indicated. For comparison purposes DWR's higher estimate of the average increase in Elder Creek's peak water surface elevation from the project site to Bradshaw Road is 0.03 inches (100-year) and 0.05 feet (200-year) and between Bradshaw Road and Florin Road is 0.01 feet (100-year) and 0.02 (200-year). The post-project 100-year/200-year water surface profiles (WSPs) are tabulated in Appendix HW-1.

In May 2016, an updated baseline (pre-project) hydraulic model of Elder Creek was developed by Sacramento County DWR. This model is still in the process of being refined.

Preliminary review of the project by Cunningham Engineering utilizing the modified May 2016 baseline model to try to gauge the downstream effects of the proposed mining plan has resulted in WSE increases that are mostly in the 0.0-0.1 foot range. At all locations downstream of Bradshaw Road, the computed increase was less than 0.1 feet. However, within that reach of the creek between Aspen IX and Bradshaw Road, the model computed the water surface at twelve stream cross-sections. At these twelve cross-sections, the computed WSE increase ranged from 0.05 to 0.11 feet, with a reach-averaged increase of 0.08 feet. Of the twelve cross-section locations, only three indicated a WSE increase of 0.1 feet or more: A pair of adjacent cross-sections at the

very east edge of the property indicated 0.10 and 0.11 feet respectively. The WSE increase of 0.11 was roughly midway between Aspen IX and Bradshaw.

However, preliminary review by Sacramento County DWR found increases in water surface elevations that were greater than those reported above. DWR found that the water surface elevation increases by more than 0.1 feet downstream of Bradshaw Road and there are increases ranging up to 0.17 feet between Bradshaw Road and the western project boundary. DWR staff noted, however, that the models are in flux and that variable results can be expected until the model is finalized.

The 2014 Sacramento County Floodplain Management Ordinance (CFMO) defines maximum allowable increments in post-project water surface elevations resulting from the implementation of projects. The Sacramento County Floodplain Management Ordinance Section 906-06 (H) requires that a project not have an adverse impact, as defined in Sacramento County Floodplain Management Ordinance Section 902-01. The definition of adverse impact includes but is not limited to an increase in the base flood elevation equal or greater than 0.1 foot. For the proposed project the computed downstream increments in peak water surface elevations for both the 2015 DWR and Cunningham Engineering models (see above) are less than the 0.1-foot threshold. However, the May 2016 updated model may have results that exceed the 0.1 foot threshold of significance; if so, the project would result in a potentially significant impact as defined in the Sacramento County Floodplain Management Ordinance.

CONCLUSIONS

Cunningham Engineering utilized Sacramento County's Department of Water Resources most current (August 2015) system-wide hydraulic model for Elder Creek, with minor local adjustments to compute the 100-year/200-year flood limits within the proposed project site. The existing roadway overtopping at Elder Creek Road, together with the two existing creek spills on the Aspen VIII site, will be eliminated for events up to the 200-year storm. This will be accomplished by replacing the existing under-capacity corrugated metal pipes with a 4-8 foot wide by 4.5 foot high concrete box culvert sized for the 200-year peak discharge. The pit-side freeboard of 3 feet will be provided by the proposed earthen berm.

The elimination of the existing spills on the Aspen VIII site will result in an increase in Elder Creek's peak flow downstream from the project site. Cunningham Engineering's 2016 analysis which is based on the 2015 DWR model indicates that downstream of the project site the increase in peak water levels of 0.01 feet (100-year) and 0.04 feet (200-year) from the project site to Bradshaw Road would not exceed the Sacramento County Floodplain Management Ordinance threshold of 0.1 feet. However, relative to the emerging May 2016 DWR model, the increase in peak water levels may exceed 0.1 feet. Therefore, this impact is considered potentially significant.

During June and July of 2016, DWR continued to refine and updated the model. The resultant model is referred to as the 2016 DWR baseline model; the results of the 2016 DWR baseline model indicate that higher peak spills are expected. The

DWR baseline computed water surface elevations are as follows and can be found in Appendix HW-2 Hydraulic Analysis:

- ***Aspen IX to Bradshaw Road: 0.19' to 0.36' (average 0.27')***
- ***Bradshaw Road to Florin Road: 0.08' to 0.25' (average 0.13')***
- ***Downstream of Florin Road: 0.21' to 0.26' (average 0.18')***

The updated 2016 DWR baseline model confirms that this impact should be considered significant.

In order to mitigate the post-project increment in downstream 100-year water surface elevations to less than 0.1 feet, the applicant is proposing to add a high-flow diversion weir from Elder Creek just upstream of the westerly boundary of Aspen IX property (Plate HW-4 and Plate HW-5). Staff from DWR has reviewed the updated models and the applicant's proposal and indicated that, as amended below, Mitigation Measure HW-1 adequately address the impact.

Based on the above analysis, the proposed project could substantially alter the existing drainage patterns of the project area and/or increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site. Thus, the drainage and flooding impacts are potentially significant.

Level of Significance Before Mitigation: Potentially Significant

Plate HW-4: Elder Creek Diversion Weir

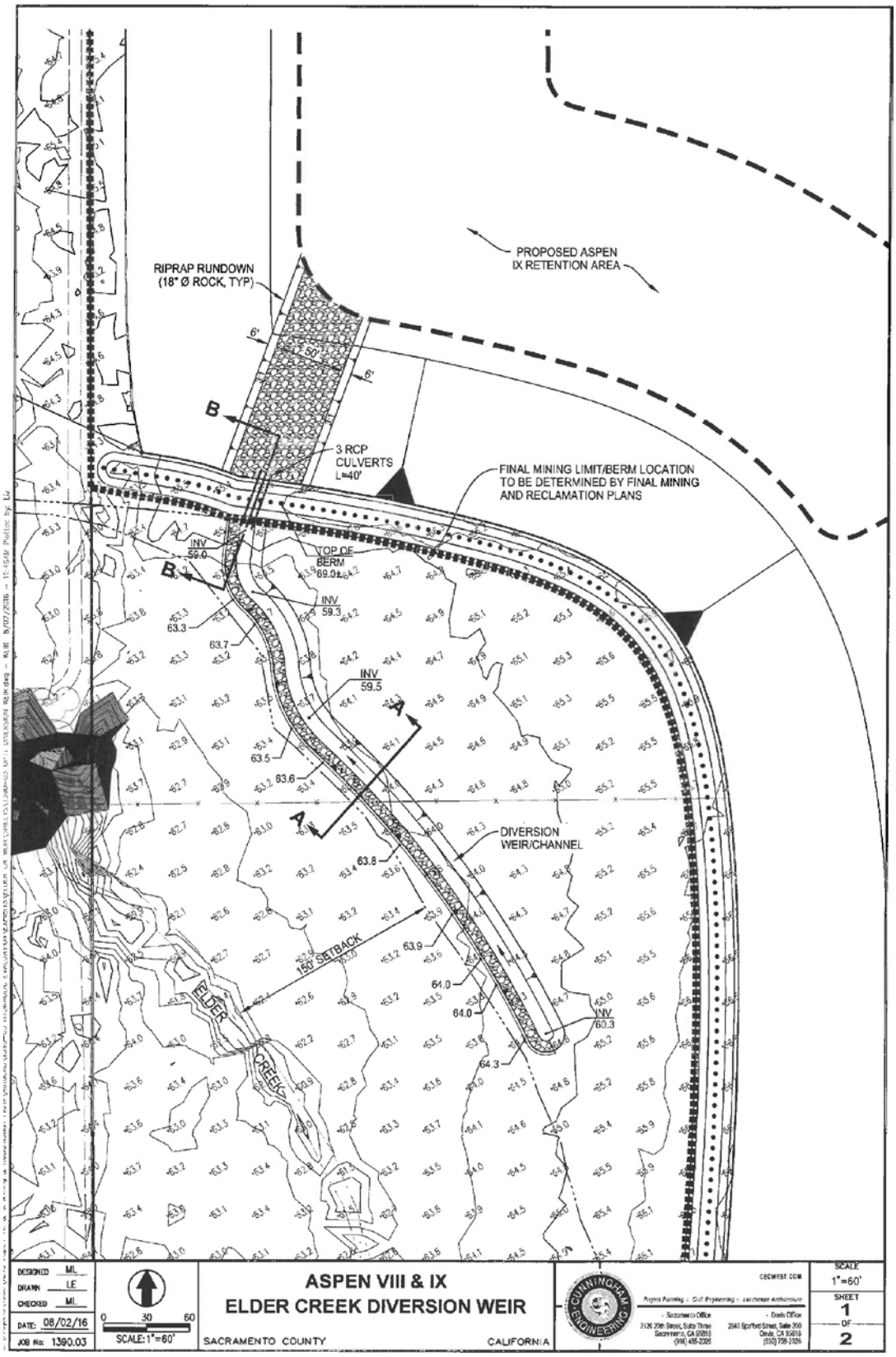
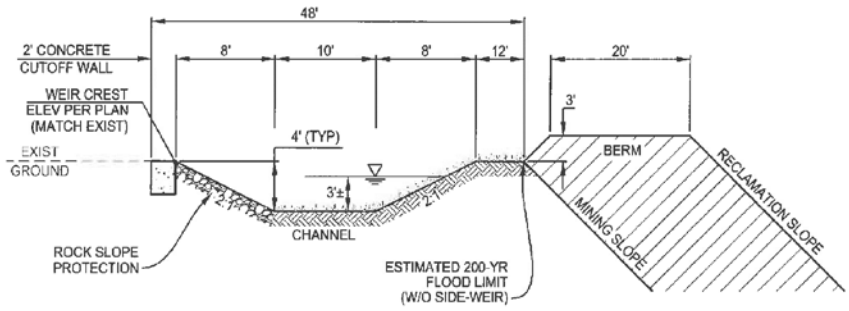
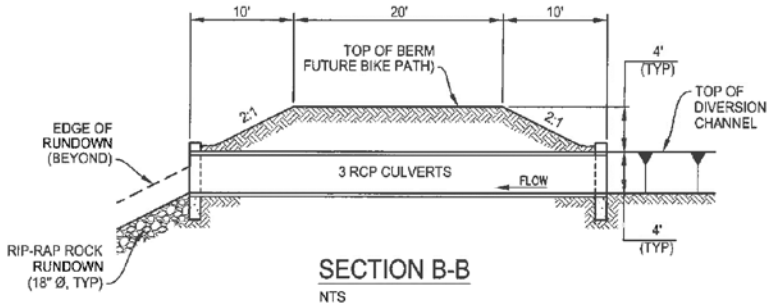


Plate HW-5: Elder Creek Diversion Weir Details



SECTION A-A (TYP)
NTS



SECTION B-B
NTS

DESIGNED ML DRAWN LE CHECKED ML DATE: 08/02/16 JOB No: 1390.03	**ASPEN VIII & IX** **ELDER CREEK DIVERSION WEIR** SACRAMENTO COUNTY CALIFORNIA	CUNNINGHAM ENGINEERING CEDWEST.COM Project Planning • Civil Engineering • Landscape Architecture • Sacramento Office: 2120 20th Street, Suite Three, Sacramento, CA 95818, (916) 455-2626 • Davis Office: 2540 Shipford Street, Suite 203, Davis, CA 95616, (530) 759-3029	SCALE NTS SHEET 2 OF 2

HW-1 Elder Creek Base Flood Elevations Mitigation Measure

Prior to approval of the Work Authorization Permit, the applicant shall prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:

~~1. If the analysis demonstrates to the satisfaction of the County of Sacramento Department of Water Resources that the project related increase in base flood elevation of less than 0.1 feet, without mitigation, then no further mitigation is required.~~

~~2.~~ **1**. ~~If the analysis concludes that the project may result in an increase in base flood elevation of 0.1 or greater, t~~***T***he applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.

- Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.

- Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit.

~~If mitigation measures are required to reduce the Project's increase in base flood elevations to below 0.1 feet, such~~ ***This mitigation*** measure~~s~~ shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. ~~Dependent upon the measures selected, additional CEQA compliance may be required prior to implementation~~. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to ***initiating work in the FEMA floodplain*** ~~to the issuance of the Work Authorization Permit for the Project~~.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation HW-2: Does the project develop within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard?

Although the project is in a 100-year floodplain, it does not propose any development within the floodplain. The southwest corner of Aspen VIII is in FEMA zone AO and X. The northwest corner of Aspen IX is in FEMA Zone AO see Plate HW-2. These areas will be excavated as part of the mining operation. The excavated mine pit will create more storage for the flood waters. The project will create additional storage for flood waters and does not proposed any development within the floodplain; therefore the projects impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation HW-3: Does the project create substantial sources of polluted runoff or otherwise substantially degrade ground or surface water quality?

During the wet season (October 1 – April 30), the project must include an effective combination of erosion, sediment and other pollution control best management practices (BMPs) in compliance with the County ordinances and the State's Construction General Permit. During the rest of the year, typically erosion controls are not required, except in the case of predicted rain.

Erosion controls should always be the first line of defense, to keep soil from being mobilized in wind and water. Examples include stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers and anchored blankets. Sediment controls are the second line of defense; they help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

In addition to erosion and sediment controls, the project must have BMPs in place to keep other construction-related wastes and pollutants out of the storm drains. Such practices include, but are not limited to: filtering water from dewatering operations, providing proper washout areas for concrete trucks and stucco/paint contractors, containing wastes, managing portable toilets properly, and dry sweeping instead of washing down dirty pavement.

It is the responsibility of the project proponent to verify that the proposed BMPs for the project are appropriate for the unique site conditions, including topography, soil type and anticipated volumes of water entering and leaving the site during the construction phase. In particular, the project proponent should check for the presence of colloidal clay soils on the site. Experience has shown that these soils do not settle out with conventional sedimentation and filtration BMPs. The project proponent may wish to conduct settling column tests in addition to other soils testing on the site, to ascertain whether conventional BMPs will work for the project.

If sediment-laden or otherwise polluted runoff discharges from the construction site are found to impact the County's storm drain system and/or Waters of the State, the property owner will be subject to enforcement action and possible fines by the County and the Central Valley Regional Water Quality Control Board.

Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, slit fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.

During the mining phase, the stockpiles for topsoil and overburden will be vegetated with native grasses to guard against erosion. The vegetation of the stockpiles is required by the approved reclamation plan and will be inspected at least once per year to insure compliance. Upon completion of mining activities the site will be reclaimed to open space grassland and upon signoff of the approved reclamation plan the site will be fully revegatated with an approved seed mix. Project compliance with requirements outlined above, as administered by the County of Sacramento and the Central Valley Regional Water Quality Control Board will ensure that project-related erosion and pollution impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation HW-4: Does the project substantially deplete groundwater supplies or substantially interfere with groundwater recharge?

The mining operation will not excavate to a depth that will interfere with groundwater recharge. Data collected in February 2014 from existing on-site groundwater wells show groundwater between 112 to 118 feet below existing grade. It is anticipated that the final excavation depths will not exceed 60 below existing grade. Thus, the mining operation will not directly interfere with the groundwater. Furthermore, the proposed project will not substantially interfere with groundwater recharge. The project does not construct or propose any impervious surfaces that would limit water percolation. In fact, it could be argued that because the mine operation is removing overburden and aggregate materials the groundwater can be recharge more easily. Therefore, the projects impacts to groundwater are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

13 GEOLOGY AND SOILS

REGULATORY CONTEXT

STATE REGULATIONS

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The intent of the Alquist-Priolo Earthquake Fault Zoning Act of 1972 is to reduce the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors and prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive and establishes a process for reviewing building proposals in Earthquake Fault Zones. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. However, no Alquist-Priolo Zones are mapped within the project site (see http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed 1-12-16).

SEISMIC HAZARDS MAPPING ACT

The intent of the Seismic Hazards Mapping Act of 1990 is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. However, no Seismic Hazard Zones are mapped in the project site (see http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, accessed 1-12-16.

SURFACE MINING AND RECLAMATION ACT

The State of California Surface Mining and Reclamation Act of 1975 (SMARA) is the primary regulation governing mining operations and mine reclamation. Its purposes are to ensure that adverse environmental effects are prevented or minimized; mined lands are reclaimed to a useable condition; production and conservation of minerals are encouraged while giving consideration to recreational, ecological, and aesthetic values; and residual hazards to public health and safety are eliminated. Local agencies are

responsible for ensuring compliance with SMARA requirements for mine operation and reclamation.

SMARA mandates that the Mineral Resources Project, which is administered by California Geologic Survey and provides objective geologic expertise and information about California's diverse non-fuel mineral resources, classify lands throughout the state that contain regionally significant mineral resources. Through the SMARA Mineral Land Classification Project, the State Geologist identifies and maps mineral resources of the state (not including oil and gas) to show where economically significant mineral deposits occur and where they are likely to occur based upon the best available scientific data. See, Environmental Setting, below for information on the Mineral Land Classifications present in the project area.

Mineral resources classified under the Mineral Land Classification Project include metals; industrial minerals; and construction aggregate, which include sand, gravel, and crushed stone. Special emphasis has been given to construction aggregate because it is the state's most important mineral commodity in terms of tonnage, value, and societal infrastructure. Local agencies are required to use the classification information when developing land-use plans and when making land-use decisions.

ASBESTOS AIRBORNE TOXIC CONTROL MEASURE FOR CONSTRUCTION, GRADING, QUARRYING, AND SURFACE MINING OPERATIONS

The California Air Resources Board (ARB) has adopted an Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. This statewide regulation requires use of control measures to minimize emissions of asbestos-laden dust. The ATCM applies to any size construction project although there are more stringent mitigation requirements for projects that exceed 1 acre. Naturally Occurring Asbestos is known to be present in eastern Sacramento County. See Environmental Setting, below for further information on the locations of Naturally Occurring Asbestos on the project site. In the project area, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has regulatory authority to ensure compliance with the Asbestos ATCM.

LOCAL REGULATIONS

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to geology and soils that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-39:

> Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

CO-40:

> Extractive uses and associated processing uses and facilities shall maintain adequate minimum setbacks to protect adjoining land uses.

CO-41:

> Surface mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

CO-57:

> In areas where topsoil mining is permitted, it shall be done so as to maintain the long-term productivity of the soil.

SA-1:

> The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

ENVIRONMENTAL SETTING

REGIONAL GEOLOGY

The present-day landscape of Sacramento County has been shaped over time by the ongoing processes of erosion and deposition. Material eroded from the ancestral Sierra Nevada, formed over 100 million years ago, was deposited onto the Sacramento Valley floor. Approximately 10 to 15 million years ago tectonic uplifts altered the geomorphology of the Sierra Nevada. Glaciation, volcanism, and erosion followed the uplifting, adding layers of sediment to the valley floor. Under the present geologic conditions, the alteration of the local geomorphology continues through stream erosion of the valley sediments and subsequent deposition in adjacent floodplains.

A "geomorphic province" is comprised of an area of similar geologic origin and erosional/depositional history. Sacramento County is situated in portions of two geomorphic provinces. By far the largest portion of the County lies in the Great Valley province which extends from Redding in the north to approximately Bakersfield in the south and is bounded by the coastal mountain ranges on the west and the Sierra Nevada to the east. A small area in the eastern part of the County is in the Sierra Nevada province. The project site is located within the Great Valley province.

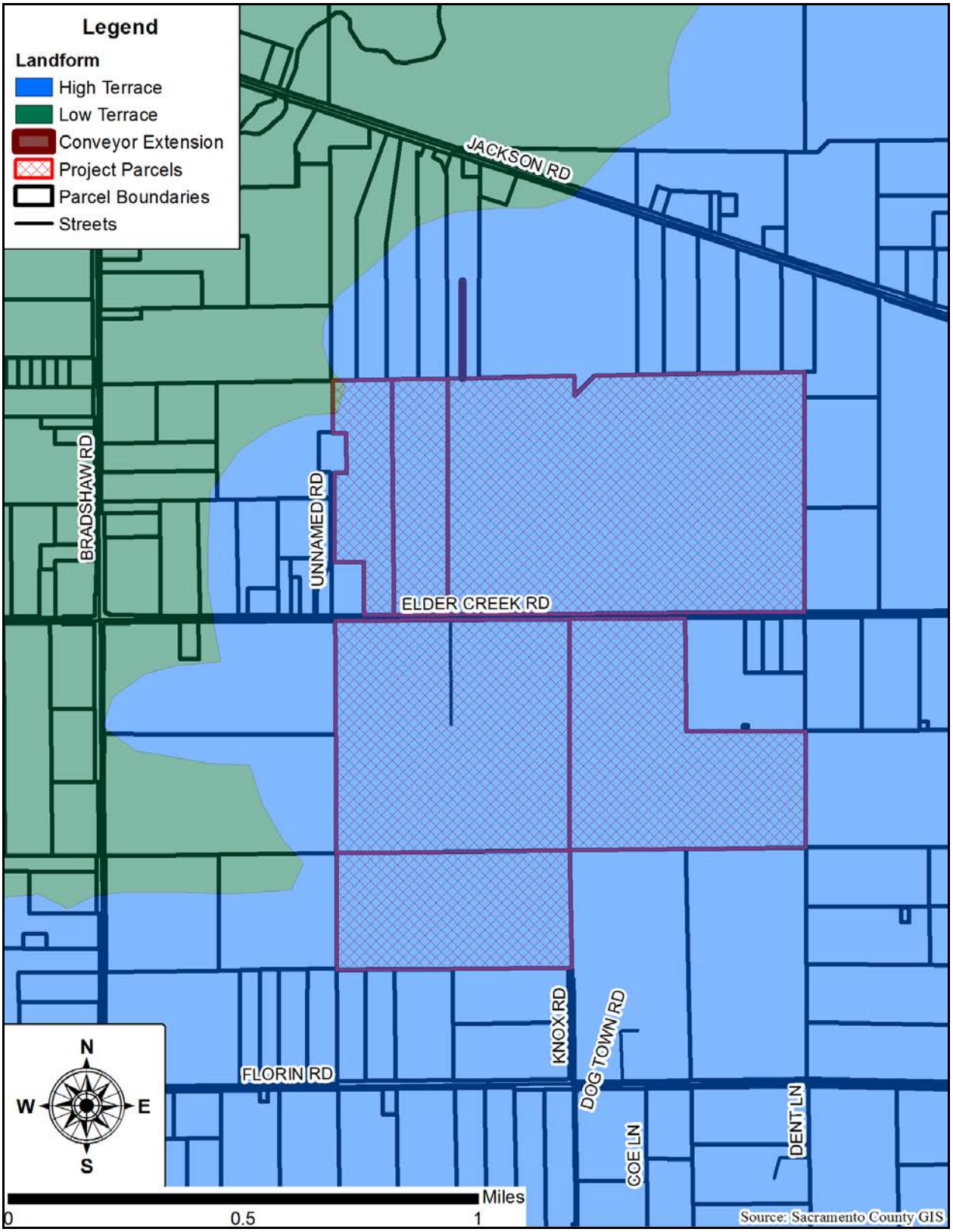
LANDFORMS

A landform is a geomorphological unit, and is largely defined by its surface form and location in the landscape. As part of the terrain, a landform is an element of topography. Landforms are categorized by characteristic physical attributes such as elevation, slope, orientation, stratification, rock exposure, and soil type. The development of the existing landforms in the project site took place during the Pleistocene (1.6 million to 10,000 years ago) and Holocene (10,000 to 200 years ago) Epochs. The predominant landforms in the project site are, low terrace, and high terrace (Plate GS-1). The high terrace landform is the majority of the site; the low terrace landform is found only in the northwest corner of the project site.

LOW TERRACE LANDFORM

Low terraces (also referred to as “young terrace”), are of relatively recent geologic origin. They contain late Pleistocene-age (100,000 years ago) geomorphic surfaces that are underlain by stream alluvium. Low terrace landforms occur on the broad, nearly level plain of alluvial deposits that make up the Sacramento Valley floor. Low terrace landforms are relatively young when compared to the high terrace or the mudflow landforms. Low terrace soils are not as well developed when compared to high terrace landforms, but have been forming long enough to have undergone significant pedogenesis (soil forming processes), and claypans and duripans are common.

Plate GS-1: Geographic Landforms



HIGH TERRACE LANDFORM

The high terrace landform (also referred to as “old terrace”) is restricted to the east side of the Central Valley. The high terrace landform was laid down from 600,000 to over 1 million years ago in the mid- to early Pleistocene to late Pliocene (5 million years ago), and lies topographically above low terraces. In the project site, high terraces are ancient deposits of the Pleistocene American River, which was located south of its present-day site. Very strong soil development has occurred in relatively flat areas on these terraces where the geomorphic surfaces are very old. The most pronounced erosion-induced mound-depression microtopography and vernal pool landscapes are found on the high terraces. The soils and vernal pools of the high terrace landform have essentially been developing for more than a half-million years. Consequently, the high terrace landform exhibits well-developed soils and floristically rich habitat. Similar to the low terrace landform, perched aquifers are common in high terrace landform soils.

GEOLOGIC FORMATIONS

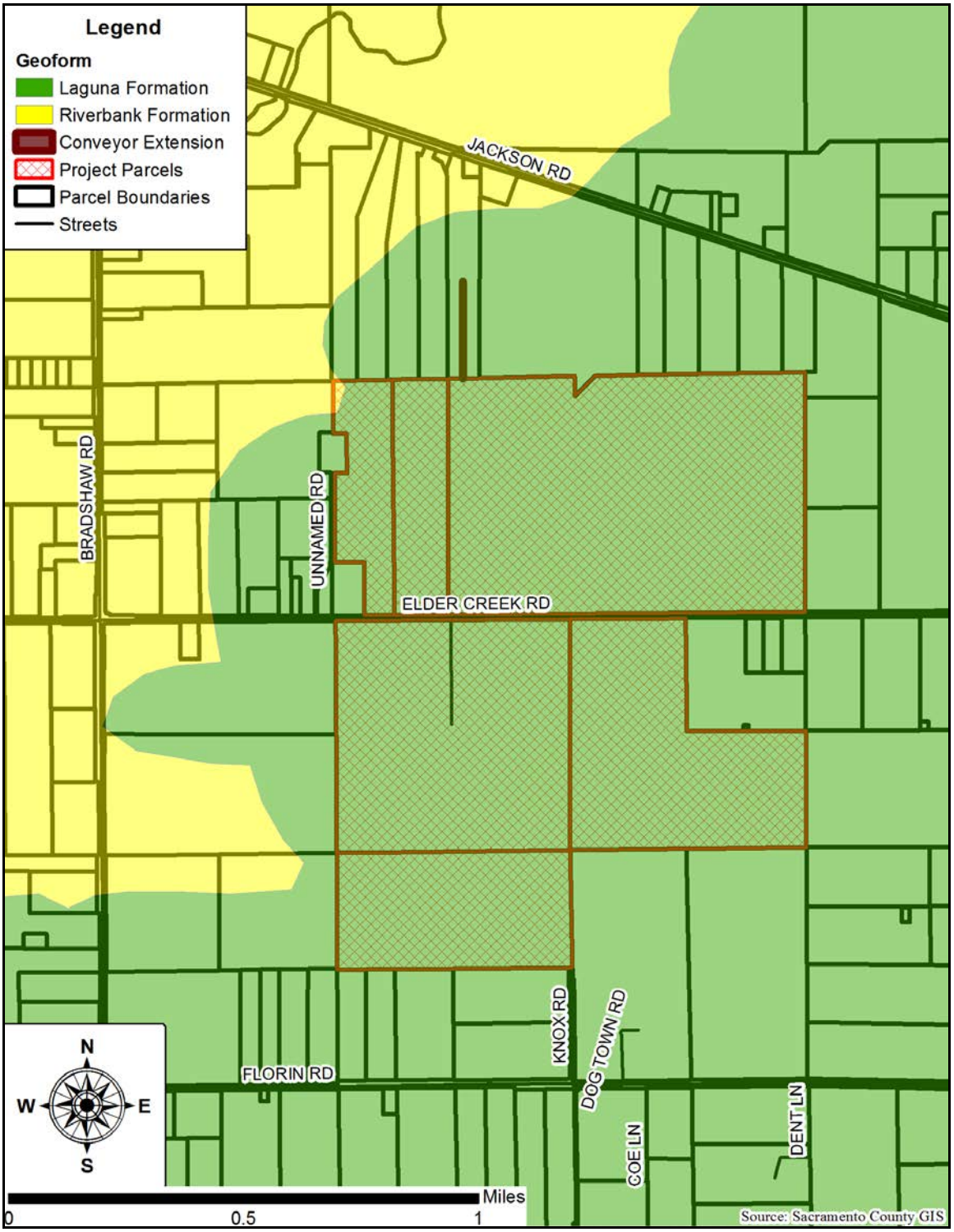
The landforms of the Central Valley can be further subdivided by specific geologic surficial deposits (formations). A geologic formation is a geomorphic feature on the earth’s surface representative of an episode of landscape development. Geologic formations are differentiated by various criteria, including age, physical structure, layering of materials, compaction, texture, depositional history, geomorphology, and soil-profile development. The geologic formations described below are derived from the Geologic Map of the Sacramento Quadrangle prepared by the California State Geological Survey (Plate GS-2). The majority of the project site is located in the Laguna formation; the northwest corner of the project site is located in the Riverbank formation.

LAGUNA FORMATION

The Laguna Formation is part of the high terrace landform; the Laguna Formation, ranging in age from late Miocene to early Pliocene, rests over the older Mehrten Formation. The Laguna Formation is composed of interbedded alluvial gravel, sand, and silt deposited from ancient river channels draining from the Sierra Nevada range, including the Feather, Yuba, American, Cosumnes, and Merced Rivers.

The Laguna Formation occurs in a band several miles wide running north to south in the project area. Its central outcrop extends northward from Deer Creek to its northernmost exposure along U.S. 50. The Redding soil series and Red Bluff-Redding complex are the characteristic soil series associated with the Laguna Formation north of the Cosumnes River (soils types are described further below).

Plate GS-2: Geologic Formations



RIVERBANK FORMATION

The Riverbank Formation is part of the low terrace landform. The Riverbank Formation was deposited on a plain of stream alluvium that has been partially dissected. The upper surface of this plain, in most places, represents the upper surface of the Riverbank Formation. The upper surface is characterized by a gently undulating surface. In the vicinity of Elk Grove, the Riverbank Formation is about 10 miles wide from west to east. To the east, it laps onto older materials composed of the Laguna Formation. To the west, it is in turn overlain by younger alluvial materials. The Riverbank Formation is generally confined to the eastern portions of the project site. Soils with claypans and duripans are common, as are vernal pools. The San Joaquin soil series is most closely associated with the Riverbank Formation. Other associated soil series in the project site include Redding, Red Bluff, and Corning.

SOILS

Many different kinds of soils are found within the project site (Plate GS-3) with a wide range of characteristics, including depth to rock, the presence of hardpans, erodibility, clay content, and soil slopes. Soils in the project site vary from very deep, nearly level alluvial soils, to undulating shallow soils over restrictive duripans or clay-rich soil horizons, to shallow hilly soils overlying bedrock. These soils also vary from well-drained to poorly drained mineral soils and, to a lesser extent, organic soils. Individual soil units are organized into map units called soil associations, which consist of soil units of the same texture and composition that occur in a geographic position.

LOW TERRACE SOILS

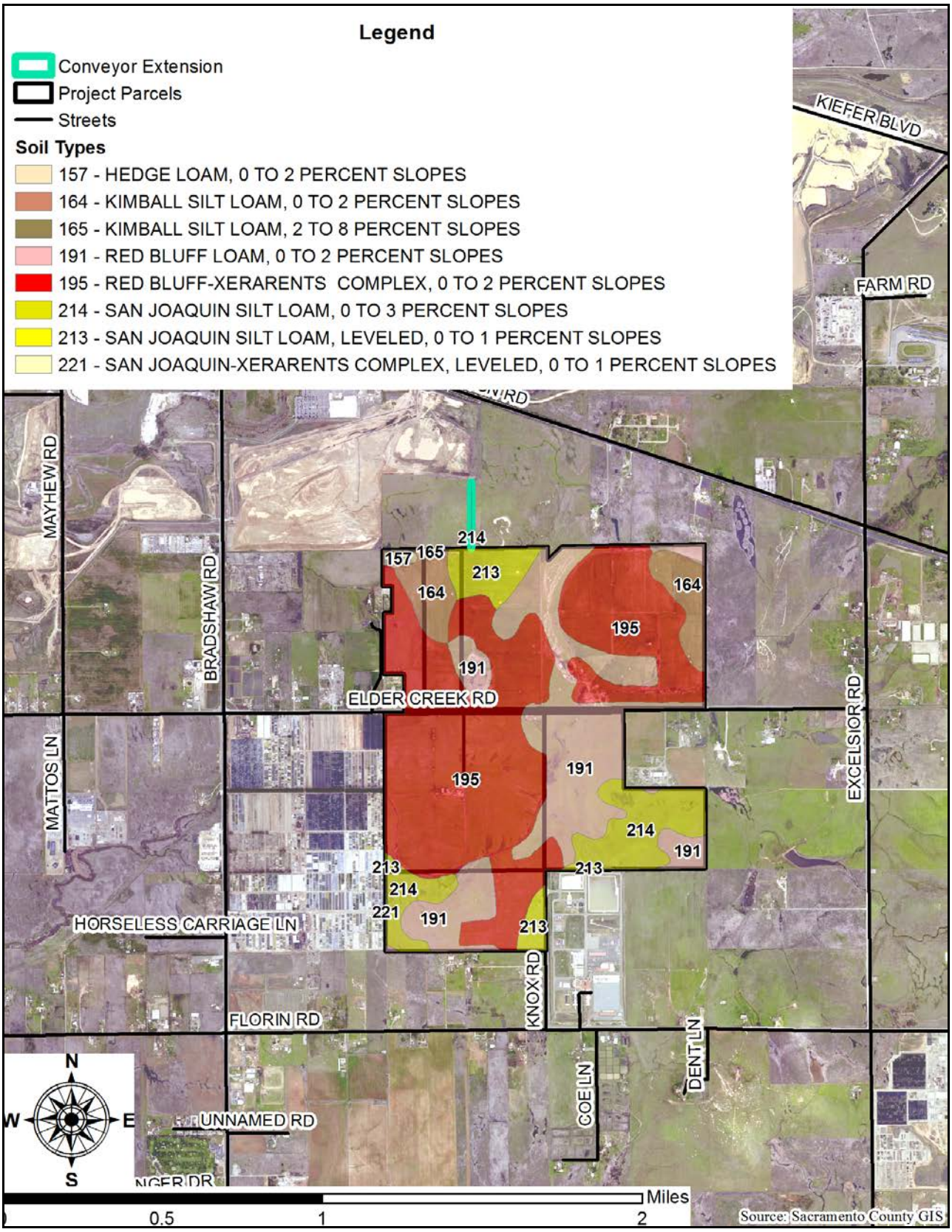
SAN JOAQUIN

The San Joaquin soil series, as well as others it is geographically associated with, developed on Riverbank-age alluvial terraces along the eastern flank of the Central Valley (in the later Pleistocene, 100,000 to 200,000 years old). San Joaquin soils formed in old alluvium on hummocky topography. A cemented hardpan (duripan) typically 2-4 few feet beneath the surface restricts roots and water percolation. The soil series consists of well and moderately well-drained soils above the duripan that formed in alluvium derived from mixed but dominantly granitic rock sources. The San Joaquin series is found on undulating low terraces with slopes of 0% to 9%. Some areas have been leveled. San Joaquin soils account for approximately 17% of soils within Sacramento County and San Joaquin soil complexes comprise an additional 8%, for a total of approximately 25% of Sacramento County. San Joaquin soils are the predominant soil series on the Riverbank Formation occurring on both the high floodplain and low terrace landforms in the county.

HEDGE LOAM

The Hedge loam soil series is moderately deep, moderately well drained soil that is in low areas on low terraces commonly adjacent to drainageways, on flood plains, and on

Plate GS-3: Soils Map



low stream terraces. It formed in alluvium derived from granitic rocks. Slopes generally are flat and level. In areas that have not been leveled, however, they are complex and are incised by many, shallow meandering drainageways and depressions. The native vegetation is mainly annual grasses and forbs.

KIMBALL SILT LOAM

The Kimball silt loam soil series is very deep, will drained soil in low, leveled areas on low terraces. It formed in alluvium derived from mixed granitic rocks. Slopes are flat and level. The vegetation in uncultivated areas is mainly annual grasses and forbs.

HIGH TERRACE SOILS

REDDING

Redding soil series developed on older, higher alluvial terrace landforms of the Laguna Formation (Pliocene to early-Pleistocene age).. The Redding soil series is a well-drained, gravelly loam mineral soil that is moderately deep over a hardpan and supports primarily annual grassland. It formed in gravelly old valley fill from mixed sources but primarily derives from the Laguna Formation. The hardpan occurs at a depth of 2 to 4 feet below surface level. The series is found on nearly level or dissected and undulating to hilly high terraces. Slopes are 0% to 30%.

Typically, the Redding series surface layer is strong brown gravelly loam about 7 inches thick. The upper part of the subsoil is yellowish-red loam and gravelly loam. The lower part is a claypan of reddish brown and yellowish-red gravelly clay about 8 inches thick, at about 20 inches depth with a weighted average clay content of 35% to 60%. Below this to a depth of 66 inches is a very gravelly hardpan that is strongly cemented with silica.

Therefore, the Redding soil series restrictive layer is both claypan and hardpan. In some areas, the surface layer is gravelly sandy loam, loam, or sandy loam. The shrink–swell potential is high. Surface runoff is very slow or slow. The hazard of water erosion is slight to moderate. Permeability is very slow in the Redding soil. Water is perched above the claypan/hardpan for short periods after heavy rainfall in winter and early spring. The soil between depths of 4 and 18 inches is usually dry all of the time from June until September or early October, and is moist in some or all parts the rest of the year. Redding soils are on nearly level or dissected and undulating to hilly high terraces. Microrelief may be hummocky. Gravel and cobbles tend to concentrate in the intermound in hummocky areas. This soil is used as rangeland or for dryland crops, such as wheat. It may provide wetland functions and values. Redding soils account for approximately 6% of Sacramento County, predominantly in the eastern portion of the County. Redding soils are the predominant soil series occurring on the Laguna Formation on low and high terraces.

RED BLUFF

The Red Bluff series consists of very deep, well-drained loamy mineral soils formed in high (older) terraces of the Laguna Formation. Red Bluff soils are dominant on high and intermediate terraces and have 0% to 9% slopes in elevations of 75 to 1,500 feet at mean sea level (amsl). Soil horizons nearest the surface may have maximum clay contents of 3% to 10% and deeper soil horizons have clay content ranging from 27% to 60%. The restrictive layer in the Red Bluff series is claypan at a depth of approximately 35 inches. A high content of clay, reddish color, and a significant amount of iron and manganese staining distinguish these soils from other soils in the project area. The soil between a depth of 7 and 21 inches is dry in all parts from June to October and moist in some or all parts the rest of the year. Red Bluff soils are among the oldest soils in the county. Parent materials for Red Bluff soils are gravelly and cobbly alluvium from mixed sources and laid down by an ancestral channel of the American River. This parent material consists of rounded pebbles and cobbles including dark metamorphic, quartzitic, and volcanic rocks in a granitic sand matrix. These American River channel pebbles are approximately 600,000 years old, consequently, they are of mid-Pleistocene age.

SOIL HAZARDS

SUBSIDENCE

Subsidence is the gradual settling or sinking of the Earth's surface with little or no horizontal motion. Lands in Sacramento County may be affected by five types of subsidence; compaction of unconsolidated soils by earthquake shaking, compaction by heavy structures, the erosion of peat soils, peat oxidation, and fluid withdrawal. As discussed below, the likelihood for substantial seismic activity in the project area is low; thus earthquake shaking is not a major source of subsidence. Subsidence related to peat soils and heavy structures has not been an issue in the project area. The pumping of water for residential, commercial, and agricultural uses from aquifers is the most common cause of subsidence in the County via the fluid withdrawal mechanism. Known subsidence areas generally occur in the far western portions of Sacramento County, west of I-5. Although subsidence has caused substantial problems in portions of the Delta and the San Joaquin Valley, it has not been a major concern in the project area.

LANDSLIDES

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. This process typically involves the surface soil and an upper portion of the underlying bedrock. Expansive soil on slopes tends to shrink and swell in response to moisture content changes. During this shrinking and swelling process, gravity tends to work the soil downslope. Movement may be very rapid, or so slow that a change of position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles. The vast majority of the topography in the project area is relatively flat and not subject to landslides.

NATURALLY OCCURRING ASBESTOS

Asbestos is a naturally occurring mineral that is classified as a known human carcinogen. In California, serpentinite and ultramafic rock (two specific rock types) may contain asbestos minerals, especially near fault zones. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock.

Asbestos poses a health risk only when it becomes friable, which means that it can be easily broken into tiny pieces, which can then be become airborne and then inhaled. All types of asbestos are hazardous and may cause lung disease and cancer. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading, and at quarry operations (due to broken or crushed serpentinite and ultramafic rocks). All of these activities may have the effect of releasing potentially harmful asbestos into the air.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) has determined that Naturally Occurring Asbestos is present within areas of eastern Sacramento County. The unincorporated areas in eastern Sacramento County with a moderate likelihood for the presence of naturally occurring asbestos include portions of Rancho Murieta and areas south of U.S. 50 in the City of Folsom's sphere of influence. The project site is not near these areas therefore, the project site is not likely to contain naturally occurring asbestos.

GEOLOGICAL HAZARDS

SEISMICITY AND EARTHQUAKE

The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking could potentially result in the damage or collapse of buildings, levees, and other structures. Most earthquakes occur along faults, which are fractures or geological areas of weakness, along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep.
No major active faults transect Sacramento County, and the County has experienced relatively little seismic activity. There are several subsurface faults in the Delta; but most are considered inactive. While it is possible for the project site to be subject to seismic shaking, according to the "Probabilistic Seismic Hazard Assessment for the State of California" report prepared by the California Department of Conservation (DOC), Division of Mines and Geology, the probability for such shaking in this area is low.

LIQUEFACTION

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a

fluid. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, and silty clays are generally stable under the influence of seismic ground shaking. Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Sites underlain by relatively loose sandy soils and saturated deposits of fill combined with a shallow groundwater table, which typically are located in alluvial river valleys/basins and floodplains, are susceptible to liquefaction.
As identified in the General Plan, Sacramento County has two areas that may pose liquefaction problems: the City of Sacramento downtown area and the Delta. The project area is outside both the downtown area and the Delta.

Mineral Resources

Under Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. SMARA requires the office of the State Geologist to classify lands within California based on mineral resource availability. The State Geologist is responsible for classifying lands subject to urban development by Mineral Resource Zones according to the presence or absence of significant sand, gravel, stone, or other deposits of value that may be suitable for mining. The process is based solely on underlying geology without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that local government decision-makers recognize and consider the mineral potential of the land before making land use decisions that could preclude mining.

In compliance with SMARA, the California Geological Survey (CGS) has established the following Mineral Resource Zone (MRZ) classification system to denote both the location and significance of key extractive resources.

MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.

MRZ-3 Areas containing mineral deposits, the significance of which cannot be evaluated from existing data.

MRZ-4 Areas where available information is inadequate for assignment to any other MRZ zone.

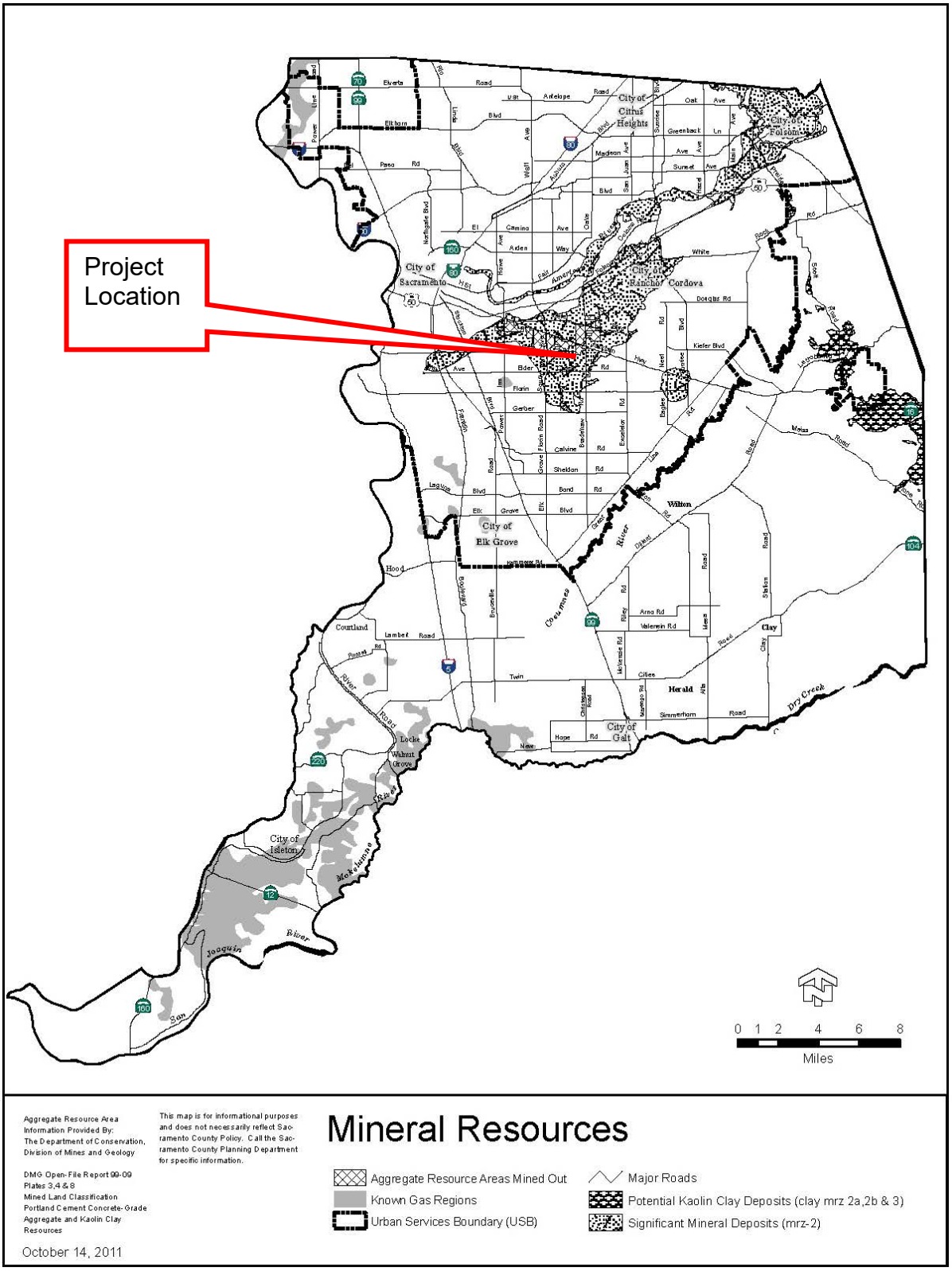
The project site is located in the MRZ-2 designation (Plate GS-4). The MRZ-2 designation is defined as areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presences exits.
The primary mineral resource in the project area that is currently in production is aggregate. Other mineral resources that have, or could support commercial operations include clay, gold, silver, peat, topsoil, lignite, natural gas and petroleum. Clay is surface mined in at least two locations within the county including along the Cosumnes River. At present, peat and lignite deposits in the Delta are not commercially mined.

Existing Site Conditions

The project includes two proposed mine pits, Aspen VIII and Aspen IX. The total area for Aspen VIII is approximately 319 acres and the total area for Aspen IX is approximately 363 acres while the mining pits total 355 acres. The project also includes an approximately one acre portion of a parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County (Plate GS-5) east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community. The site currently consists of fields for cattle grazing, three residences, agricultural buildings associated with grazing and farming, and high-voltage power line towers.

The project site's topography generally slopes down from east to west with the project site elevation ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet above mean sea level along the west side.

Plate GS-4: Mineral Resources



Aggregate Resource Area Information Provided By: The Department of Conservation, Division of Mines and Geology

DMG Open-File Report 99-09 Plates 3,4 & 8 Mined Land Classification Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources

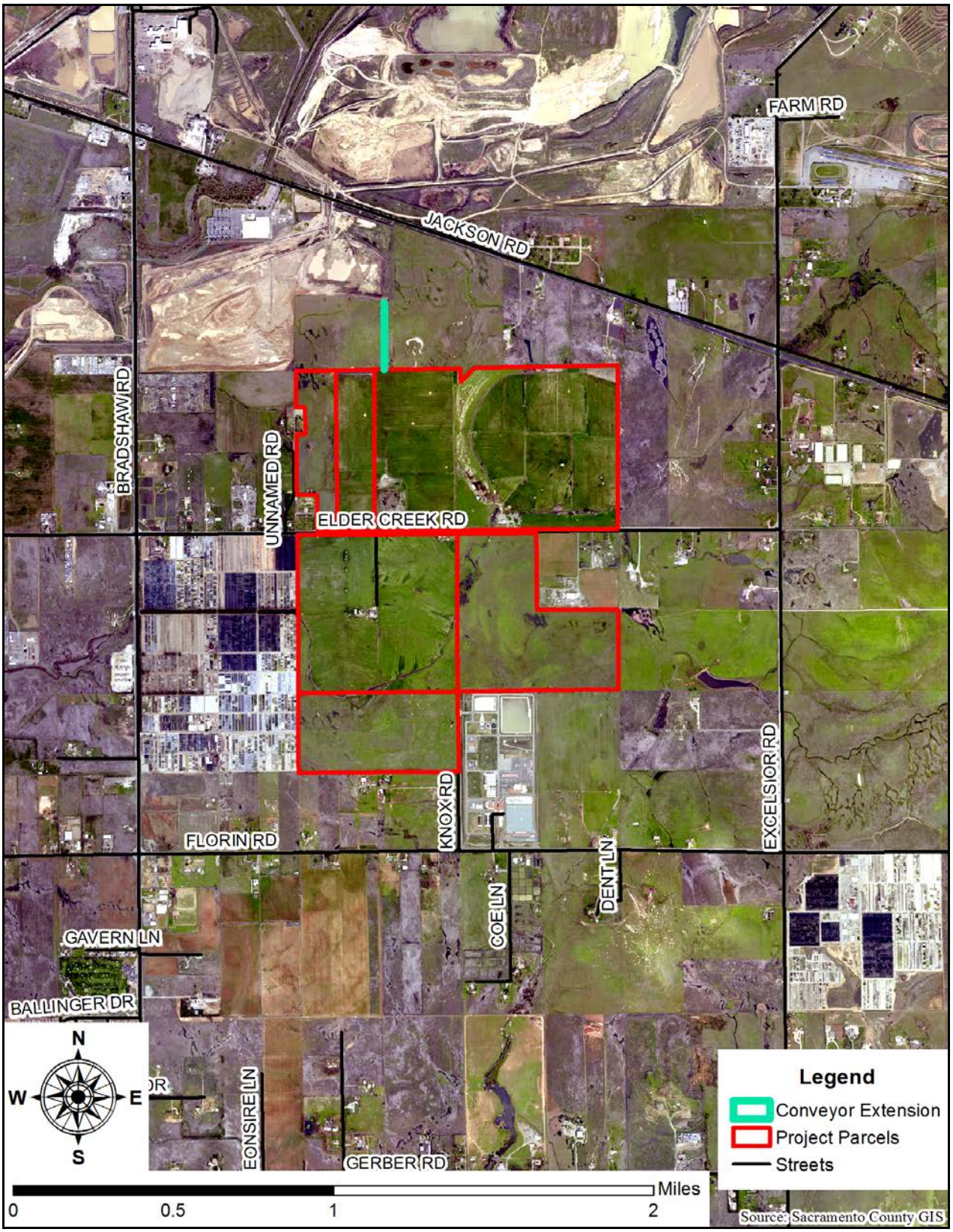
October 14, 2011

This map is for informational purposes and does not necessarily reflect Sacramento County Policy. Call the Sacramento County Planning Department for specific information.

Mineral Resources

- Aggregate Resource Areas Mined Out
- Known Gas Regions
- Urban Services Boundary (USB)
- Major Roads
- Potential Kaolin Clay Deposits (clay mrz 2a,2b & 3)
- Significant Mineral Deposits (mrz-2)

Plate GS-5: Project Location



Soil and Geologic Existing Conditions

Geocon Consulting drafted a Geotechnical Memorandum for the site. The following site-specific information is taken from that memorandum, which may be found in Appendix GS-1.

The project site is underlain predominantly by consolidated Pliocene-Age alluvium of the Laguna Formation. The on-site soil consists of two characteristic layers: clayey overburden and underlying clayey gravel with cobbles. The upper layer (overburden) consists primarily of firm to very stiff sandy lean clay and variable occurrences of medium dense clayey sand. Geocon Consulting, Inc stated that during prior investigation the overburden thickness ranged from 1 to 11 feet.

Furthermore, the soil below the overburden generally consists of medium dense to very dense clayey gravel with cobbles up to 8 inches. The gravel and cobble includes weathered to fresh metavolcanics and cemented sandstones and will be the aggregate source for the mining projects. The strata proposed for mining overlays variably weathered, fine-clastic deposits of sandstone, siltstone, mudstone, and claystone.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Geology and Soils the proposed project would have a significant impact if it:

GS-1: Is located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; or

GS-2: Results in substantial soil erosion or the loss of topsoil; or

GS-3: Directly or indirectly destroy a unique paleontological resource or site; or

GS-4: Exposes people or structures to substantial risk of loss, injury or death involving ruptured of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; or

GS-5: Results in a substantial loss of an important mineral resource; or

GS-6: Has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available.

As discussed above there are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to know earthquake faults and seismic hazards are minimal. The proposed project is a surface mine that will extract mineral resources from the site. Furthermore, the proposed project will not construct any septic tanks or wastewater disposal systems. Therefore, GS-4, GS-5 and GS-6 are not applicable to the project.

IMPACTS AND ANALYSIS

Impact Evaluation GS-1: Is the project located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

SEEPAGE AND SLOPE STABILITY ANALYSIS BACKGROUND BASICS

This section provides background on the basic mine site operations. The proposed mining slopes will be setback from Elder Creek by a minimum of 150 feet. The proposed perimeter berm will be approximately three feet high and will be constructed at existing grade using overburden and topsoil.

The project site has a topsoil layer and under the topsoil is the overburden layer. Below the overburden, dense gravel deposits are present above weathered sandstone, siltstone, mudstone, and claystone and these deposits are the aggregate material that is to be mined. Static groundwater is at approximately 30 feet below mean sea level, which is below the planned depth of the mine pits.

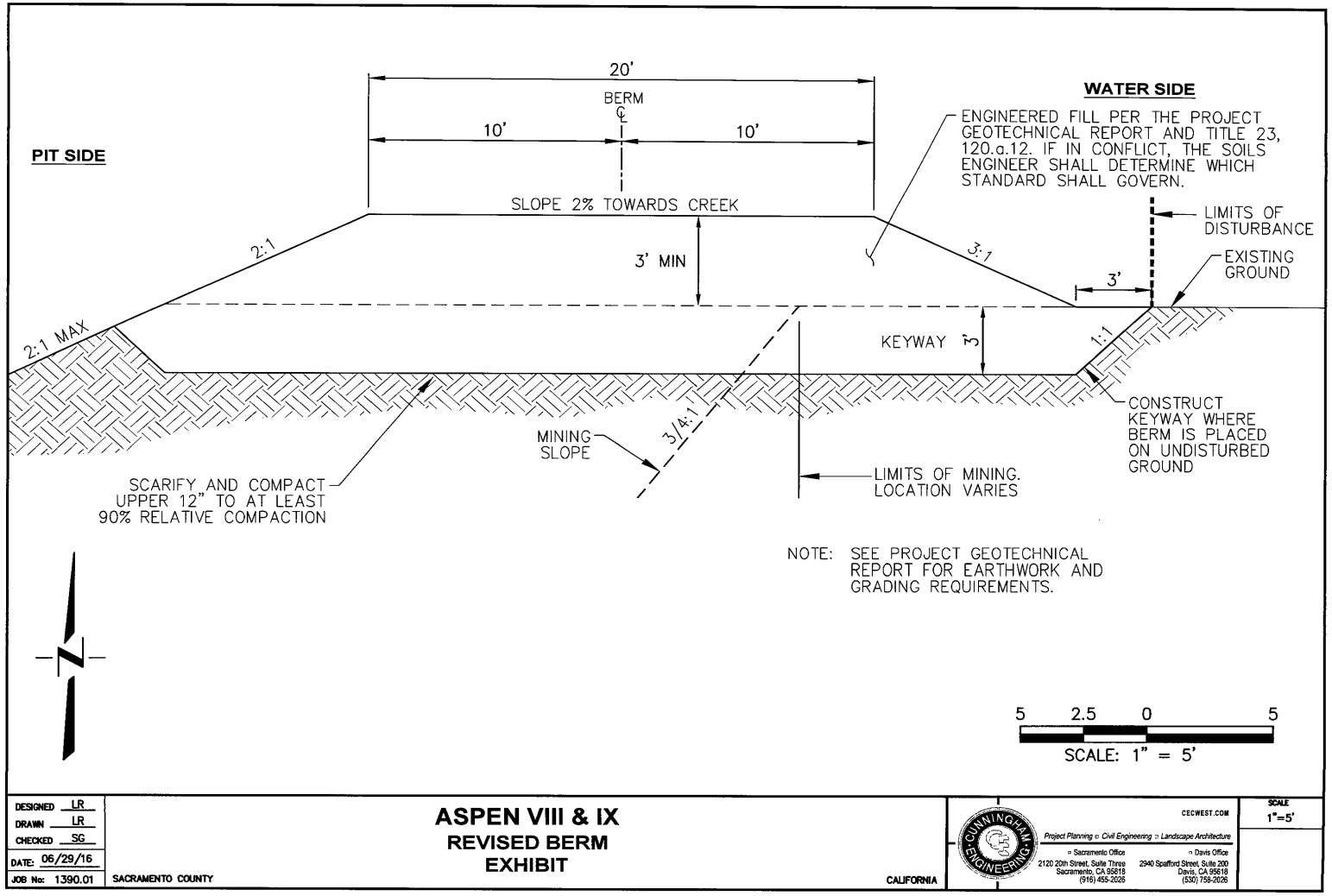
The topsoil will be maintained and stored in accordance to SMARA code section 3711 standards. The mine pit slopes will descend at slopes of 3/4H:1V (3/4 unit of horizontal to one unit of vertical) and no steeper than 2H:1V (2 units of horizontal to one unit of vertical), from the high side or land side toe of the embankment to the planned mining depth. The side slopes are assumed to be 2H:1V for the berms and berms will have a width of ~~12~~ **20** feet (Plate GS-6).

According to Geocon Consultants, Inc., the berms and reclamation slopes will be constructed with engineered fill derived from on-site sources. After the side slopes and pit floors are created the side slopes and pit floor will be reclaimed using the topsoil from the site that has been salvaged, stored and maintained according to SMARA code section 3711.

The following analysis of the geology and soil is based on Geocon Consulting technical study titled a Geotechnical Memorandum. The technical study was peer reviewed by staff at the County of Sacramento Department of Water Resources.

Subsequent to release of the Draft EIR, Geocon Consulting, Inc. prepared a supplemental analysis (Additional Seepage and Slope Stability Analysis, dated July 7, 2016) that considered two additional berm conditions. The previous study analyzed seepage and slope stability for Elder Creek berm where the mining slope extends from the outside toe of the future berm, such that the new berm is founded on a full-width keyway underlain by undisturbed, native materials. In some locations, the limits of mining may be such that the mining slope is located below the approximate mid-point of the future berm such that the berm is underlain partially by reclamation fill and partially by undisturbed native materials or underlain fully by reclaimed fill. The mining operators anticipate that all three berm conditions will exist at the mining site.

Plate GS-6: Side Slopes Cross-Section



MATERIAL PARAMETERS

Geocon Consultants, Inc performed a seepage and slope stability analysis for the project site. To select the appropriate material parameters for the seepage and slope stability analyses Geocon Consultants used the information derived from their previous geotechnical investigation; drill hole and laboratory grain size distribution information; published correlations (e.g., Alyamani and Sen, 1993); engineering judgment; and experience with similar soils in the local area. The prior investigation was associated with the Aspen VIII and IX project that was submitted in 2007 and ultimately was withdrawn by the applicant. The material parameters used in the analysis are summarized in Table GS 1. The consultant assumed a generally flat soil layer stratigraphy consistent with the depositional and erosional geology of the site.

Table GS 1: Soil Parameters for Seepage and Slope Stability Analyses

Material Type	Total Unit Weight (pcf)	Cohesion, C (psf)		Friction Angle, ϕ (degrees)		Permeability (ft/sec)	
		Total	Effective	Total	Effective	Vertical	Horizontal
Embankment/ Reclamation Fill	120	800	100	20	34	3.28×10^{-7}	3.28×10^{-6}
Overburden	120	200	150	28	30	3.28×10^{-6}	3.28×10^{-5}
Gravels	135	50	50	32	40	3.6×10^{-3}	3.6×10^{-2}

Notes: pcf = pounds per cubic foot psf = pounds per square foot

SEEPAGE ANALYSIS AND RESULTS

This seepage analysis only applies to the slopes along Elder Creek. Geocon Consulting Inc. has indicated that the remaining side slopes that are not adjacent to Elder Creek (which will be constructed using compacted overburden soil at an inclination of 2H:1V or flatter) are expected to be stable without any special measures beyond typical periodic maintenance.

The proposed slopes for the project will be setback from Elder Creek by a minimum of 150 feet ~~(Plate GS-6)~~. To model seepage conditions Geocon Consulting Inc. used the computer program *SEEP/W, Version 7* (Geo-Slope International). In their analysis, they considered the initial condition for the site to be the average low-flow water elevation of 64 feet Mean Sea Level. They modeled the seepage front over a 100-year time period to mimic steady-state conditions. Next they modeled a transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. The seepage analysis results are shown in Plate GS-7 and Plate GS-8. The results of the analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).

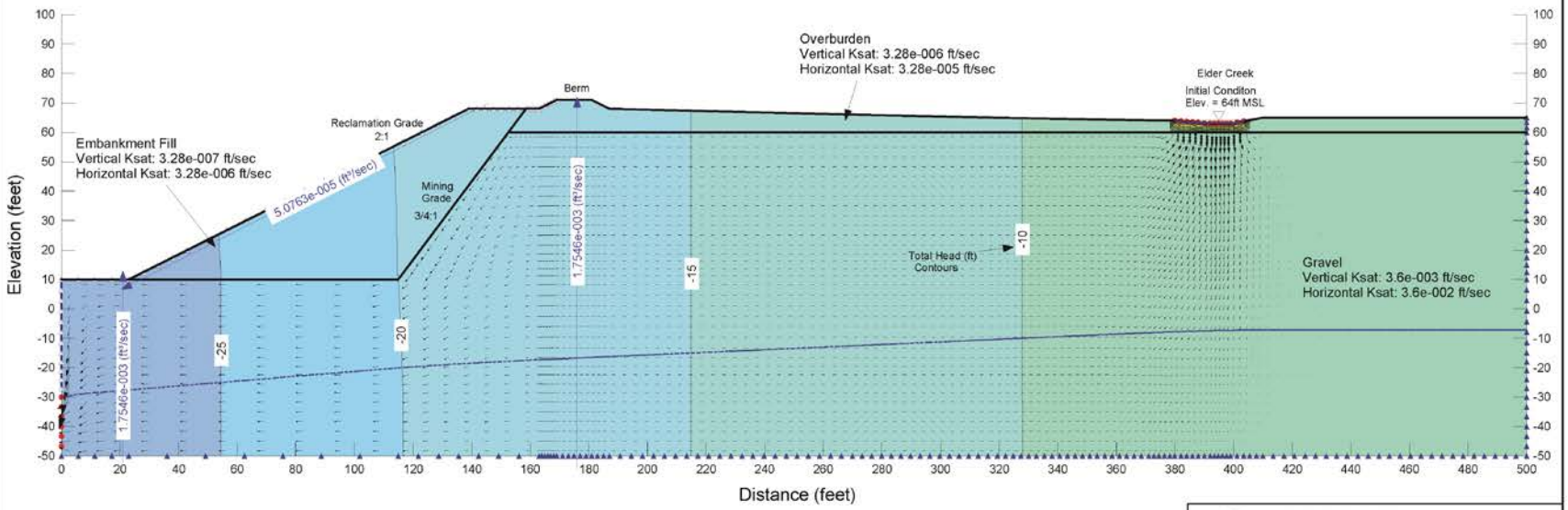
The results from the supplemental analysis indicate that the seepage front does not intercept the proposed mining or reclamation slopes for both new conditions under the low-flow 200-year flood conditions. The result is consistent with the prior analysis above. The July 2016 seepage analysis results are shown in Plates GS-9, Plate GS-10, Plate GS-11, and Plate GS-12

Plate GS-7: Seepage at Low Flow

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:53:36 AM

Analysis: Low-Flow Channel
Method: Transient
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

Aspen VIII & IX	
Elder Creek Road, Sacramento County, California	
Seepage at Low Flow	
S9304-05-02	December 2014

Plate GS-8: Seepage at 200-Year Flood

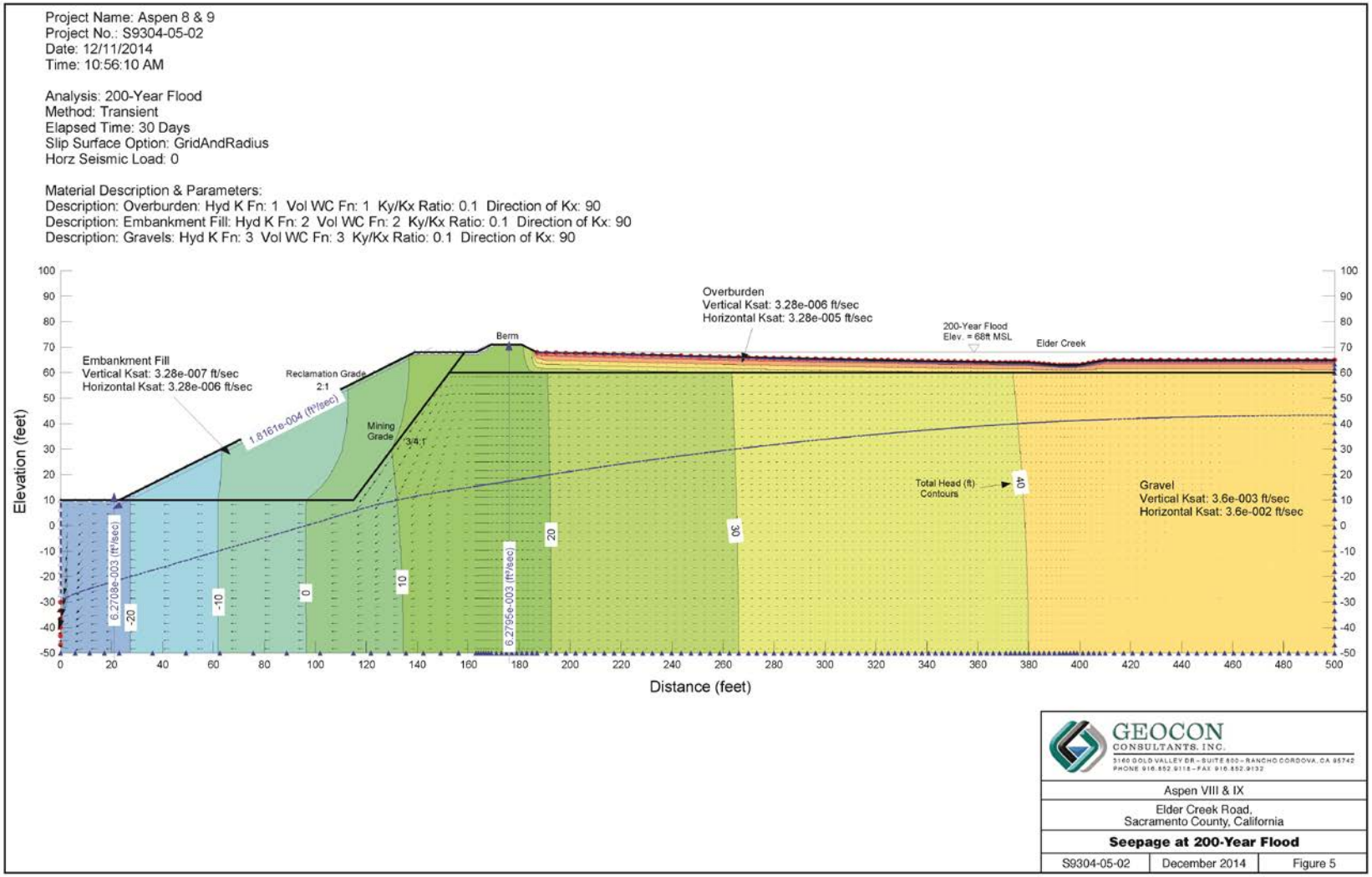


Plate GS-9: New Condition 1 Seepage and Static Slope Stability (Figure 1)

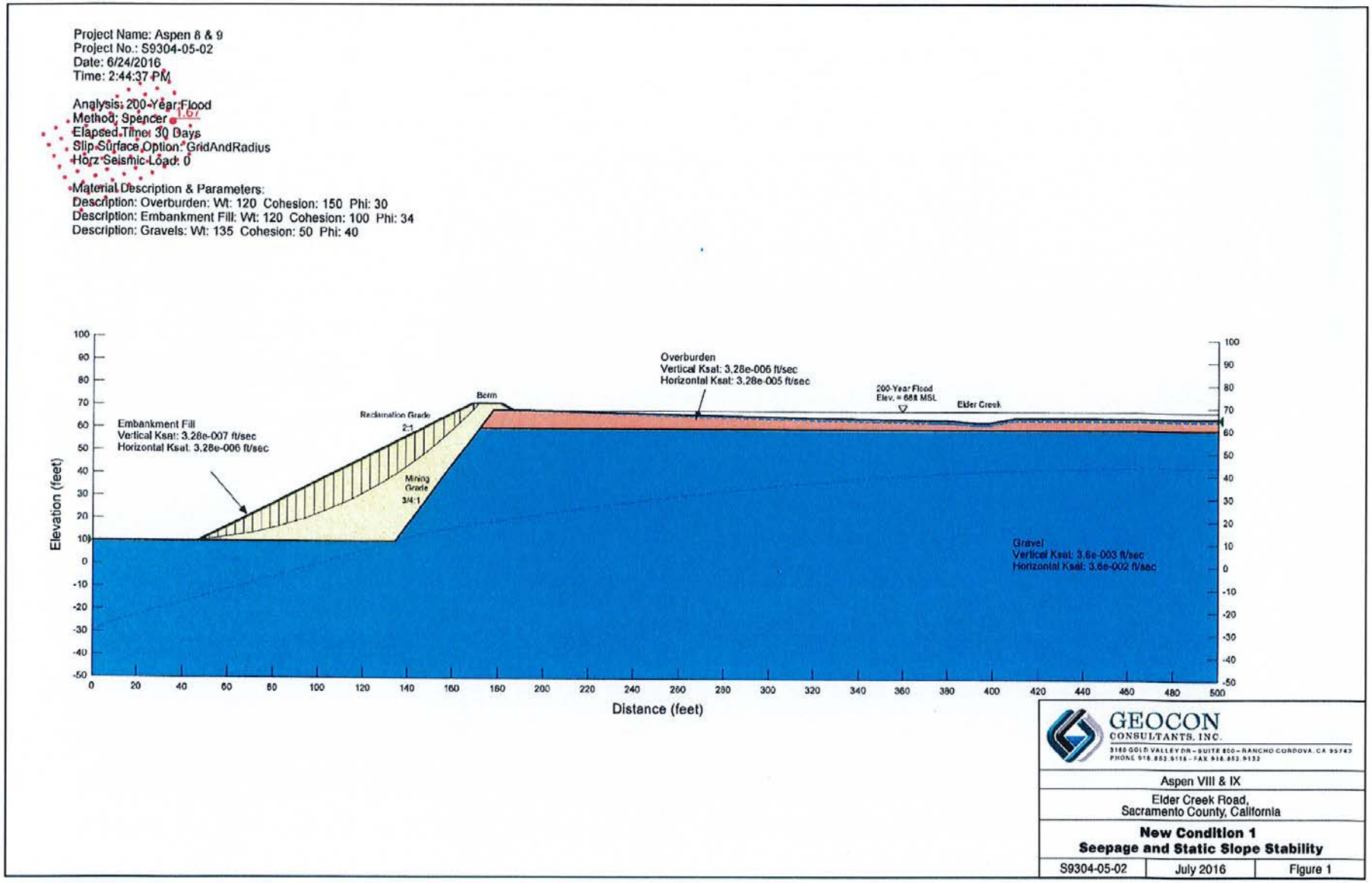


Plate GS-10: New Condition 1 Seepage and Seismic Slope Stability (Figure 2)

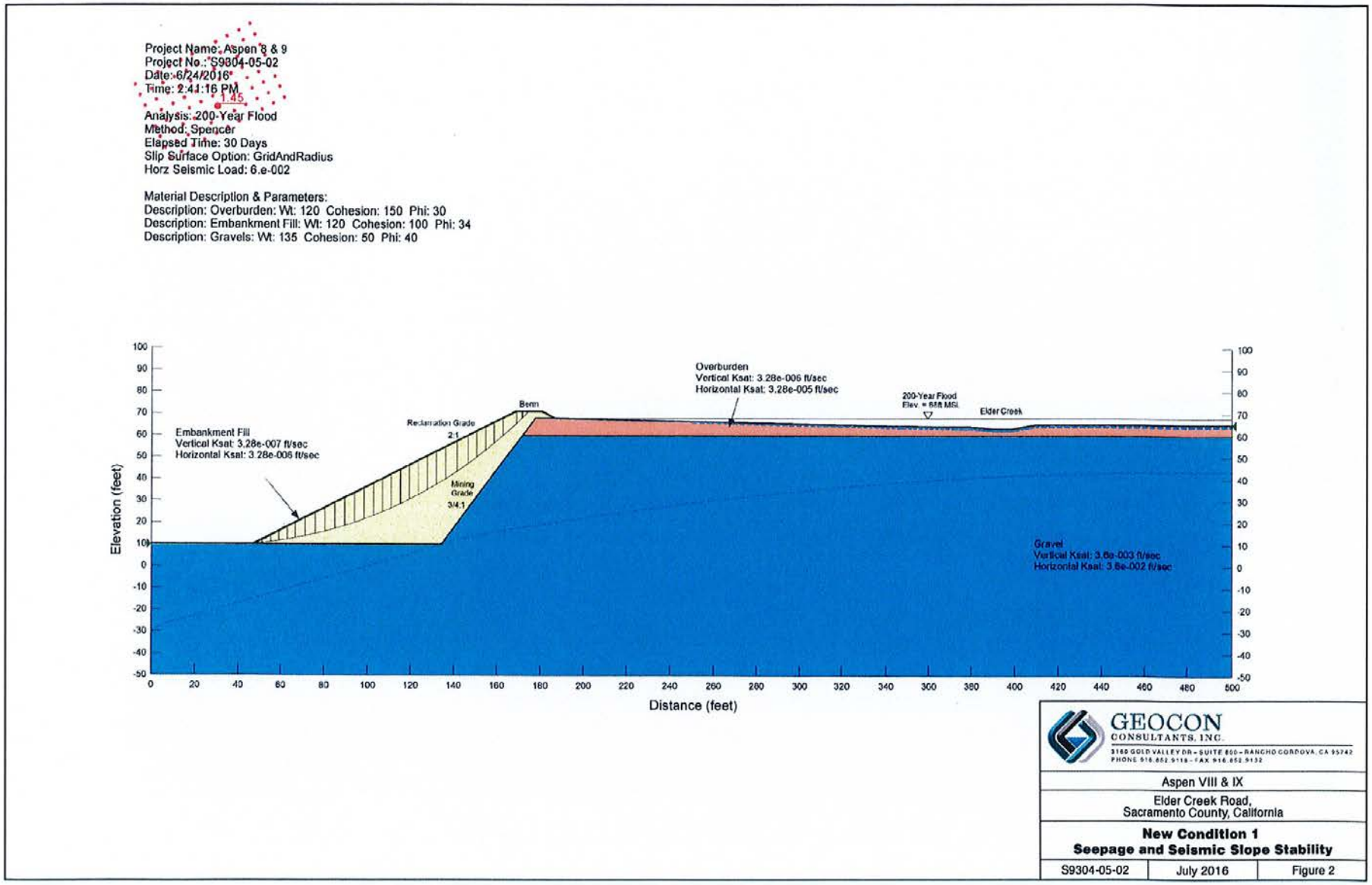


Plate GS-11: New Condition 2 Seepage and Static Slope Stability (Figure 3)

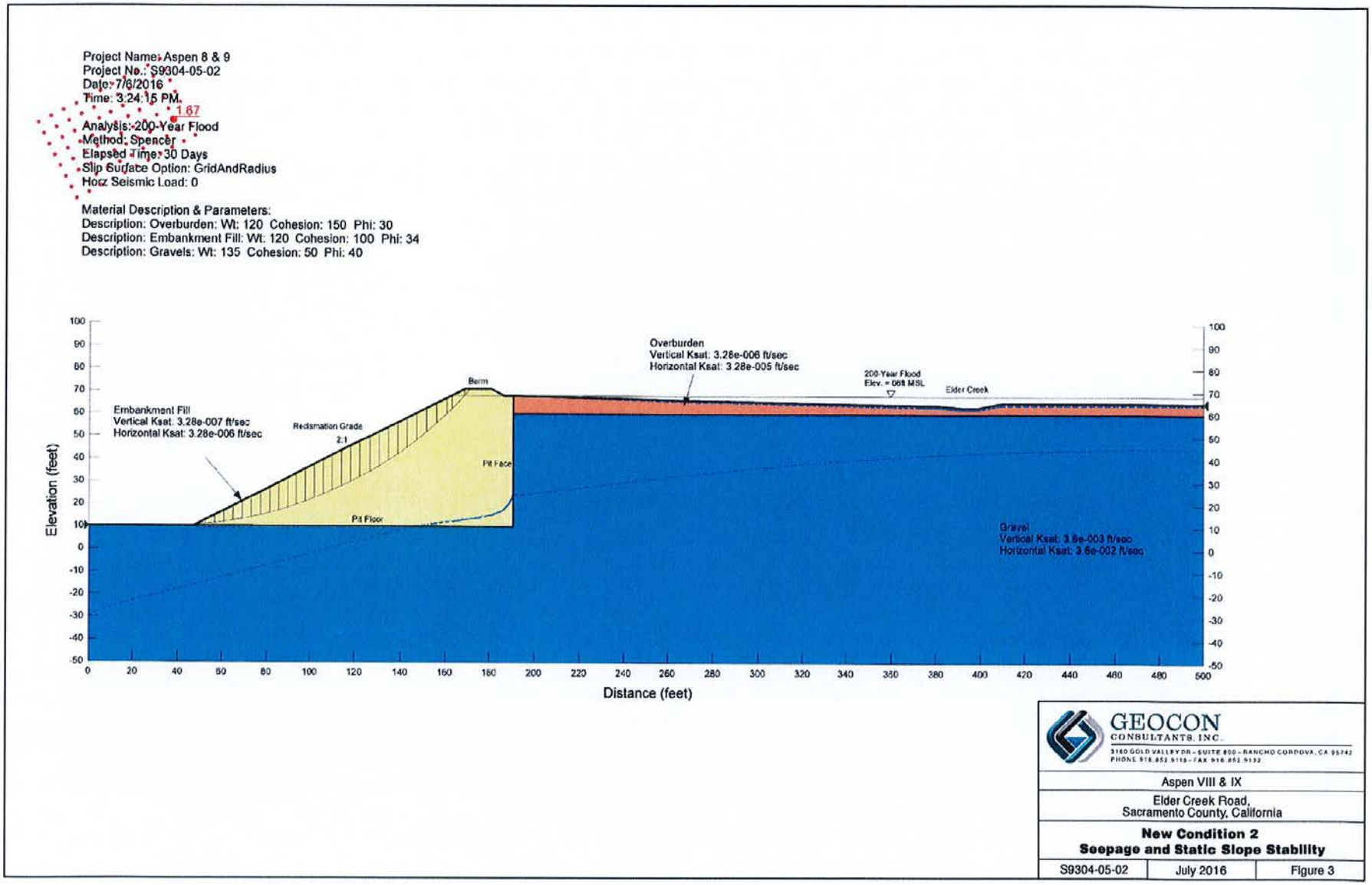
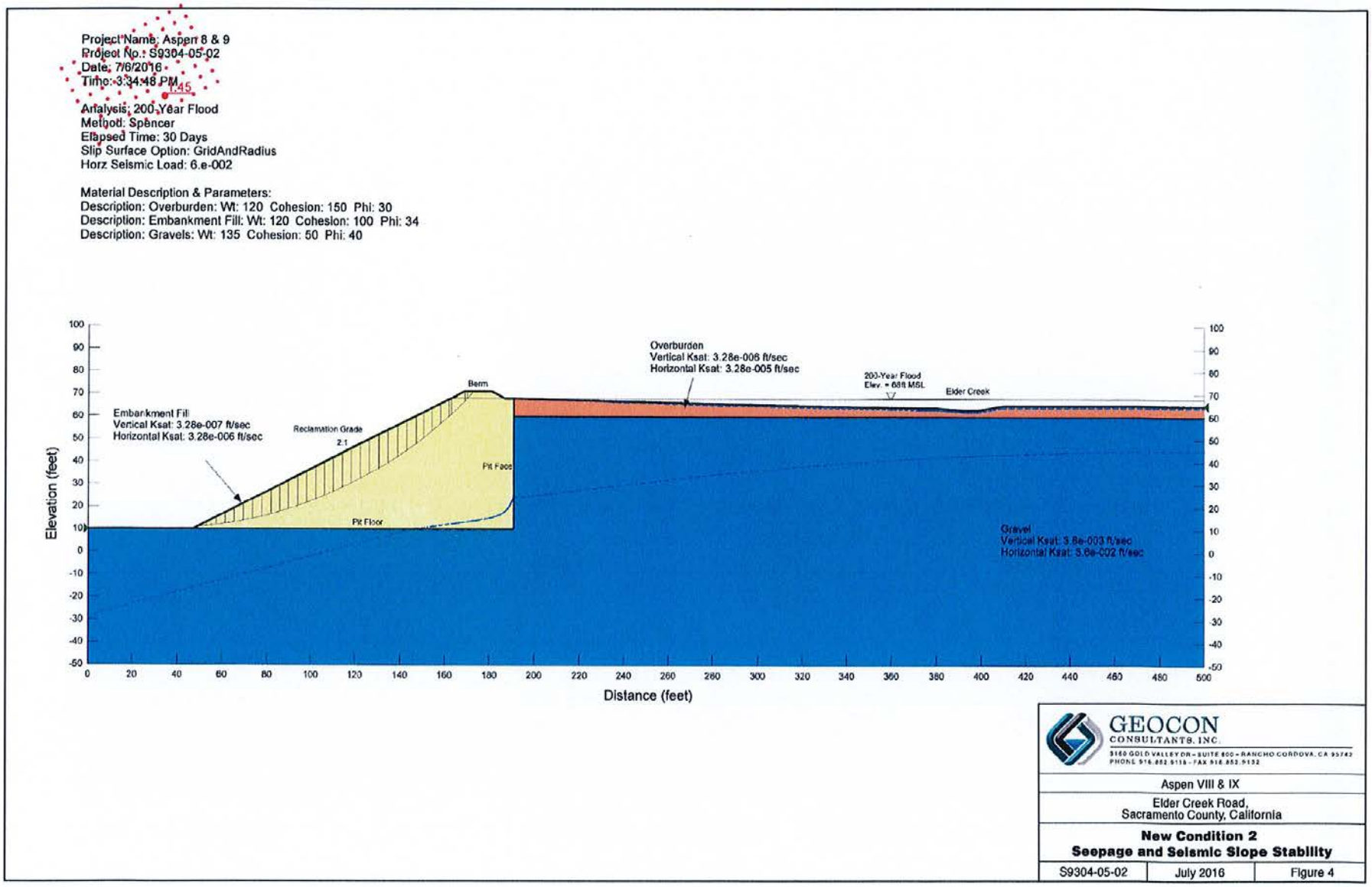


Plate GS-12: New Condition 2 Seepage and Seismic Slope Stability (Figure 4)



SLOPE STABILITY ANALYSIS AND RESULTS

The stability of the proposed final slopes were analyzed using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for both the steady-state (low-flow) and 200-year flood conditions.

SLOPE/W uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety (FOS) against deep-seated failure. For the analysis, Spencer's Method with a circular failure mechanism is used. Spencer's Method satisfies both moment and force equilibrium. The computer program searches for the critical failure surface based on user-provided input parameters. The critical failure surface for each analysis is shown on computer-generated output as hatched lines on the slopes. The factor of safety is shown on each figure directly above the failure surface. For a circular failure surface, a grid of search midpoints and radii are specified and the computer search for the critical failure surface. The critical failure surface is shown as the hatched area on the following plates ~~Plate GS-9, Plate GS-10, Plate GS-11, and Plate GS-12~~ **Plate GS-13, Plate GS-14, Plate GS-15, and Plate Gs-16.** The results of the slope stability analysis under the different conditions of analysis (e.g. low-flow, 200-year, static and seismic) are summarized in Table GS 2. A 1.5 factor of safety is the commonly required minimum factor of safety for long-term static stability and the project has a static FOS of 1.7. A 1.1 factor of safety is the commonly required minimum factor of safety for pseudo-static (seismic) stability and the project has a seismic FOS of 1.5.

The results of the previous and the new July 2016 slope stability analyses are summarized in Table GS-2 below. Graphical representations of the potential critical failure surfaces and parameters used for each stability analysis are shown above in Plate GS-9 and Plate GS-10.

Table GS 2: Slope Stability Analysis Results

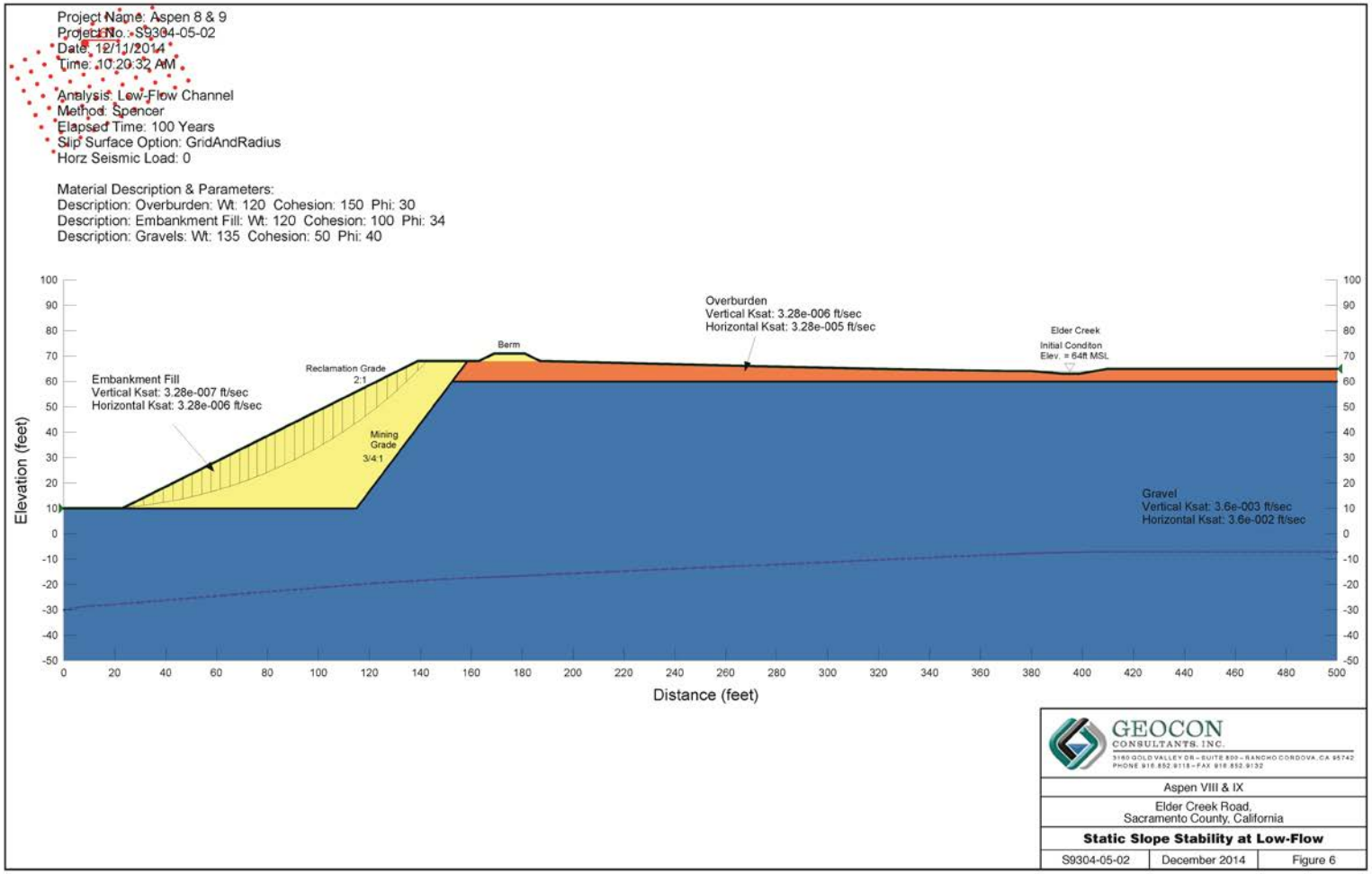
Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Steady-State Low-Flow Conditions	1.7	1.5
200-Year Flood Event (30-day duration) ***Original Condition - Berm underlain with undisturbed soils***	1.7	1.5
200-Year Flood Event (30-day duration) ***New Condition 1 - Berm underlain with partially reclaimed fill material***	1.7	1.5
200-Year Flood Event (30-day duration) ***New Condition 1 - Berm underlain with fully reclaimed fill material***	1.7	1.5

Based on the results of the analyses, the new conditions yield nearly identical seepage and slope stability results. In the opinion of the consultant, similar to the previously analyzed condition, the new conditions are not expected to result in adverse seepage and/or slope stability conditions.

~~**Plate GS-9: Static Slope Stability at Low-Flow**~~

Plate GS-13: Static Slope Stability at Low Flow

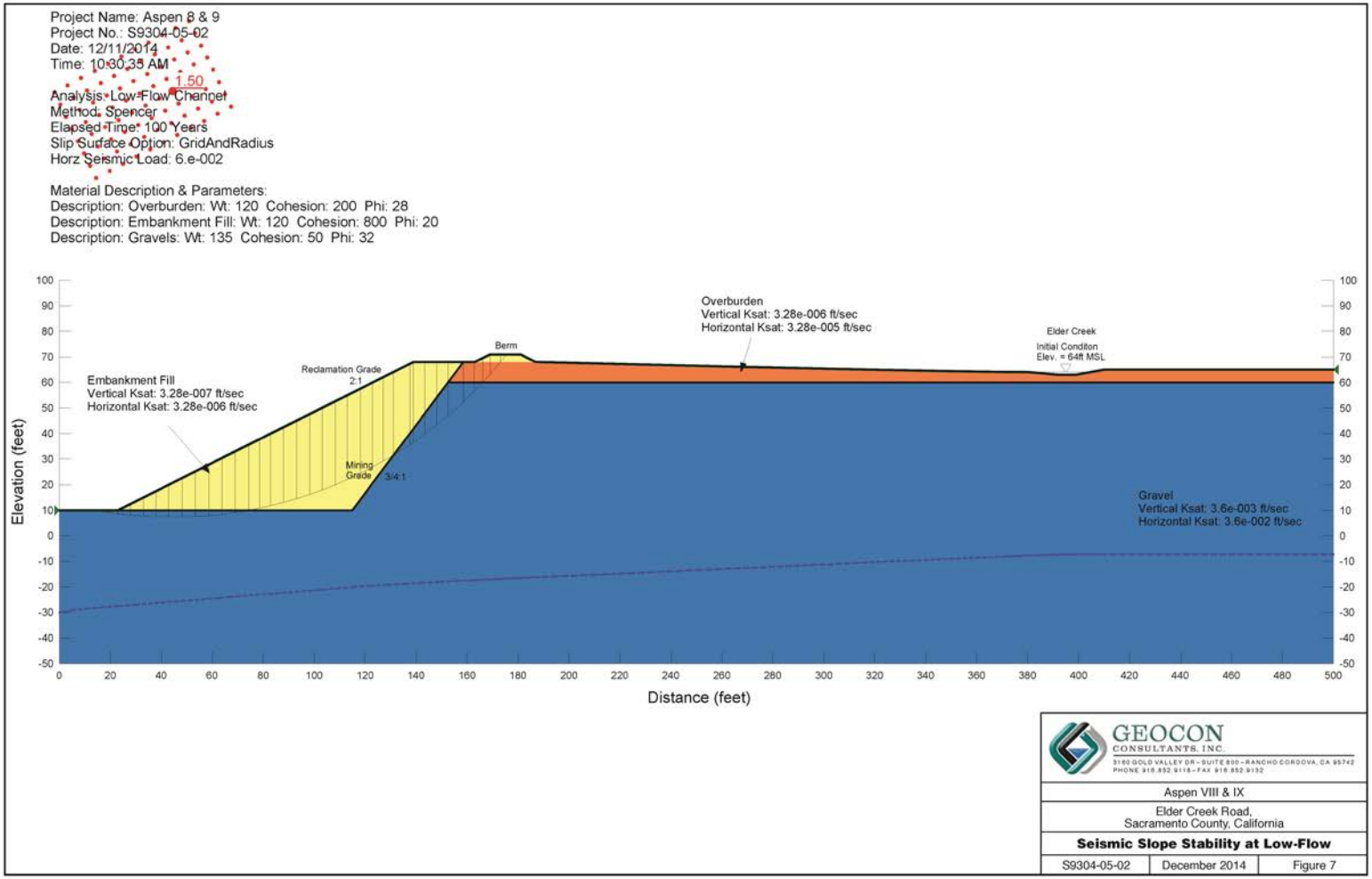
The Critical Failure surface is shown as the hatched area)



~~**Plate GS-10: Seismic Slope Stability at Low-Flow**~~

Plate GS-14: Seismic Slope Stability at Low Flow

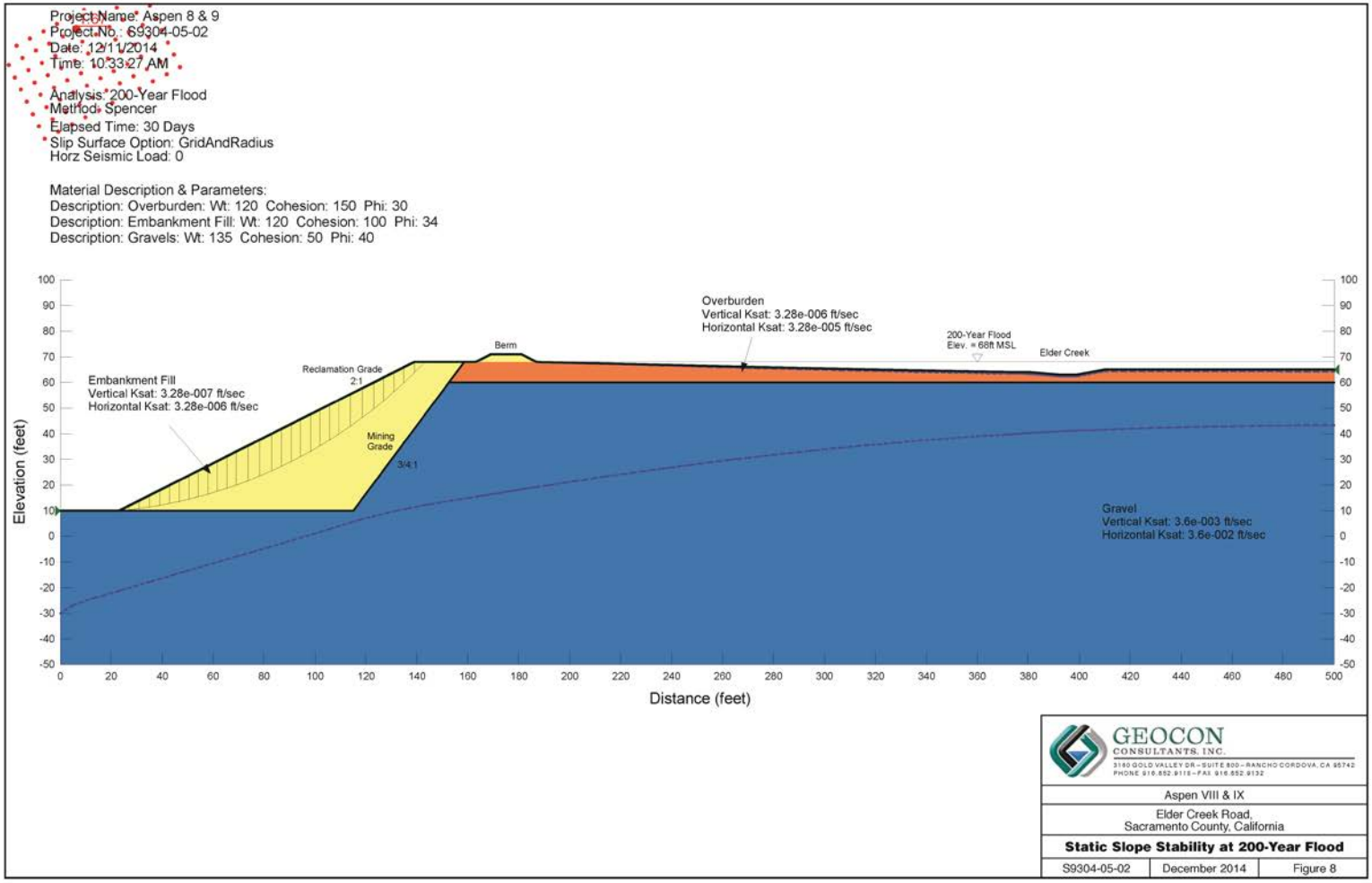
(The Critical Failure surface is shown as the hatched area)



~~**Plate GS-11: Static Slope Stability at 200-Year Flood**~~

Plate GS-15: Static Slope Stability at 200 Year Flood

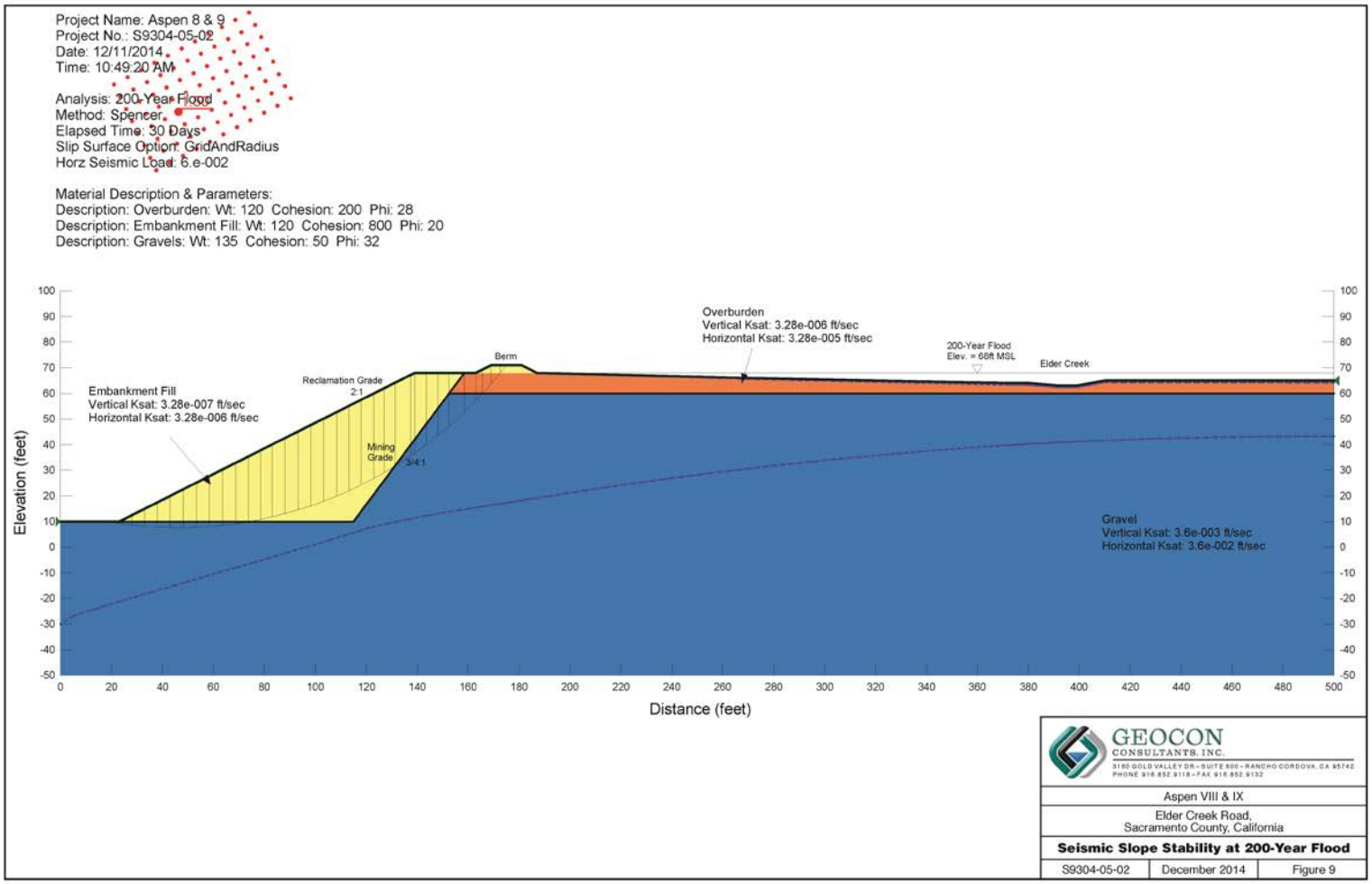
(The Critical Failure surface is shown as the hatched area)



~~**Plate GS-12: Seismic Slope Stability at 200-Year Flood**~~

Plate GS-16: Seismic Slope Stability at 200-Year Flood

(The Critical Failure surface is shown as the hatched area)



CONCLUSION

The results of the ***previous and July 2016*** analyses indicate**s** that the seepage front does not intercept the proposed mine slopes under low-flow or 200-year flood conditions, even with the low-flow conditions sustained indefinitely (100 years). Furthermore, the results of Geocon Consultants Inc, slope stability analyses for a 2:1 reclamation slope indicate that the factor of safety (FOS) is above the commonly required minimum factor of safety of 1.5 for long-term static stability and factor of safety of 1.1 for pseudo-static (seismic) stability. If the modeling indicates a FOS less than 1, then that would indicate an unstable configuration. The slope failure area (hatched area) indicates where and how the slope will fail when the failure occurs. Therefore, the proposed reclamation slopes appear to be appropriate for the proposed end use of the site from a static and seismic standpoint provided the consultant's recommendations contained below (Mitigation Measure: Reclamation Slopes and Berms) are incorporated into the design and construction of the project. The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are potentially significant but with mitigation the impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-1: Reclamation Slopes and Berms Mitigation Measure

A. Reclamation slopes shall be constructed at 2H:1V or flatter.

B. To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment/berm located ***adjacent to Elder Creek*** ~~around the perimeter of the mine operation~~, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources.

C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources.

D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes.

E. At the beginning of each year (in the month of January) a written ~~maintenance plan that specifies specific actions that ensure the slopes are in good repair, stable and safe~~ ***report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed*** shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. ***The report shall indicate whether such slopes were constructed in a manner consistent with the Geocon Seepage and Stability Evaluation.*** The report shall also include ~~an~~ ***a performance*** evaluation of ~~the~~ ***all slopes built adjacent to Elder Creek to date and*** ~~prior year recommended actions to ensure that the actions have gone into effect and how the actions~~ ***appropriate measures to*** correct~~ed~~ any deficiencies, ***if necessary***. This report shall be prepared by a registered and licensed civil engineer in good standing.

F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation GS-2: Does the project result in substantial soil erosion or the loss of topsoil?

The project is a surface mining operation that will excavate the site for aggregate materials. The topsoil will be removed from the site prior to mining. When the mining operation is complete, the site will be reclaimed using the topsoil from the site that has been salvaged and maintained for reclamation. The use of the topsoil could be many years in the future and the storage of the topsoil at the site should be conducted so as to not result in erosion or loss of topsoil.

The potential for the topsoil to get mixed up with overburden or otherwise eroded is a significant issue because the topsoil is the growth media of the soil. In other words, the topsoil contains organic materials that assist in plant growth and overburden does not contain the same organic materials. The topsoil is used to reclaim the site back to open space grassland. If the topsoil is gone, then overburden will have to be heavily fertilized to obtain the same results as topsoil. Furthermore, if the topsoil stockpile is not properly maintained the topsoil has the potential of blow away with the wind or run off in a rain event. The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil

handling measures in that plan is therefore recommended to mitigate this potentially significant impact. With mitigation the project's impacts to substantial soil erosion or loss of topsoil are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-2: Topsoil Management Mitigation Measure

Comply with the topsoil handing and stockpiling measures contained in Section 6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation GS-3: Does the project directly or indirectly destroy a unique paleontological resource or site?

The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. The mitigation for unanticipated cultural discoveries (CR-2; see Cultural Resources chapter) includes provisions for paleontological resources and will prevent the direct or indirect destruction of a unique paleontological resource or site. Compliance with Mitigation Measure CR-2 will assure that impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

GS-3: Paleontological Resources Unanticipated Discoveries Mitigation Measure

Comply with Mitigation Measure CR-2.

Level of Significance After Mitigation: Less than Significant

14 BIOLOGICAL RESOURCES

REGULATORY CONTEXT

FEDERAL

FEDERAL ENDANGERED SPECIES ACT

Under the Federal Endangered Species Act (FESA) of 1973, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as endangered or threatened. The Federal Endangered Species Act protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS). In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction. Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

FEDERAL CLEAN WATER ACT SECTION 404

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The U.S. Army Corps of Engineers (Army Corps) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into Waters of the United States (Waters of the U.S.) under Section 404 of the CWA. The definition of "Waters of the U.S." includes all navigable waters; interstate waters and wetlands; all intrastate waters and wetlands that

could affect interstate or foreign commerce; impoundments of the above-listed waters; tributaries of the above-listed waters; territorial seas; and wetlands adjacent to the above-listed waters. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions".

As part of the wetland delineation and verification process, the Army Corps will determine whether wetlands and other features in a project site are considered Waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters, the proponent must seek a permit from the Army Corps. The Army Corps can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). The EPA also has authority over wetlands and may override an Army Corps permit.

FEDERAL CLEAN WATER ACT, SECTION 401

Section 401 of the Clean Water Act requires any person applying for a Section 404 permit for activities resulting in a discharge into Waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board (Regional Water Board). The goal of this program is to protect Waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the Clean Water Act, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by the Army Corps under Section 404 (above).

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states "unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird. A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt.

STATE REGULATIONS

CALIFORNIA ENDANGERED SPECIES ACT (CESA)

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the Federal Endangered Species Act, but unlike its federal counterpart, CESA pertains to state-listed endangered and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. The California Endangered Species Act allows the CDFW to authorize exceptions to the state's prohibition against "take" of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under California Environmental Quality Act (CEQA) (Fish and Game Code Section 2081).

FULLY PROTECTED SPECIES

California Fish and Game Code Sections 4700 (mammals), Section 3511 (birds), Section 5050 (reptiles and amphibians), and Section 5515 (fish) designate certain species as "fully protected." The State of California first began to designate species as "fully protected" prior to the creation of the California Endangered Species Act and Federal Endangered Species Act. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Fully protected species, or parts thereof (e.g., feathers, wings, talons), may not be taken or possessed by any individual at any time. Furthermore, CDFW prohibit any state agency from issuing incidental take permits for fully protected species. CDFW may issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

MIGRATORY BIRD SPECIES AND BIRDS OF PREY (RAPTORS)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. These stipulations are similar to the federal Migratory Bird Treaty Act and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act.

NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the California Department of Fish and Wildlife. The Native Plant Protection Act is administered by the California Department of Fish and Wildlife and set forth in California Fish and Game Code Sections 1900-1913. The California Endangered Species Act (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the Native Plant Protection Act remains part of the Fish and Game Code.

CALIFORNIA STREAMBED ALTERATION NOTIFICATION/AGREEMENT

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement (SAA) be submitted to California Department of Fish and Wildlife for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." California Department of Fish and Wildlife must be notified prior to any such activities and will review the proposed action(s). If necessary, the California Department of Fish and Wildlife will propose measures to protect affected fish and wildlife resources. The Streambed Alteration Agreement is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the California Department of Fish and Wildlife and the Applicant. Often, projects that require a Streambed Alteration Agreement also require a permit from the Army Corps under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The State Water Resources Control Board (State Water Board) and the local Regional Water Quality Control Board (Regional Water Board) have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). This Act (State Water Code Section 13020) mandates that all the waters of the state be protected, that activities and factors affecting water quality be regulated to attain the highest water quality "within reason", and that the state be prepared to exercise its power and jurisdiction to protect water quality from degradation.

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the Regional Water Board (Water Code 13260(a)). The Regional Water Board will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the Waste Discharge Requirements program, the Regional Water Board also regulates discharges to "isolated" water features which are not considered Waters of the U.S. under the Federal Clean Water Act. Porter-Cologne also requires compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water

National Pollutant Discharge Elimination System General Construction Permit for discharge of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

SPECIES OF SPECIAL CONCERN

Species of Special Concern (SSC) is a category used by the California Department of Fish and Wildlife for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of Special Concern are defined by the California Department of Fish and Wildlife as a species, subspecies, or distinct population of an animal native to California that are not legally protected under Federal Endangered Species Act, California Endangered Species Act, or the Fish and Game Code, but may be considered under CEQA Guidelines Section 15380.

CALIFORNIA RARE PLANT RANKS

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California*, which provides a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks (CRPRs). The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by California Department of Fish and Wildlife and the California Native Plant Society. The California Rare Plant Ranks are currently recognized in the California Natural Diversity Database (CNDDB). The following definitions of the California Native Plant Society California Rare Plant Ranks include:

- CRPR 1A – presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B – rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – presumed extirpated in California, but more common elsewhere;
- CRPR 2B – rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 – a review list of plants about which more information is needed; and
- CRPR 4 – a watch list of plants of limited distribution.

California Rare Plant Ranks List 1A and 2A are presumed extirpated in California. In general, CRPR List 3 and 4 plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA Section 15380.

CALIFORNIA NATURAL DIVERSITY DATA BASE

The California Department of Fish and Wildlife administers the California Natural Diversity Data Base (CNDDB), which maintains a list of special-interest plants, animals, and natural communities that occur within California. These particular species, natural communities, or habitat types are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat such as development or off-road vehicles, to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these species or communities afforded by these CNDDB listings.

LOCAL REGULATIONS

SACRAMENTO COUNTY TREE PRESERVATION AND PROTECTION ORDINANCE

Sacramento County outlines requirements for the protection of oak trees in County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any “tree,” as defined, within the urban area of the unincorporated area of Sacramento County, or any property, public or private. The ordinance defines “trees” as follows:

> ”Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground diameter at breast height (dbh).”

SOUTH SACRAMENTO COUNTY HABITAT CONSERVATION PLAN

The South Sacramento Habitat Conservation Plan (SSHCP) is currently in preparation and is undergoing environmental review; the working draft was released in 2010. The SSHCP is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region, including the cities of Galt and Rancho Cordova. The specific geographic scope of the SSHCP includes U.S. Highway 50 to the north, the Sacramento River levee and County Road J11 to the west, the Sacramento county line with El Dorado and Amador counties to the east, and San Joaquin County to the south. The SSHCP Study Area excludes the City of Sacramento, the City of Folsom and the Folsom Sphere of Influence, the City of Elk Grove, the Sacramento-San Joaquin Delta, and the Sacramento community of Rancho Murieta.

The SSHCP will consolidate and enhance wetlands, primarily vernal pools and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory hurdles and facilitate the permitting process for development projects. The SSHCP will cover 28 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be

an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP. Sacramento County is partnering with the incorporated cities of Rancho Cordova, and Galt, as well as the Sacramento Regional Sanitation District, Sacramento County Connector JPA (Joint Powers Authority), and Sacramento Water Agency to further advance the regional planning goals of the South Sacramento Habitat Conservation Plan.

SWAINSON'S HAWK MITIGATION FEE PROGRAM

The California Department of Fish and Game requires that mitigation for foraging habitat be provided within the known foraging radius of a nesting Swainson's hawk. In 1997, in response to the need to mitigate for the loss of Swainson's hawk foraging habitat in Sacramento County, the County Board of Supervisors adopted an ordinance that established a Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code). The Program has been amended several times; the latest amendment went into effect December 2009. By adopting the Program, the Board of Supervisors found that "the most effective means of mitigation for the loss of suitable Swainson's hawk foraging habitat is the direct preservation, in perpetuity, of equally suitable foraging habitat on an acre-per-acre basis based on the Project's determined acreage impact".

Under the Swainson's Hawk Impact Mitigation Program, only projects which have an impact of less than 40 acres are eligible to pay fees. Projects impacting 40 acres or more of foraging habitat must provide land acceptable to Fish and Game and the County. Land can be provided in fee title or through conservation easement. The Sacramento County Community Planning and Development Department, Planning Division (Planning Division) administers the Swainson's Hawk Impact Mitigation Program.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to biological resources that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-39 Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQA Guidelines Section 15091.

CO-58 Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.

CO-59 Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:

- vernal pools,
- wetlands,
- riparian,
- native vegetative habitat, and
- special status species habitat.

CO-138 Protect and preserve non-oak native trees along riparian areas if used by Swainson's Hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.

CO-139 Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.

CO-145 Removal of non-native tree canopy for development shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the 15-year shade cover values for tree species.

ENVIRONMENTAL SETTING

EXISTING CONDITIONS OF PROJECT SITE

The project includes two proposed mine pits, Aspen VIII and Aspen IX. Aspen VIII is approximately 319 acres and Aspen IX is approximately 363 acres in size. The project also includes an approximately one acre parcel north of Aspen VIII which will be used for the electric conveyor system thus making the entire project area 683 acres. The project site is located within Sacramento County (Plate BR-1) east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The site currently consists of fields for cattle grazing, three residences, agricultural buildings associated with grazing and farming, and high-voltage power line towers. The existing habitat includes annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek. The majority of the site is used for rangeland for livestock and irrigated pasture for forage production. The surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries, a nursery facility, a wastewater treatment facility, and other surface mines.

Teichert Materials prepared a technical study titled Aspen VIII & IX Biological Resources Assessment. Portions of the report are utilized below and the entire report is provided in appendix BR-1. Academic citations from the original work are reproduced below when needed for clarity and understanding of methodology. The bibliography for these citations is included with the original report.

HABITAT COMMUNITIES/VEGETATION

Annual grasslands and irrigated pastures dominate the project site's landscape. Elder Creek traverses the project site from northeast to southwest direction. There are other wetland features present at the site including, vernal pools, seasonal wetlands and swales, ephemeral drainage, freshwater marshes, ditches, and ponds (Plate BR-2). Scattered areas of riparian woodland habitat also exist along some of these wetlands (i.e., Elder Creek, ponds and ditches). The project site also includes three residential homes and associated farm structures. Dirt and graveled access roads to homes, farm buildings, and pastures are also located throughout the site.

Plate BR-1: Project Location

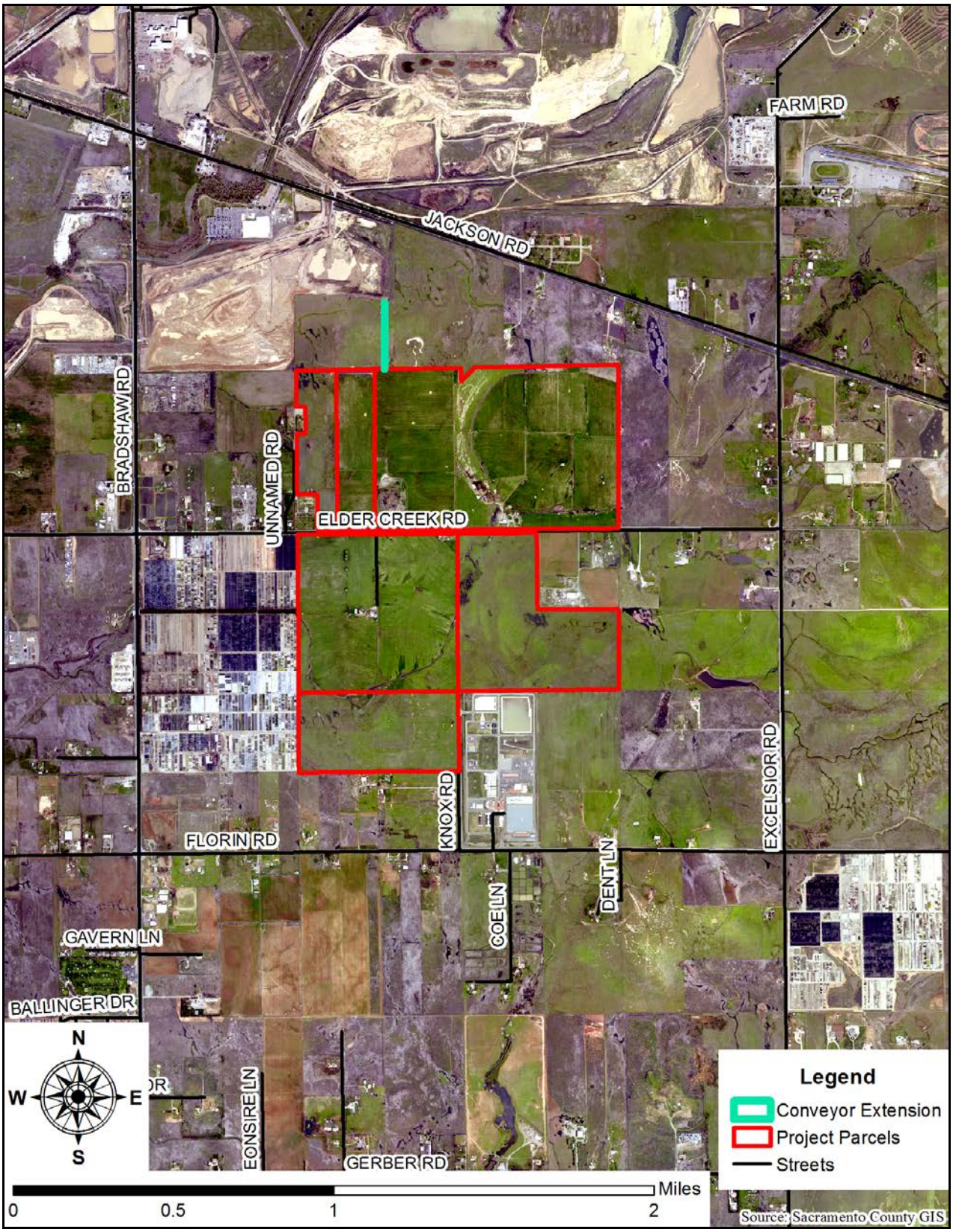
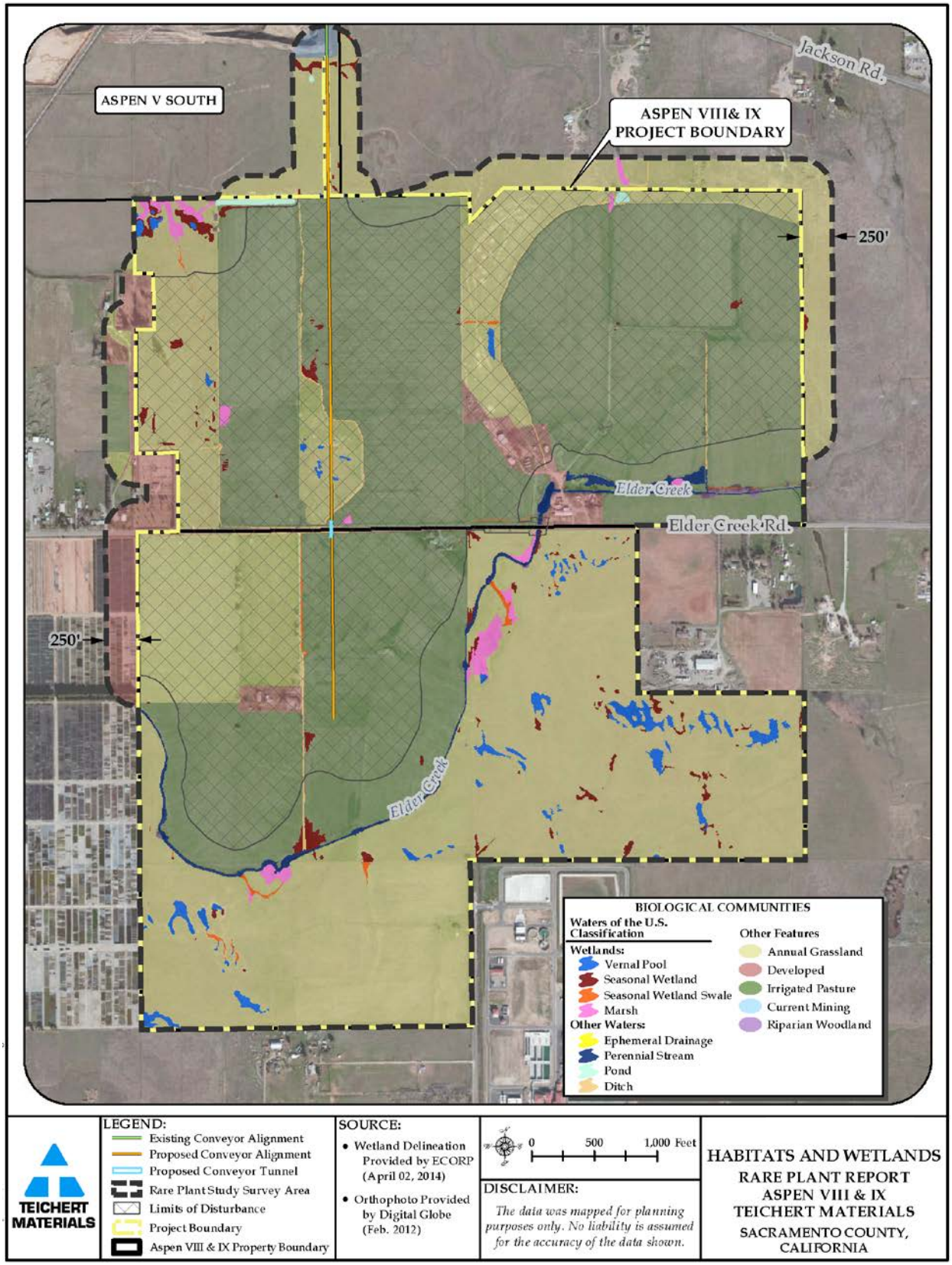


Plate BR-2: Habitats and Wetlands



IRRIGATED PASTURE

The project site's irrigated pastures total 331 acres north of Elder Creek and are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures including tall fescue (*Festuca arundinacea)*, Kentucky blue grass (*Poa pratenis subsp. Partensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex pragegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria vericolor subsp. Faucibarbata*).

ANNUAL GRASSLAND

The project site's annual grasslands are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and including grazing by cattle (Plate BR-2). Annual grasslands that have not been leveled are generally located south of Elder Creek Road, within the southern and eastern portions of Aspen IX. These similar landscapes are also located within the north-western corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft-chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa var. varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and blindweed (Convolvulus arvenis). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum subsp. gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist such as roads and ditches. Most trees on-site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulenis*) occurs within the western section of Aspen VIII near an existing cemetery.

WETLANDS AND WATERS OF THE U.S.

A delineation of wetlands and other Waters of the U.S. for the project site was prepared by Foothill Associates in 2006. ECORP revised the delineation in November 2009 and March 2010 and again in March 2014 (ECORP 2009, ECORP 2010, ECORP 2014) as part of continued work on the project. The Army Corps issued a preliminary jurisdictional determination on June 3rd, 2014. Table BR 1 below summarizes acreages of Water by wetland type.

Table BR 1: Wetlands and Waters of the U.S.

Wetland Type	Aspen VIII (acres)	Aspen IX (acres)	Conveyor (acres)	Totals
Perennial Stream	2.351	3.064	----	5.415
Vernal Pool	0.988	6.243	0.029	7.260
Seasonal Wetland	2.195	3.486	0.060	5.741
Seasonal Swale	0.299	0.959	----	1.258
Freshwater Marsh	2.017	2.735	----	4.752
Ephemeral Stream	0.001	0.005	----	0.006
Pond	0.920	----	----	0.920
Ditch	1.756	0.688	----	2.444
Totals	**10.527**	**17.180**	**0.089**	**27.796**

The project site has a total of 27.769 acres of wetlands which includes a perennial stream, vernal pools, seasonal wetlands, seasonal swales, freshwater marches, ephemeral streams, ponds, and ditches. Each of the aquatic vegetation communities/Waters, including associated common plant species, are summarized below.

PERENNIAL STREAM (ELDER CREEK)

A total of 5.415 acres of perennial stream have been delineated on the project site. The total includes approximately 8,470 linear feet of Elder Creek. Most of the time the creek is bordered by wetland vegetation communities and cover with varying composition depending on the flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (*Paspalum distichum*), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is limited throughout much of the creek, probably due to present and past grazing pressures. The trees along portions of Elder Creek within the project site consist of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*). This area of the creek also supports dense stands

of Himalayan blackberry (*Rubus armeniacus*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted that this creek is hydrologically sustained from late-spring through summer by irrigation runoff from adjacent pastures.

VERNAL POOLS

Vernal pools totaling 7.260 acres occur throughout the undisturbed grassland areas of the project site (Plate BR-2). A vernal pool is characterized by a shallow depression underlain by an impermeable geomorphic layer that captures and stores seasonal rainfall in its basin. Water is lost primarily through evaporation rather than through drainage. The vernal pools at the site vary in maximum water depth between a few inches to 20 inches deep and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the project site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Vernal pool habitat supports breeding and foraging habitat for many aquatic invertebrates such as flatworms (Phylum Platyhelminthes), snails (*Helisoma* spp. and *Physa* spp.), dragonflies and damselflies (Order Odonata), predaceous diving beetles (Family Dytiscidae), aquatic beetles (Family Hydrophilidae), and various crustaceans (branchiopods, ostracods, copepods). These habitats also provide feeding areas and resting sites for migratory birds. The vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the project site and adjacent areas.

SEASONAL WETLANDS, SWALES, AND EPHEMERAL DRAINAGE

The project site contains and supports numerous seasonal wetlands, swales, and ephemeral drainages, which total 7.004 acres (Plate BR-2). Some of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic

rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other cases, seasonal wetlands and swales associated with irrigated pastures and affected by summer irrigation will remain inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean breardgrass, and waxy mannagrass.

FRESHWATER MARSH

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the project site (Plate BR-2). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

DITCHES AND PONDS

A network of ditches totaling 2.444 acres and ponds totaling 0.920 acers are located throughout the irrigated pastures (Plate BR-2). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall fescue, dallis grass, mannagrass, and annual beard grass. One ditch on Aspen VIII was dominated by Sanford's arrowhead (*Sagittaria sanfordii*).

Ponds on the project site are relatively deep, and tend to lack vegetation. Pond levels also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

RIPARIAN WOODLAND

Riparian woodland vegetation, on the project site occurs in limited patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Plate BR-2). Most of Elder Creek lacks riparian woodland vegetation; this may be due to past and present grazing pressures. The riparian species consist of Fremont cottonwood, willows,

Himalayan blackberry, and California wild rose. The site's ditches also lack riparian woodland species due to routine maintenance activates.

RUDERAL

Ruderal vegetation is frequently found within equipment storage areas and access roads. In addition, disposal areas along ditches are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), and soft-chess brome.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to biological resources the proposed project would have a significant impact if it:

BR-1: Has a substantial adverse effect on any special status species; or

BR-2: Has a substantial adverse effect on any riparian habitat or other sensitive natural community; or

BR-3: Has a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act; or

BR-4 Adversely affects or result in the removal of native or landmark trees; or

BR-5 Conflicts with any local policies or ordinances protecting biological recourses; or

BR-6 Has a substantial adverse effect on the movement of any native resident of migratory fish or wildlife species; or

BR-7 Conflicts with the provisions of an adopted Habitat Conservation Plan or other approved local, regional, state or federal plan for the conservation of habitat.

The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife

or migratory fish. Moreover, the excavation of the aggregate materials will most likely not effect wildlife movement because the vastness of the site. In other words, there should be ample room for the wildlife to maneuver around and through the project site. The final mining pit side slopes are at a 2:1 ratio which means for every two units of horizontal there is one unit of vertical; these slopes should not prevent wildlife from accessing the pit floor. Additionally, the project will be excavated in phases so that the entire site will not be in active excavation at one time. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish. Finally, the project site is not located in any adopted habitat conservation plan. Therefore, BR-6 and BR-7 will not be further analyzed.

Impacts And Analysis

Impact Evaluation BR-1: Does the project have a substantial adverse effect on any special status species?

The implementation of proposed project would result in temporary, direct, and/or indirect impacts on a number of special-status plant and animal species. Table BR 2 shows the Special-Status Species known or potentially known to occur within the Aspen VIII and IX project area.

Table BR 2: Special-Status Species Known or Potentially Known to Occur within the Aspen VIII and IX Project Vicinity

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
PLANTS				
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B.	Vernal pools & swales, ephemeral drainages & margins of other seasonal wetlands. Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. <450 m.	March - May	Could Occur
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B.	Swales, vernal pools, moist flats & ephemeral drainages. North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	May - August	Unlikely to Occur
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B.	Marshy lake margins, cattle ponds & in vernal pools. Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	April - August	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4.	Vernal pools & seasonally saturated clay flats. Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Luis Obispo Co. Elev. < 500 m.	March - June	Could Occur
AHART'S DWARF RUSH *Juncus leiospermus* var. *ahartii*	— / — / 1B.	Vernal pools, swales & ephemeral drainages. Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	March - May	Could Occur
LEGENERE *Legenere limosa*	— / — / 1B.	Vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	April - June	Could Occur
HOARY NAVARRETIA *Navarretia eriocephala*	— / — / 4.	Seasonally wet flats, usually in heavy soil. Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	May - June	Unlikely to Occur
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4.	Typically growing heavy soils, vernal pools, & drying flats. Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	April - June	Unlikely to Occur
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B.	Vernal pools, usually with acidic soils. E. Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	April - May	Could Occur
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B.	Generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev.30-1700 m.	May - October	Could Occur
SACRAMENTO ORCUTT GRASS *Orcuttia viscida*	FE / SE / 1B.	Generally found in larger, deeper vernal pools. Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	April - September	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B.	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	May - August	Known to Occur
INVERTEBRATES				
ANDRENID BEE *Andrena subapasta*	— /—/CNDDB	Inhabits upland areas near vernal pools. Females collect pollen primarily from *Arenaria*, but also *Triphysaria eriantha* and *Lasthenia* flowers. Occurs in vernal pool grassland habitats in El Dorado, Placer, Sacramento and San Joaquin Cos.	Late February - early May	Could Occur
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	November - May	Known to Occur
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	November - May	Likely to Occur
HAIRY WATER FLEA *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento Co., as well as from Solano Co. Little information exists regarding the species' habitat or life history requirements.	November - May	Could Occur
RICKSECKER'S HYDROCHARA *Hydrochara ricksecker*i	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	November - May	Could Occur
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	November - May	Likely to Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to Fresno County, across the Central Valley and some of the coast ranges.	November - May	Likely to Occur
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/—	The subspecies occurs at scattered locations in the Central Valley & adjacent foothills of the Sierra Nevada & Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., *Sambucus* spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant).	Year round (exit holes)	Could Occur
AMPHIBIANS				
WESTERN SPADEFOOT TOAD *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, & quiet in-channel pools for breeding & larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley & surrounding foothills from Colusa Co. to Tulare Co. In Sacramento Co., known from southeastern county (mostly south of the Cosumnes River), but also at Mather Field vernal pool complex.	March - May	Could Occur
REPTILES				
WESTERN POND TURTLE *Emys marmorata*	—/—/ SSC	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers). Loose soils in adjacent banks, grasslands, and open woodland for nesting.	March - Oct	Could Occur
BIRDS				
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near	Year round	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
		dense-topped trees (for nesting and roosting). Occurs throughout Sacramento County.		
NORTHERN HARRIER *Circus cyaneus* (nesting)	—/—/ SSC	Nests in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Occurs throughout Sacramento County.	Year round	Could Occur
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— / ST / —	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Scattered throughout Sacramento County.	April - September	Could Occur
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Hunts in expansive, open vegetation communities. Winter visitor in small numbers throughout Sacramento County.	October - April	Could Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. It is less often found in open desert. It typically requires dense stands of trees for cover and roosting. It is most often found where there are substantial populations of small birds (the primary prey item). It is a regular winter visitor to Sacramento County.	October - March	Could Occur
BURROWING OWL *Athene cunicularia* (burrow sites & some wintering sites)	—/—/ SSC	Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Forages in similar habitats.	Year-round	Could Occur

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging. Occurs throughout Sacramento County in small numbers.	April - July	Could Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting & communal roosts)	—/—/ CNDDB	Found as a resident & wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, & other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts). Scattered throughout Sacramento County.	Year-round	Likely to Occur
TRICOLORED BLACKBIRD *Agelaius tricolor* (nesting)	—/ SE / —	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or grasses. Forages in grassland or rangeland providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within at least three miles of the nest colony. Nesting colonies are scattered throughout Sacramento Co.	April - July	Known to Occur

SPECIAL STATUS CODE ABBREVIATIONS AND DEFINITIONS	
FE	Federally listed as Endangered
FT	Federally listed at Threated
FD	Federally De-listed
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threated
FC	Federal Candidate Species (former Category 1 candidates)
SE	California listed as Endangered
ST	California listed as Threated
SR	California listed as Rare

Common Name Scientific Name	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential for Occurrence
SD	American Peregrine Falcon Email Barry			
CFP	California Department of Fish and Wildlife designated “Fully Protected”			
SSC	California Department of Fish and Wildlife designed “Species of Special Concern”			
1A	California Rear Plant Rank- Presumed extinct			
1B	California Rear Plant Rank- Rare or Endangered in California and elsewhere			
2A	California Rear Plant Rank- Presumed extirpated in California, more common elsewhere			
2B	California Rear Plant Rank- Rare or Endangered in California, more common elsewhere			
3	California Rear Plant Rank- Plants about which more information is needed, a review list			
4	California Rear Plant Rank- Plants of limited distribution, a watch list			
CNDDB	Species is tracked by the California Department of Fish and Wildlife’s “California Natural Diversity Database”			
LIKELIHOOD OF OCCURRENCE DEFINITIONS				
Know to Occur	Taxon was observed at the project site during recent surveys.			
Likely to Occur	Taxon previously reported within or immediately adjacent to the project site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the project site.			
Could Occur	Suitable habitat is available at the project site, however, there is little to no other indicators that the taxon might be present.			
Unlikely to Occur	Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the project area.			

DWARF DOWNINGIA

Dwarf downingia is not listed pursuant to either the federal or California Endangered Species Acts (ESAs); however, it is listed as a CRPR 2B species by the CNPS. Dwarf downingia is known from vernal pools and other seasonal wetlands. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively ‘flashy’ hydrology. The species will also frequently occupy ephemeral drainages and swales

and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes. Flowering typically occurs between March and May.

In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north, generally below 500 feet elevation. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern Sacramento Valley.

There is one known occurrence of dwarf downingia within 5 miles of the project site (CNDDB Occurrence No. 54), approximately 4.9 miles to the south of the project site. This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is still presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014, dwarf downingia is not expected to occur at the project site at this time.

BOGGS LAKE HEDGE-HYSSOP

Boggs Lake hedge-hyssop is listed as threatened by the California ESA. The CNPS also includes Boggs Lake hedge-hyssop as a CRPR 1B plant. The species blooms between April and June; the species occurs over a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. Boggs Lake hedge-hyssop has been reported to grow in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau. There are six known occurrences of Boggs Lake hedge-hyssop within 5 miles of the project site. The nearest known location is approximately 2.5 miles northwest of the site, at Mather Field (CNDDB Occurrence No. 84; CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014, Boggs Lake hedge-hyssop is not expected to occur at the project site at this time.

HOGWALLOW STARFISH

Hogwallow starfish is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 4 species by the CNPS. Hogwallow starfish is typically associated with shallow vernal pools and seasonally saturated clay flats. The species has also been found from a fallow (formerly irrigated) pasture. Hogwallow starfish has a wide distribution throughout the Central valley and adjacent foothills from Tehama County south to Kern County. It has also been recorded in San Luis Obispo County. Flowering typically occurs between March and June. CRPR List 4 plants are not tracked by the CDFW, thus occurrence records for hogwallow starfish are not included in the CNDDB. A previous survey conducted by ECORP Consulting did identify a population of hogwallow starfish at the Piliken Ranch near Sloughhouse in eastern Sacramento County, approximately 10 miles southeast of the project site. This population was recorded growing in a rocky, sparsely vegetated upland area. Some of the shallow vernal pools and seasonal wetlands at the project site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, May and June 2013 and 2014, hogwallow starfish is not expected to occur at the project site at this time.

AHART'S DWARF RUSH

Ahart's dwarf rush is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to be restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions may fluctuate considerably and may even empty between storm events in winter. In addition, this species is also known to occur on gopher mounds along the margins of these wetlands. Flowering generally occurs from late-March through May.

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 90 to 300 feet. Most occurrences are from Butte and Sacramento County. The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast from the project site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in shallow vernal pools and along vernal swales and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014, Ahart's dwarf rush is not expected to occur at the project site at this time.

LEGENERE

Legenere is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*). Flowering typically occurs from April to June.

This species' range includes the northern Central Valley from Shasta to San Joaquin County and the Inland Coast Range from Lake to Santa Clara County. Populations are reported from 78 occurrences, ranging in elevation from less than 950 meters. The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties. The nearest known occurrence of Legenere is approximately 1.4 miles south of the project site (CNDDB Occurrence No. 29; CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the project site. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014, Legenere is not expected to occur at the project site at this time.

PINCUSHION NAVARRETIA

Pincushion navarretia is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Pincushion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils. Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations. Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may fluctuate considerable and may even empty between storm events in winter. The species may be seen flowering from mid-April through May.

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 60 and 1,100 feet elevation. The nearest known location of this species is approximately 10.6 miles northeast of the project site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3; CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within

the project site. Based on negative findings of protocol-level rare plant surveys conducted in April and May 2013 and 2014, pincushion navarretia is not expected to occur at the project site at this time.

SLENDER ORCUTT GRASS

Slender Orcutt grass is listed as threatened under the federal ESA and endangered under the California ESA. The CNPS also includes slender Orcutt grass as a CRPR 1B species. Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic origin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range. The lowest reported elevation is 88 feet in Sacramento County and the highest is 5,760 feet in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region. The nearest documented occurrence of Slender Orcutt grass is approximately 2 miles south of the project site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek. The population is still presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and May, June and July 2014; slender Orcutt grass is not expected to occur at the project site at this time.

SACRAMENTO ORCUTT GRASS

Sacramento Orcutt grass is listed as endangered under both the federal and California ESAs. The CNPS also includes Sacramento Orcutt grass as a CRPR 1B species. Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grow in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses. Flowering typically occurs in May and June.

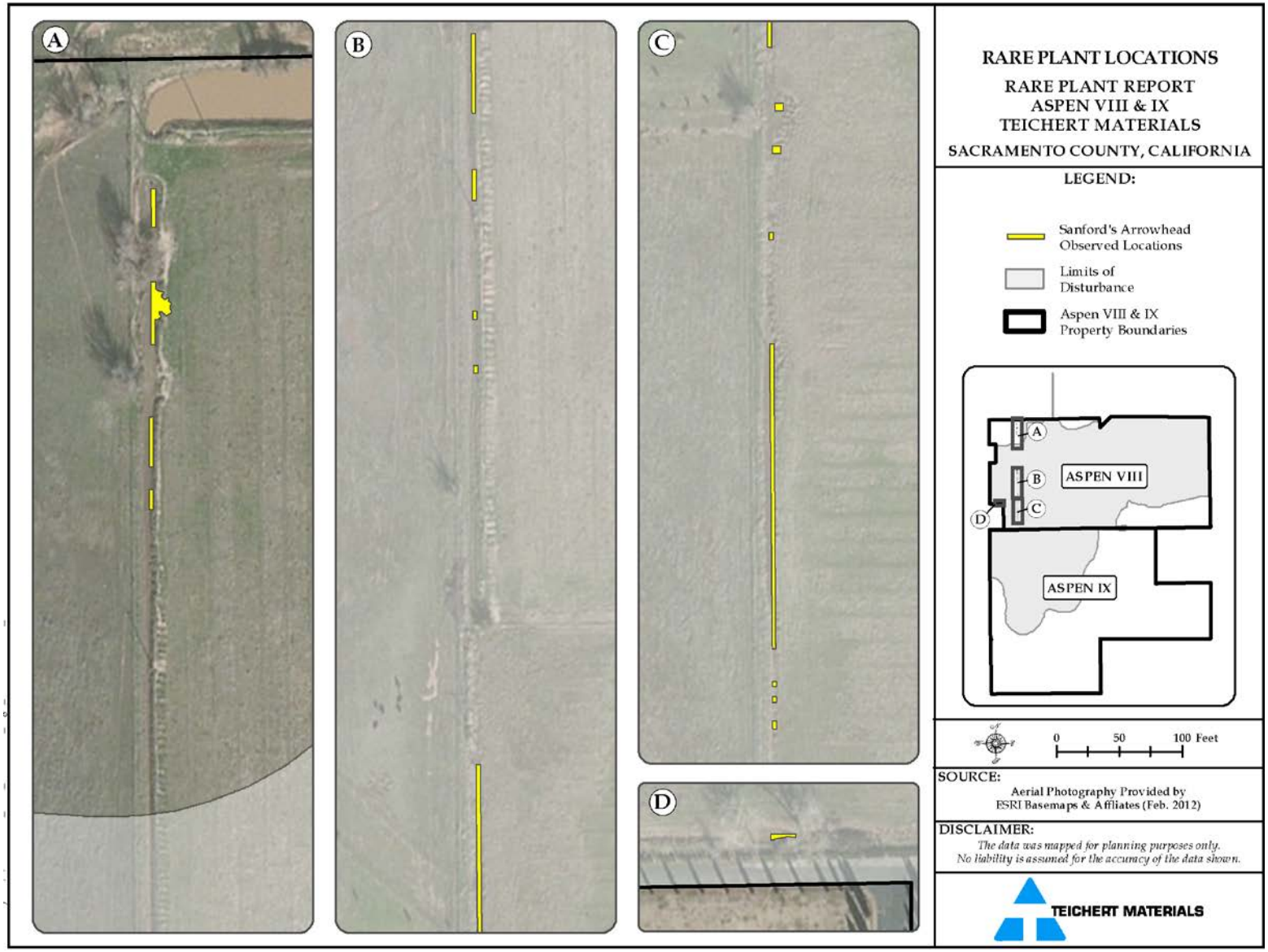
Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences,

most of which are still presumed extant. The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south. The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the project site (CNDDB Occurrence No. 20); however, this population is presumed extirpated. This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery. The nearest possible extant location is approximately 3.6 miles northeast of the project site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and 2014, Sacramento Orcutt grass is not expected to occur at the project site at this time.

LOSS OF HABITAT FOR AND INDIVIDUALS OF SANFORD'S ARROWHEAD

Sanford's arrowhead is a plant that was identified at the site through protocol-level rare plant surveys performed in 2014. Sanford's arrowhead colonies were observed growing in two irrigated ditches near the western part of Aspen VIII (Plate BR-3). Approximately 2,000 plants occur within an irrigated ditch, extending approximately 2,779 lineal feet in a north to south direction. Some additional plants were identified in a connected ditch running east to west along the northern border of an adjacent cemetery. The majority of the Sanford's arrowhead would be directly impacted by the proposed project, including approximately 2,278 linear feet of irrigation ditch supporting the plants. The other portions of the irrigation ditch not proposed to be disturbed is expected to be indirectly impacted, since irrigation to existing pastures would likely cease through implementation of the project. Therefore, the proposed project's impacts to Sanford's arrowhead would be significant.

Plate BR-3: Sanford's Arrowhead Location Map



Level of Significance Before Mitigation: Significant

BR-1.1: Sanford's Arrowhead Mitigation Measure

A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a suitable habitat that is within 2 miles of the project site with preference given to the Elder Creek watershed. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants.

B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.

Level of Significance After Mitigation: Less than Significant

VALLEY ELDERBERRY LONGHORN BEETLE

The valley elderberry longhorn beetle (VELB) is listed as threatened by the federal ESA. The VELB is entirely dependent upon its host plant, elderberry (i.e., *Sambucus spp*.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. The VELB life cycle consists of four stages: egg, larva, pupa, and adult. Eggs are typically deposited within the bark crevices of live elderberry shrubs. Upon hatching, the larvae bore through the bark where they tunnel and feed in the pith of the stem for up to 2 years. Prior to pupating, the larvae bore back out of the stem (thereby creating the "exit hole") and then return into the stem to enter the pupil stage. Exit holes are more frequently found in trunks or branches between 2 and 7 inches in diameter, or at least 1.0 inch or greater in diameter at ground level. Between March and early June, about the same time the elderberries flower, VELB adults emerge from the exit holes. Adults feed on the leaves of elderberry shrubs and possibly the flowers. The life span of adults is unknown, but they are presumed to die after reproducing.

This taxon occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. At the time the VELB was federally listed, it was known from less than 10 locations along the American and Merced Rivers, and along Putah Creek. The known range now extends from southern Shasta County to Fresno County and across the Central Valley, with approximately 204 records (mostly based on exit holes) in existence. The nearest occurrence record for this taxon is approximately 5.6 miles north of the project site (CNDDB Element Occurrence No. 01). This occurrence is described as being located on elderberry shrubs within dense riparian habitat along the American River Parkway from River Bend Park up to the lower southeast shore of Lake Natoma. Considering the relatively close proximity of nearby populations and wide geographical range of elderberry shrubs, the VELB could be expected to occur within the study area. Focused surveys for elderberry shrubs were conducted on the project site as part of a rare plant survey, carried out over a two year period from March 2013 through August 2014. No elderberry shrubs were present on the project site; therefore, the species is considered to have no potential to occur within the study area due to a lack of required habitat.

IMPACTS TO AND LOSS OF HABITAT FOR VERNAL POOL INVERTEBRATES

The andrenid bee, vernal pool fairy shrimp, mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, vernal pool tadpole shrimp, and California linderiella occur in or utilize seasonally inundated depressions such as vernal pools, seasonal wetlands, and seasonal wetland swale. The vernal pool fairy shrimp, vernal pool tadpole shrimp, and California fairy shrimp have been observed from numerous vernal pools and seasonal wetlands at the project site. Based on these previous observations, it is assumed that all suitable habitat (i.e., non-irrigated) for special-status vernal pool invertebrates within the affected area is occupied by vernal pool invertebrates.

Table BR 3 below summarizes the total acreage of habitat that the project would affect, including potential indirect impacts. Note that several seasonal wetlands are located in irrigated pastures that are continuously affected by summer irrigation by remaining saturated or inundated for prolonged periods. These irrigated seasonal wetlands do not provide habitat for the special-status species invertebrates discussed above due to their extended hydro periods.

Table BR 3: Direct and Indirect Effects on Special-Status Vernal Pool Invertebrates

Potential Habitat	Total Acres (Aspen VIII/IX)	Direct Impacts (acres)	Indirect Impacts (acres)
Vernal Pool	*6.964	0.301	0.031
Seasonal Wetland (non-irrigated)	3.524	0.572	0.182
Seasonal Swale (non-irrigated)	0.362	0.021	0.047
Totals	**11.146**	**0.894**	**0.260**

*Note: 0.296 acres of vernal pools were field confirmed as irrigated based on recent observations with the U.S. Fish and Wildlife Service

Implementation of the proposed project would result in the loss of 0.894 acres of habitat for special-status vernal pool invertebrates, including the vernal pool fairy shrimp and vernal pool tadpole shrimp. There is also the potential for indirect loss of 0.260 acre of habitat. The direct and potential indirect impacts to 1.154 acres of habitat and potential mortality of these vernal pool invertebrates are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.2: Invertebrates Mitigation Measure

Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol “Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods” (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall:

A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. ~~The required Plan shall be submitted to the Sacramento County Environmental Coordinator,~~

~~U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation~~.

C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction.

E. Prior to issuance of the Work Authorization Permit, the Applicant shall demonstrate to the Environmental Coordinator that all areas which are required to be preserved in perpetuity as part of the Section 404 permit are protected by, and placed within a permanent conservation easement approved by the USACE.

Level of Significance After Mitigation: Less than Significant

LOSS OF HABITAT FOR AND DISTURBANCES TO WESTERN SPADEFOOT TOAD

The western spadefoot toad has an irregular and localized distribution in Sacramento County. The western spadefoot toad is known from similar habitats less than four miles away at the Mather Field Vernal Pool Complex. Vernal pools, seasonal wetlands, and ponds are potentially suitable as breeding sites for the western spadefoot toad. There are a total of 19.936 acres of these breeding sites at the project site. The project would result in the permanent loss of 3.034 acres of these sites. Thus, the project would reduce the reproductive potential and recruitment from these sites for the western spadefoot toad if utilized by the species.

The project site also supports 308.5 acres of annual grassland that could be occupied by western spadefoot toad during the non-breeding season; irrigated pasture or hay is not considered to be suitable terrestrial habitat. The project would result in the temporary loss of 96.2 acres of annual grassland habitat. The loss may be considered temporary because after the mining operation has ceased the project site will be reclaimed back to open space grass land. Additionally, the project will create more acres of annual grassland through the conversion of irrigated to non-irrigated grasslands.

Mining of the project site could disturb, kill, or injure an unknown number of western spadefoot toads. The loss of individuals would also reduce the reproductive potential and recruitment of the species in the project vicinity. The loss of suitable western spadefoot toad habitat and individuals is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.3: Western Spadefoot Toad Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat.

C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Level of Significance After Mitigation: Less than Significant

LOSS OF HABITAT FOR AND DISTURBANCE TO WESTERN POND TURTLE

The western pond turtle is a reptile that typically occurs in natural or semi-natural still or slow-moving aquatic sites. The western pond turtle sometimes appears in ponds, marshes, and slow-moving perennial drainages where there is water, basking sites, and food. The project would result in the permanent loss of 0.676 acres of pond, marsh, and perennial drainage. This impact is considered to be less than significant given that reclamation of the project site will create up to 14.2 acres of stormwater retention pond that could be occupied by the species and the entire reach of Elder Creek within the project site will be within the proposed preservation area for the project.

Western pond turtle nesting sites are usually within 650 feet to 1,310 feet of their aquatic habitat. Most of the annual grasslands within the project area are suitable nesting habitat. The excavating equipment and activities within the project site could result in the destruction of eggs or neonate turtles. Neonate western pond turtles may overwinter in the nest. The turtles are believed to exit the nest during the following spring. Therefore, a limited operating period when the eggs or neonates could not be affected by ground disturbance is not yet available for the western pond turtle. The loss of eggs, neonates, or adults is considered potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.4: Western Pond Turtle Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.

C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING WHITE-TAILED KITE OR SWAINSON'S HAWK

White-tailed kites and Swainson's hawks are both known to nest in the vicinity of the project area. Though there is no evidence to suggest that either of these species have nested within the project site, it is possible that nests could be sited in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the project, occur during the nesting season of these species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.5 miles of the project site could be adversely affected during mining-related vegetation removal or earthmoving associated with the project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

DISTURBANCE TO NESTING NORTHERN HARRIER

The Northern harrier is a bird that is known to nest in grasslands, weedy fields, and emergent marshes. It is strongly suspected to nest in Sacramento County given the prevalence of sightings each year during the peak nesting season, and has recently been observed nesting in a nearby grain field northwest of the project site. The

northern harrier may nest in suitable habitat on the project site (e.g. taller, denser grasses). Should mining related vegetation removal or excavation associated with the project take place during the nesting season of the northern harrier (mid-March to late August), there is potential for the loss of eggs or juveniles.

Moreover, nearby mining related vegetation removal or earthmoving could result in noise and visual change that distract individuals from being properly attentive to eggs and juveniles. There is potential for nesting pairs to be sufficiently disturbed that eggs and juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

DISTURBANCE TO OTHER NESTING RAPTORS

Common raptors (i.e., species not designated as special-status species) that are known to nest near the project site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the project area, but some individuals especially red-tailed hawk and great-horned owl may occasionally nest in “stand alone” trees. Consequently, should tree removal, as proposed, occur during the nesting season of these species (i.e., early February to late August) there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.5: Nesting White-Tailed Kite, Swainson’s Hawk, Northern Harrier and Other Raptors Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction.

B. The survey shall include a focused survey for Swainson’s hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.

C. If no active nests are found in the survey area, no further mitigation is necessary.

D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of construction activity.

E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING OR ROOSTING BURROWING OWL

The burrowing owl has not been documented within the project site. Nonetheless, potentially suitable nesting and roosting habitat for burrowing owl is provided by California ground squirrel burrows that are located throughout the project site and the species is known from other locations to be in the project vicinity. As such, the species could occur on the project site.

If burrowing owl occurs on the project site, individuals could be subject to entombment and mortality during mining-related vegetation removal or earthmoving. Adults may be able to escape such impacts, but eggs and juveniles could still be lost since they are unable to leave the nest burrow. Even if adults are not lost directly due to ground-disturbing activities, individuals could abandon eggs or juveniles in the nest burrow due to adjacent disturbances. This impact is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.6: Nesting or Roosting Burrowing Owl Mitigation Measure

A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14.

The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING BIRDS PROTECTED UNDER THE MIGRATORY BIRD TREATY ACT

Other nesting birds have not been documented within the project site, but are expected at the site. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Wildlife Code (particularly while nesting). Some of these species would nest in the on-site woody vegetation such as trees and shrubs, but other species would nest on or near the ground on mostly the non-irrigated, annual grassland. Therefore, should tree or other vegetation removal occur during the nesting season of these species which is through mid-February to late August, there is the potential for the loss of eggs or juveniles during these activities.

In addition, mining-related vegetation removal or earthmoving could result in noise and visual changes that distract adjacent nesting individuals from being properly attentive to eggs or juveniles. Consequently, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.

B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.

Level of Significance After Mitigation: Less than Significant

LOSS OF FORAGING HABITAT FOR WHITE-TAILED KITE AND SWAINSON'S HAWK

White-tailed kites and Swainson's hawks are both known to nest in the vicinity of the project site. Foraging habitat associated with nearby nest territories for these species may include the project site. Swainson's hawk utilizes both annual grasslands and irrigated pasture/hay as suitable foraging habitat. Approximately 331.1 acres of the project site was dedicated to irrigated pasture/hay in 2015, while 308.5 acres of the project site supported non-irrigated annual grassland. Another 14.265 acres of seasonal wetlands such as vernal pools, seasonal wetlands, and seasonal swales occur on the project site and are suitable for Swainson's hawk/white-tailed kite foraging habitat later in the breeding season (i.e., after dry-down). According to the Biological Resources Assessment (Appendix BR-1) provided by the applicant, the project would impact a total of 371.2 acres of potential Swainson's hawk/white-tailed kite foraging habitat, including 95.8 acres of annual grassland, 273.0 acres of irrigated pasture, and 2.4 acres of seasonal wetlands/vernal pools. The impacted total includes the land for the conveyor system, land used for stockpiling and land used for the berms around the mine in addition to the actual mining pits.

White-tailed kite is a rodent specialist with 95 percent of the diet consisting of small rodents especially the California vole (*Microtus californicus*). This prey species is abundant in both non-irrigated annual grassland and irrigated pasture/hay. As such, there is near 100 percent overlap in the suitable foraging habitats for Swainson's hawks and white-tailed kites on the project site. Impacts associated with the loss of suitable foraging habitat for Swainson's hawks are therefore similar for white-tailed kites. These impacts are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.8: Loss of Foraging Habitat for *Tricolored Blackbird*, White-Tailed Kite and Swainson's Hawk Mitigation Measure

Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of ***tricolored blackbird*,** white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat must occur.

A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).

B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of ***tricolored blackbird*,** white-tailed kite and Swainson's hawk foraging habitat.

C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.

Level of Significance After Mitigation: Less than Significant

LOSS OF WINTER FORAGING HABITAT FOR MERLIN AND FERRUGINOUS HAWK

Merlins and ferruginous hawks are known to winter throughout the Central Valley in small numbers including in the vicinity of the project area. The loss of irrigated pasture/hay and non-irrigated annual grassland associated with the project site would result in a net decrease in the local foraging habitat for these species. However, merlins are a wide-ranging species and feeds primarily on various small avian species that tend to move over large areas (e.g., horned lark). Therefore, there is a substantial amount of suitable foraging habitat for the species within the project vicinity and elsewhere each winter. Ferruginous hawks are also a wide-ranging species, and feeds mostly on small to medium-sized mammals (up to the size of black-tailed jackrabbit). There is also a substantial amount of suitable foraging habitat for this species within the project vicinity and elsewhere each winter. Therefore, this impact is considered to be less than significant.

Level of Significance: Less than Significant – No Mitigation Required

DISTURBANCE TO NESTING LOGGERHEAD SHRIKE

The Loggerhead shrike has not been documented nesting within the project site but it has been documented at nearby locations in Sacramento County during the nesting season. In addition, potentially suitable nesting and adjacent foraging habitat occurs on and immediately adjacent to the project site. Dense, woody vegetation such as shrubs and trees on the site could be used for nesting by the species, while the adjacent irrigated pasture/hay and non-irrigated annual grassland provides suitable foraging habitat. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances associated with mining-related vegetation removal and earthmoving. This impact is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure

To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING OR ROOSTING YELLOW-BILLED MAGPIE

Yellow-billed magpies have not been documented nesting or communally roosting within the project site. However, it has been documented at many locations throughout Sacramento County (as close as one mile from the project site). Furthermore, large trees along either Elder Creek or at nearby residences provide potential nest sites for the species. Therefore, the species could occur on the project site as a nesting species.

Yellow-billed magpies prefer groves of trees often near water for communal roost sites that are typically in riparian woodland or forest. Given the lack of such habitat on or adjacent to the project site, the species is considered to have no potential to be impacted by the project while communally roosting. However, during the nesting season the eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances for the project. The impact to nesting eggs or juveniles is considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant

BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure

To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or

earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Level of Significance After Mitigation: Less than Significant

DISTURBANCE TO NESTING TRICOLORED BLACKBIRD

The tricolored blackbird nests as a colonial species at scattered locations throughout Sacramento County where there is suitable nesting habitat such as stands of cattail, tule, willow, California blackberry, Himalayan blackberry, wild rose, grain fields, milk thistle, stinging nettle, etc. The habitat provides protection from nest predators adjacent to large open expanses of non-irrigated, annual grassland; irrigated pasture/hay; or alfalfa that support large numbers of prey species such as grasshoppers, butterfly larvae, and the like. The species is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the project site. It also has been documented nesting approximately 900 feet east of the eastern boundary of Aspen VIII and several other locations within four miles or less of the project site. Because tricolored blackbirds vacate nest sites at the end of the breeding season, adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to disturbances associated with mining-related vegetation removal and earthmoving. These impacts are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-1.11: Disturbance to Nesting Tricolored Blackbird Mitigation Measure

To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the

second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun.

Level of Significance After Mitigation: Less than Significant

LOSS OF FORAGING HABITAT FOR TRICOLORED BLACKBIRD

The tricolored blackbird (Agelaius tricolor) is protected under the California Fish and Game Code (Sections 3503 and 3800). In December of 2015 tricolored blackbird was listed as a candidate species under the California Endangered Species Act. As a candidate species, the Tricolored Blackbird receives the same legal protection afforded to an endangered or threatened species (Fish & Game Code, § 2085).

Reasons for decline of tricolored blackbird populations include loss of nesting and foraging habitat. According to the California Department of Fish and Wildlife Life History Account for the tricolored blackbird, the species is mostly a resident in California, and common locally throughout the Central Valley. The foraging habitat for the tricolored blackbird is variable. The tricolored blackbird's preferred foraging habitats includes crops of rice, alfalfa, ripening/cut grain fields, irrigated pastures, annual grasslands, cattle feed lots, dairies as well as wetlands and vernal pools.

The tricolored blackbird has the ability to travel long distances to forage often over five miles. There is no shortage of suitable foraging habitats within 3-5 miles of suitable nesting habit on the project site. The loss of suitable foraging habitat from the project's implementation has the potential to significantly impact the tricolored blackbird. In order to reduce potential impacts to the loss of foraging habitat for tricolored blackbirds, mitigation measures have been included.

Level of Significance Before Mitigation: Potentially Significant

BR-1.12: Loss of Foraging Habitat for Tricolored Blackbird Mitigation Measure

See Mitigation Measure BR-1.8

Level of Significance After Mitigation: Less than Significant

Impact Evaluation BR-2: Does the project have a substantial adverse effect on any riparian habitat or other sensitive natural community?

The project site does not contain sensitive natural communities that may be impacted by the project being implemented. The site does contain numerous special status species and habitats that are potentially affected by the project implementation. The impacts to special status species and habitats are evaluated above and with the exception of a small amount of mixed riparian forest that is evaluated in the tree section below, the project site does not have a well-developed riparian habitat. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified mostly likely due to agricultural activities and now lacks substantial amounts of trees and shrubs that make a vibrant habitat. Therefore, given the lack of sensitive natural communities and lack of riparian habitat on or adjacent to the project site, the adverse impacts to sensitive natural communities and riparian habitat are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation BR-3: Does the project have a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act?

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site (Table BR 4). The proposed project will result in the loss of ~~5.373~~ **5.386** acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater march, perennial stream, ephemeral stream, pond and ditch wetland habitats (Plate BR-2 and ***Plate BR-4***).

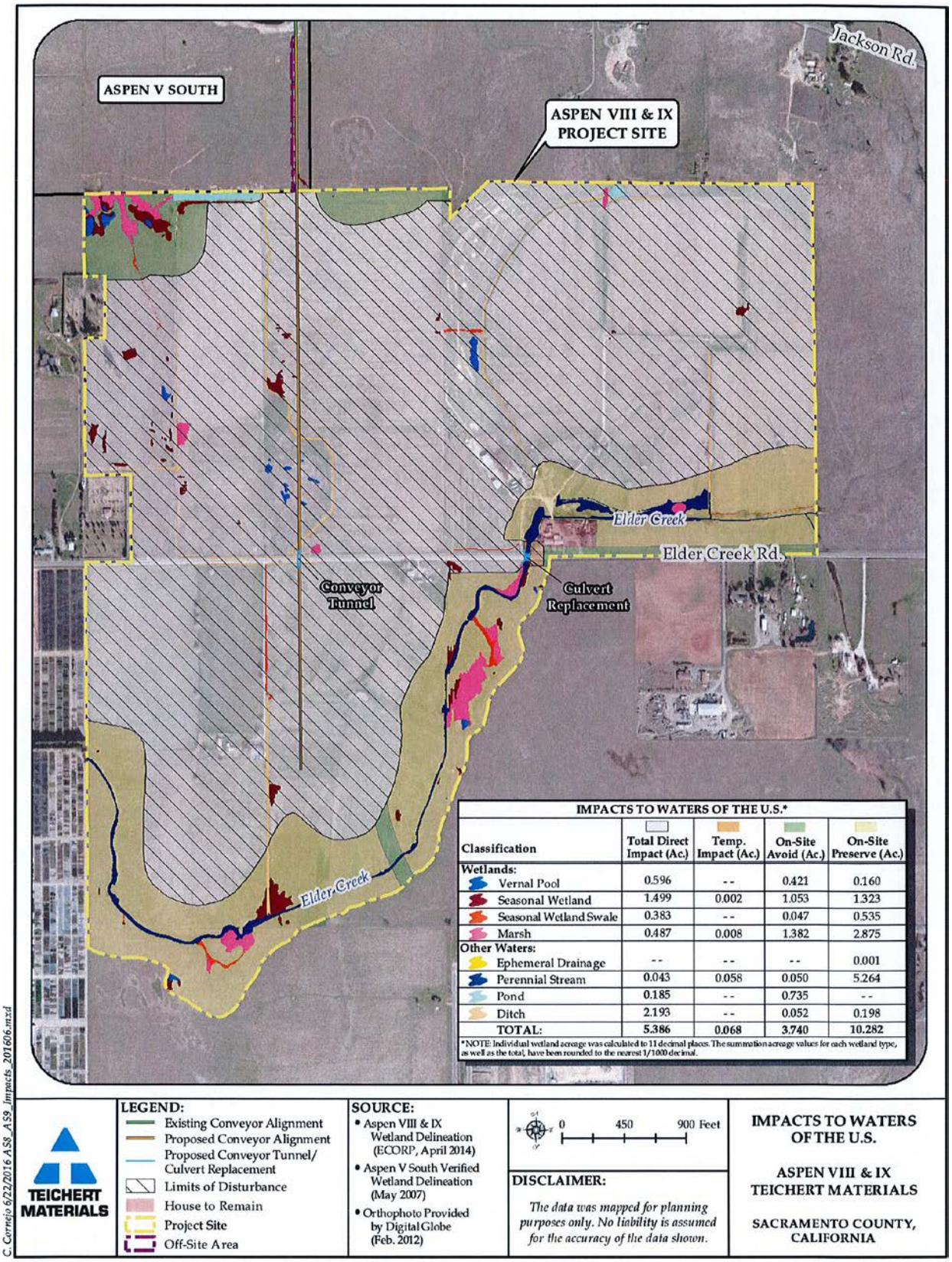
Table BR 4: Wetland Impacts Summary

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	~~0.597~~ **0.596**
Seasonal Wetland	5.741	~~1.500~~ **1.499**
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	----
Pond	0.920	0.185
Ditch	2.444	~~2.178~~ **2.193**
Totals	**27.795**	~~**5.373**~~ **5.386.**

The proposed project will result in substantial adverse impacts on federally jurisdictional Water of the U.S., including wetlands, defined by Section 404 of the Clean Water Act. The impacts will also constitute an adverse effect on waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Furthermore, these areas may be regulated by the California Department of Fish and Wildlife and are protected under the General Plan. Therefore, impacts to wetlands and other Waters are significant.

Level of Significance Before Mitigation: Significant

Plate BR-4: Impacts to Water of the U.S.



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	Temp. Impact (Ac.)	On-Site Avoid (Ac.)	On-Site Preserve (Ac.)
Wetlands:				
Vernal Pool	0.596	--	0.421	0.160
Seasonal Wetland	1.499	0.002	1.053	1.323
Seasonal Wetland Swale	0.383	--	0.047	0.535
Marsh	0.487	0.008	1.382	2.875
Other Waters:				
Ephemeral Drainage	--	--	--	0.001
Perennial Stream	0.043	0.058	0.050	5.264
Pond	0.185	--	0.735	--
Ditch	2.193	--	0.052	0.198
TOTAL:	**5.386**	**0.068**	**3.740**	**10.282**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

BR-3: Wetlands and Water of the U.S. Mitigation Measure

To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods, ~~subject to the approval of the Environmental Coordinator~~. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required. ***Proof of mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.***

B. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation BR-4: Does the project adversely affect or result in the removal of native or landmark trees?

The project site contains a total of 102 trees representing 17 species that could be affected by the proposed mining operation. There are three valley oak and nine California black walnut trees. These trees will be removed as part of the project. The total diameter at breast height (dbh) for the oak trees is 23 inches and 157 inches for the California black walnut trees.

In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species was mapped within the survey study area. Most of the tree canopy is non-native, ornamental landscape trees such as Modesto ash, mulberry and red gum. There is also a small portion (0.469 acre) of

native mixed riparian forest. There are 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with valley oak or Northern California black walnut. Some riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore, excluded from canopy totals. Impacts to native trees (valley oaks at 23 inches and California black walnuts at 157inches) and tree canopy for 1.574 acres are considered to be significant.

Level of Significance Before Mitigation: Significant

BR-4: Native Tree and Tree Canopy Protection Mitigation Measure

The removal of 23 inches dbh of valley oak trees shall be compensated for by planting native oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by ~~planning~~ ***planting*** native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), or oracle oak (*Quercus morehus*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*, which is also a List 1B plant), Oregon ash (*Fraxinus latifolia*), western redbud (Cercis occidentalis), gray pine (*Pinus sabiniana*), California white alder (*Alnus rhombifolia*), boxelder (*Acer negundo*), California buckeye (*Aesculus californica*), narrowleaf willow (*Salix exigua*), Gooding's willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), shining willow (*Salix lucida*), Pacific willow (*Salix lasiandra*), and dusky willow (*Salix melanopsis*).

~~Replacement tree planting shall be completed prior to approval of Work Authorization Permit.~~ A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved

2. Method of irrigation

3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage

4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period.

6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not

otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento Tree Foundation).

Level of Significance After Mitigation: Less than Significant

Impact Evaluation BR-5: Does the project conflict with any local policies or ordinances protecting biological resources?

The proposed project does conflict with some local policies and ordinances that protect biological resources. The project when implemented, will remove native trees from the project site and the removal of the native trees conflicts with the Sacramento County Tree Preservation and Protection Ordinance. Mitigation measures will ensure that the impacts are less than significant.

The proposed project also conflicts with several General Plan Policies that protect biological resources. The proposed project has potential impacts associated with special status species and wetlands. Once again mitigation measures have been added to lessen the impacts to special status species and wetlands to less than significant. The project has the potential to conflict with local polices and ordinances therefore, the projects impacts are potentially significant. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local polices and ordinances to less than significant.

Level of Significance Before Mitigation: Potentially Significant

BR-5: Local Policies Protecting Biological Resources Mitigation Measure

Comply with mitigation measures BR-1.1 through BR 1.~~11~~***12***, BR-3 and BR-4

Level of Significance After Mitigation: Less than Significant

15 CULTURAL RESOURCES

REGULATORY CONTEXT

FEDERAL REGULATIONS

Cultural resources are considered during federal undertakings chiefly under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the National Historic Preservation Act. Other federal laws pertinent to cultural resources include the Archaeological Data Preservation Resources Protection Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1989, among others.

The Section 106 review process is implemented using a five step procedure: 1) identification and evaluation of historic properties; 2) assessment of the effects of the undertaking on properties that are eligible for the National Resister; 3) consultation with the State Historic Preservation Office and other agencies for the development of a memorandum of agreement that addresses the treatment of historic properties; 4) receipt of Advisory Council on Historic Preservation comments on the memorandum of agreement or results of consultation; and 5) the project implementation according to the conditions of the memorandum of agreement.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) requires federal agencies to assess whether federal action would result in significant effect on the human environment. The Council on Environmental Quality's National Environmental Policy Act regulations further stipulate that identification of significant effects should incorporate, "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources" (40 CFR 1508.27[b][8]).

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (16 USC 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Perseveration a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affect cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed, or are eligible for listing, on the National Register of Historic Places per the criteria listed at 36 CFR 60.4 (Advisory Council on Historic Preservation 2000) below.

The quality of significance in American history, architecture, archaeology, engineering and culture are present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a) Are associated with events that have made a significant contribution to the broad patter of our history; or

b) Are associated with the lives of persons significant in our past; or

c) Embody the distinctive characteristic of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) Have yielded, or may be likely to yield, information important in prehistory or history.

State of California Regulations

California Environmental Quality Act

The California Environmental Quality Act (CEAQ) requires a lead agency to determine whether a project may have a significant effect on historical resources. If it can be demonstrated that a project will cause damage to a unique archaeological resources, the lead agency may require reasonable efforts to be made to permit any of all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). Section 21083.2(g) describes a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A historical resource is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (Section 21084.1); a resource included in a local resister of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5(a)(3)). Sacramento County does not have a local register.

Public Resources Code Section 5024.1, Section 15064.5 of the Guidelines, and Sections 21083.2 and 21084.1 of the Statutes of California Environmental Quality Act were used as the basic guidelines for the cultural resources study. Public Resources Code Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the California Resister of Historical Resources. The purpose of the resister is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the California Resister were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places.

Native American Burials and Accidental Discoveries

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.9).

When human remains are discovered, the protocol to be followed is specific in California Health and Safety Code, which states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commending with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative,*

in the manner provided in Section 5097.98 of the Public Resources Code.

California Environmental Quality Act Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native American, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and dispositions of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the California Environmental Quality Act Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources. Pursuant to Section 15064.5, subdivision (f), these provisions should include “an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place”.

Local Regulations

Sacramento County General Plan

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to cultural resources that apply to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

CO-150:

Utilize local, state and national resources, such as the North Central Information Center, to assist in determining the need for a cultural resources survey during project review.

CO-157:

Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

CO-158:

As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.

CO-161:

As a condition of approval for discretionary projects, require appropriate mitigation to reduce potential impacts where development could adversely affect paleontological resources.

CO-163:

Require that a certified geologist or paleoresources consultant determine appropriate protection measures when resources are discovered during the course of development and land altering activities.

CULTURAL HISTORY

The following cultural history was prepared by Peak & Associates for the Aspen VIII and IX project. The academic references cited below are from the original work. The original work is in Appendix CR-1.

ARCHEOLOGICAL BACKGROUND

The Sacramento Delta was one the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, avocational archeologist J. A. Barr excavated many prehistoric mounds in the Stockton area. He collected nearly 2,000 artifacts during the course of his investigations. H. C. Meredith was another avocational archaeologist of the period who pursued collecting in the same Stockton locality. Meredith (1899, 1900) did publish a compilation of his own and Barr's findings, and these appear to constitute the earliest accounts of delta archeology. Holmes (1902), from the Smithsonian Institution, further elaborated on the delta or "Stockton District" archeology, presenting illustrations of artifacts collected by Meredith and Barr.

It was Elmer J. Dawson who first recognized culture changes through time in delta archeology. Though he was an amateur archeologist, Dawson understood the necessity of keeping accurate notes on grave associations and proveniences of artifacts. He collaborated with W. E. Schenck to produce an overview of northern San Joaquin Valley archeology (Schenck and Dawson 1929). The overview contained information on more than 90 prehistoric sites as well as data on previous collections.

By 1931, the focus of archeological work was directed toward the Consumes River locality, where survey and exploration were conducted by Sacramento Junior College (Lillard and Purves 1936). Excavations, especially at the stratified Windmiller mound (CA-SAC-107), suggested three temporally distinct cultural traditions: Early, Transitional, and Late. Information grew as a result of excavation at other mounds in the delta and lower Sacramento Valley by Sacramento Junior College and the University of California, Berkeley.

Previous investigations in the project region have focused upon very detailed archival research of Spanish sources (Bennyhoff 1977), reexamination of earlier work (Ragir 1972; Schulz 1981; Doran 1980) and archeological investigations at a number of small sites (Schulz et al. 1979; Schulz and Simons 1973; Soule 1976). Several of the previous investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practiced are varied, but detailed studies on the faunal collection suggest seasonality of occupation and a focus on fish species other than the main channel varieties.

Writing the definitive summary of California archeology, Moratto (1984: 529-547) devoted an entire chapter to linguistic prehistory. For the Central Valley region, Moratto

points out that some Early Horizon and Middle Horizon central California archeological sites appear at least in part, contemporaneous, based on existing radiocarbon dates. Cultural materials recovered from CA-SJO-68, an Early Horizon Site, are thought to date from 2350 B.C. or 4350 ±250 B.P. On the other hand, a Middle Horizon component at CA-CCO-308 dates to 2450 B.C. or 4450 ± 400 B.P. The antiquity of other Early and Middle Horizon sites demonstrate an overlap of the two horizons by a millennium or more.

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay area. The Early Horizon may represent older Yokuts settlements or perhaps the speaker of an Utian language who were somehow replaced by a shift of population(s) from the bay area.

Ethnological Background

The Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family (Levy 1978: 398). The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Consumes and Sacramento Rivers including the area of central Sacramento County surrounding the project area. Linguistic studies and the application of a lexicostatistic model for language divergence suggest that Plains Miwok was a distinct linguistic entity for the last 2000 years (Levy 1970). This result led researchers such as Richard Levy (1978: 398) to conclude that the Plains Miwok inhabited the Sacramento Delta for a considerable period of time.

The political organization of the Plains Miwok centered on the tribelet. Tribelets were comprised of 300 to 500 individuals (Levy 1978:410). Each tribelet was thought to control a specific area of resources and usually consisted of several villages or hamlets. Each tribelet also was divided along lineages. These lineages were apparently localized to a specific geographic setting and most likely represented a village site and their associated satellite sites where the seasonal collection of resources occurred (Levy 1978:398-399). Each settlement apparently contained roughly 21 individuals according to data collected by Gifford (Cook 1955: 35).

The diet of the Plains Miwok emphasized the collection of floral resources such as acorns, buckeye, digger pine[1] nuts, seeds from the native grasses, and various fresh greens. Faunal resources such as tule elk, pronghorn antelope, deer, jackrabbits, cottontails, beaver, gray squirrels, woodrats, quail and waterfowl were hunted. Fishing, particularly salmon and sturgeon, contributed significantly to the Plains Miwok diet (Levy 1978: 402-403). The primary method of collecting fish was by nets, but the use of bone

[1] Digger pine is referenced from the original author's work. The preparer of this EIR acknowledges that the preferred reference is Gray pine.

hooks, harpoons and obsidian-tipped spears is also known ethnographically (Levy 1978: 404).

Both twined and coiled basketry were manufactured by the Eastern Miwok. The uses of baskets included the collection and storage of seeds, basketry cradles and gaming (Levy 1978: 406). Tule mats were also known to have been used by the Plains Miwok primarily as a floor covering. Other uses of tule include the manufacture of the tule balsa, a water craft in which native people navigated and exploited adjacent delta and major river systems.

Four main types of structures were known among the Eastern Miwok, depending on the environmental setting. In the mountains, the primary structure was a conical structure of bark slabs. At lower elevations the structures consisted of thatched structures, semi-subterranean earth-covered dwellings and two types of assembly houses used for ceremonial purposes (Levy 1978: 408-409).

Bennyhoff (1977: 11) characterized the Plain Miwok as intensive hunter-gatherers, with an emphasis upon gathering. The seasonal availability of floral resources defined the limits of the group's economic pursuits. Hunting and fishing subsistence pursuits apparently accommodate the given distribution of resources. The Plains Miwok territory covered six seasonally productive biotic communities and as such native people could apparently afford to pick and choose the resources they ranked highest from each of these zones. The subsequent storage of floral resources (such as acorns in granaries) allowed for a more stable use of the resources base (Bennyhoff 1977: 10). The acorn was apparently the subsistence base needed to provide an unusually productive environment as earlier non-acorn using peoples who resided in the same geographic setting apparently suffered some seasonal deprivation (Schulz 1981). Such an emphasis upon the gathering of acorns is consistent with the population increase evident during the Upper Emergent Period in California (Doran 1980).

The study of piscine (fish) remains from both CA-SAC-65 (Schulz *et al*. 1979) and CA-SAC-145 (Schulz and Simons 1973) indicates that small villages away from the major rivers appear to concentrate on the collection of piscine species (particularly the Sacramento perch) that inhabited slow-moving waters.

Historical Context

The project area lies in part on lands of the Rancho Rio de los Americanos, a grant of over 35,500 acres on the south side of the American River, made to William Leidesdorff by the Mexican governor. Leidesdorff died in San Francisco in 1848 and Joseph L. Folsom, who had come to California as assistant quartermaster of Stevenson's New York Volunteers, purchased the estate from the heirs at a low price, becoming one of the wealthiest men in California. The town of Folsom was laid out on the ranch in 1855 as the terminus of the Sacramento Valley Railroad, and named in his honor (Hoover, Rensch and Rensch 1970: 300).

There is no indication that any important events or activities occurred in the early history of the region. Bradshaw Road follows roughly the route of an early roadway that led from the Cosumnes River to the American River (General Land Office plat of T8NR6E 1866).

It was not long after the initial gold rush of the late 1840s-early 1850s however, when the agricultural potential of the excellent farmlands of the Sacramento Valley was recognized. The first lands taken up were the rich bottomlands along the major watercourses. By the mid-1860s, the prime farmland had been claimed and the later settlers began to discover the potential of lands such as the project area with poorer soils and less available water. In the 1860s and 1870s, virtually all land in the region was taken up by the later settlers for agricultural purposes. The project area lies within the boundaries of the Brighton Township (Thompson & West 1880).

Examination of the General Land Office Plat of 1866 indicated that within the Aspen VIII project area, there were two early houses present: Joseph Downing's and Daniel Webber's were both located on the north side of the section line which is now marked by Elder Creek Road. Joseph Downing's house was located along the line of the Rio de los Americanos grant, and Daniel Webber's house was located in the southwest quarter of the southwest quarter of section 27. The 1911 United States Geological Survey (USGS) map show houses at both locations, but Webber's house is gone by the 1954 USGS map. Downing's house, in the area of the Quiet Haven Cemetery, was destroyed with development of the cemetery.

Within the Aspen IX project area, there are two other residences: W.H. Ellis' house and John S. Downing's house. The Ellis house is located just south of the section 28/33 line, in the northeast quarter of the northeast quarter of section 33. This area continues to be occupied, but there is no building on the property that dates to 1866 or anything near it. Downing's house was located in the northeast quarter of the southeast quarter of section 33 (General Land Office Plat of T8NR6E, 1866). This corresponds to the ruins recorded as 5070 Knox Road.

Belleview Cemetery started in the early 1860's for the local population of farmers who settled the region in this time period. Arlington Cemetery developed first as the Garden of Good Shepard #1, but a later business venture named it "Arlington Memorial Cemetery" (Bayless and Mellow 1982). The Arlington Cemetery is now known as the Quiet Haven Cemetery.

METHODOLOGY

Archival research, Native American consultation, and fieldwork were conducted to establish what cultural resources may be present within the project area and the impact of the project on the cultural resources.

INFORMATION CENTER RECORD SEARCH

A record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System on August 8, 2006 (NCIC File No.: SAC-06-138). A follow-up record search was conducted on March 19, 2014 (NCIC File No.: SAC-14-35). The Information Center Indicated no additional work in the area since the original survey. The three sites were recorded at that time remain the only recorded resources within the Area of Potential Effect (APE), though they have now been assigned permanent numbers.

A portion of the northeast corner of the Aspen IX project area was the subject of surveys in 2006 and 2008 by Jones and Stokes. That study area extended much farther than the current Area of Potential Effect. The results of a 1974 survey by Johnson were summarized in the Morrison Creek Mining Reach Downstream (south) of Jackson Highway EIR/EIS prepared by the County of Sacramento, Department of Environmental Review and Assessment in conjunction with the Corps of Engineers for a Section 404 Permit Application (1997).

NATIVE AMERICAN CONSULTATION

In the course of the 2006-2007 project, a letter was sent to the Native American Heritage Commission requesting a check of the Sacred Lands files. The Native American Commission did provide a list of individual and groups to contact regarding the property. Letters were sent to Billie Blue Elliston, Leland Daniels, Matthew Franklin, Glen Villa Jr., Frank Navarette of the Ione Band of Miwok Indians, Mary Daniels-Tarango of the Miwok Indian Community of the Wilton Rancheria, and Dwight Dutschke, Sierra Native American Council. No responses were received.

In March of 2014 a new request was submitted to the Native American Heritage Commission, with similar results as far as the Sacred Land file. A new list of contacts was provided and letters were sent but to date no responses have been received. Below is the new list of contacts that were provided letters:

Organization	Individual
Buena Vista Rancheria	Rhonda Morningstar Pope
Shingle Springs Band of Miwok Indians	Hermo Olanio, Vice-Chairperson
Shingle Springs Band of Miwok Indians	Daniel Fonseca, Cultural Resource Director
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson
United Auburn Indian Community of the Auburn Rancheria	Marcos Guerrero, Tribal Preservation Committee
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse, Chairperson
United Auburn Indian Community of the Auburn Rancheria	Jason Camp, THPO
Ione Band of Miwok Indians	Yvonne Miller, Chairperson
Ione Band of Miwok Indians	Anthony Burrus, Cultural Committee
Wilton Rancheria	Raymond Hitchcock, Chairperson
Wilton Rancheria	Steven Hutchason

FIELD ASSESSMENT

Peak and Associates undertook the re-survey of the entire property in August 2006. The survey coverage was complete with transects of no more than 15 meters in width where necessary, small holes and scrapes were made to examine the sediments. Three new historic period sites were recorded during the survey (P-34-1865, P-34-1866, and P-34-1867).

A follow-up survey was conducted on April 4, 2014 to examine the current conditions of recorded resources and to do spot checks to ensure the accuracy of the original survey. The investigator examined the recorded building complexes, finding minimal change since they were recorded from the 2006 survey. An additional complex, 9990 Elder Creek Road, was identified and recorded and is discussed below. Furthermore, the cemetery to the west of the project site was re-examined and there was still no

indication of any features within the area of potential effect. The remainder of the area was spot checked in areas where mining is proposed. Therefore, there are four new historic period sites located within the project area.

Testing and Evaluations Results

Cultural Resources

Peak and Associates provided testing and evaluations of the four sites. These resources are discussed below utilizing the established trinomial identifier (i.e. CA-SAC-XXX) or by the temporary number given to the resources at North Central Information Center of the California Historical Resources Information System (i.e. P-34-XXXX)

10000 Elder Creek Road (P-34-1865)

The residential complex is located in the Aspen IX project area about halfway between Bradshaw Road and Excelsior Road on the south side of Elder Creek Road, east of the buildings is a private drive leading south to Elder Creek Road. The complex is located on APN: 066-0020-006 and will be removed as part of the project.

The complex consists of a group of three buildings, two of them modern. The larger residence dates to about 1970 and there is a garage/shed constructed of cinder blocks. The smaller residence is the only building on the site that may have historical importance, and it does not appear to be significant. It is a circa 1940's Minimal Traditional one-story frame residence. It has stucco siding and a composite roof. The best clues to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west side that is clearly later than the majority of the house.

10151 Elder Creek Road (P-34-1866)

The site is located on the north side of the Elder Creek Road in the Aspen VIII project area. The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branch Elder Creek and Elder Creek Road. The complex is located on APN: 063-0160-001 and the two homes will remain.

The only building that is 50 years old is the Quonset hut being used as a residence at the farm headquarters. There are many other buildings in the area and all are modern. The Quonset hut is oriented with the long axis east-west parallel to Elder Creek Road. The entrance is located on the east side via a modern aluminum door under an added porch roof. There is an addition on the west side that is clearly later than the bulk of the structure. This has lapped siding and includes another entrance from the north. The additions, entrances and a couple of aluminum framed slider windows that have been added detract for the original appearance of the structure. The Quonset hut was built during World War II and was possibly moved from Mather Field. It was common for these mass produced, prefabricated Quonset huts to be sold by the government after the war and they have been used and continue to be used throughout the country.

7050 Knox Road (P-34-1867)

Knox Road is a small access road just east of the Sacramento County Water Agency Facility that runs north from Florin Road approximately halfway between Bradshaw Road and Excelsior Road. The site is approximately 900 feet north of Florin Road in the Aspen IX project area and is located on APN: 066-0050-012. The features will be removed as part of the project.

The site is the location of a former farm headquarters. It is now only foundation pads and some minor structural features. According to Peak and Associates it is not clear when the structures were built, but there are only modern artifacts in the area now.

Features now present in the area are:

1. Wood fence
2. Brick Pile (Stoop?)
3. Concrete slab #1
4. Raised area indicating building location
5. Stock tank
6. Water tank
7. Pump house foundation/concrete slab
8. Concrete slab #2
9. Building site; flattened area and concrete walk

9999 Elder Creek Road

This property was not recorded as a resource during the first survey in August 2006. It was recorded when the follow-up survey was completed on April 4, 2014. It was not recorded because the field team felt the age of the residence at this farm/ranch headquarters made the complex too young for consideration as a resource. The residence dates from 1972 according to County Assessor's records but the barn and other out buildings are older. The complex is located on the Aspen VIII project area on APN: 066-0020-006, the same site where P-34-1865 is located. The complex will be removed as part of the project.

The four buildings other than the residence include a chicken coop, two equipment sheds and a large barn. All of the buildings are plain, utilitarian structures with no architectural features of note and there are no unusual structural techniques or materials in evidence.

The garage/equipment shed is located on the south side of the complex. It has a 1940's – 50's style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950's electrical fixtures. The structure is in fair condition. Furthermore, there is a modern roll up door on the west half. The one-over-one sash widows could be original. The west half of the structure is an equipment shed that appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor, a large industrial scale bolted to the floor, and features the same construction style and general appearance as the garage.

The chicken coop is similar in construction style and materials as the other equipment shed discussed above, but the chicken coop has plexiglass replacement windows. Overall the chicken coop is in fair condition.

The barn is the most imposing structure of the complex. It is 40 feet wide and 80 feet long with a height of 22 feet. The barn has sliding doors on the north end; the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand and feed out of the weather. The roofing is rusted corrugated steel and the fencing for a corral and pen extends behind and west of the barn. The overall condition of the barn is good.

Ground Penetrating Radar Survey

Peak and Associates recommended that a ground penetrating radar study be undertaken to determine if there were graves within the project area near both the Arlington and Belleview Cemeteries. This is due to the proximity of the two cemeteries to the area of potential effect (APE). The zone selected for the ground penetrating radar study was determined using historic aerial photographs, maps and older editions of the United States Geological Survey (USGS) topographic quadrangles.

NORCAL Geophysical Consultants, Inc, conducted the ground penetrating study within the project area of Aspen VIII that is adjacent to the cemeteries in 2006. The survey team checked an area about 300 feet by 400 feet on the east side of Quiet Haven Cemetery. A second area to the north was also tested.

NORCAL crew identified 11 subsurface anomalies (irregularities or deviations in readings) in the test area near Quiet Haven Cemetery. There were also 16 anomalies identified in the test area to the north near Belleview Cemetery.

Field Trenching

Peak and Associates returned to the project area to excavate each of the identified anomalies in May 2007. Each of the anomalies was excavated with a backhoe. The excavated materials were observed, and samples screened from the trenches; side walls of the trenches were carefully checked from evidence of disturbance. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no

evidence of disturbance or buried material. According to Peak and Associates, there was no evidence of graves in the study area.

CONCLUSIONS

Peak and Associates concluded that the trenching of the anomalies revealed that there are no graves or buried features of concern in the tested portions of the project area adjacent to the know cemeteries. There are no known or expected human remains present within the project area.

9990 Elder Creek Road (P-34-1865?)

The Information Center record search indicated that this complex is part of P-34-1865 (10000 Elder Creek Road), even though Peak and Associates did not record it previously. Until this is determined, Peak and Associates is applying the tentative designation, but describing the resources separately.

The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of United States Geological Survey (USGS) map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

10000 Elder Creek Road (P-34-1865)

The older building in the complex is not associated with any know person or event of historic significance. The architectural style is very plain and there has been a major addition.

There is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Resister or the California Resister.

10151 Elder Creek Road (P-34-1866)

The Quonset hut is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in large quantities for World War II military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavation would return any information of significance, as there is no indication of subsurface deposits at the site. The site is not eligible for the National Register or for the California Register.

7050 Knox Road (P-34-1867, CA-SAC-1027-H)

This site is not associated with any know person or event of historic significance. There are no surviving buildings and there is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or for the California Register.

According to Peak and Associates there are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

SIGNIFICANCE CRITERIA

In order for a cultural resource to be considered a "historic property" by becoming eligible under the National Register of Historic Places (NRHP) criteria, it must be demonstrated that the resource possesses integrity of location, design, setting, materials, workmanship, feeling and association, and must meet as least one of the following four criteria delineated by Section 106 (Advisory Council on Historic Preservation 2000), as listed in 36 CFR 60.4:

a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

c) That embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

The criteria for listing resources on the California Resister of Historical Resources (CRHR) were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places (NRHP), enumerated above, and require similar protection to what National Historic Preservation Act (NHPA) Section 106 mandates for historic properties. According to Public Resources Code (PRC) Section 5024.1(c)(1-4), a resource is considered historically significant if it meets as least one of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important in prehistory or history.

Under California Environmental Quality Act (CEQA), if an archeological site is not a significant "historical resource" but meets the definition of a "unique archeological resource: as defined in the Public Resources Code Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that meets any of the following criteria:
>
> 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> 2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> 3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) nor qualify as a "unique archaeological resource" under the California Environmental Quality Act (CEQA) Public Resources Code (PRC) Section 21083.2 are viewed as not significant. Under the California Environmental Quality Act (CEQA), "A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC Section 21083.2(h)).

Impacts to significant cultural resources (historic properties under National Historic Preservation Act (NHPA) and historical resources under the California Environmental Quality Act (CEQA)) that affect the characteristics of any resource that qualify it for the National Resister of Historic Places (NRHP) or adversely alter the significance of a resource listed on or eligible for listing on the California Resister of Historical Resources (CRHR) are considered a significant effect on the environment (CEQA guidelines 15065(a)(1)). Impacts to significant cultural resources from the proposed project are thus considered significant if the project physically destroys or damages all or part of a resource, changes the character of the use of the resource or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Impacts And Analysis

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Cultural Resources the proposed project would have a significant impact if it:

CR-1: Causes a substantial adverse change in the significance of a historical resource; or

CR-2: Has a substantial adverse effect on an archaeological resource; or

CR-3: Disturbs any human remains, including those interred outside of formal cemeteries; or

Impact Evaluation CR-1: Does the project cause a substantial adverse change in the significance of a historical resource?

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

Level of Significance: Less than Significant – No Mitigation Required

Impact Evaluation CR-2: Does the project have a substantial adverse effect on an archaeological resource?

Field surveys were conducted on the site in 2006 and again in 2014. The survey coverage was complete in nature with transects of no more than 15 meters wide. Additionally, a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project in 2007. The sites recorded at the time remain the only recorded resources within the area of potential effect. The sites are not eligible for the National Register of Historic Places or for the California Register. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Level of Significance Before Mitigation: Potentially Significant

CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure

If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is

determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation CR-3: Does the project disturb any human remains, including those interred outside of formal cemeteries?

The site was surveyed for subsurface anomalies near the Quiet Haven Cemetery and Belleview Cemetery. The trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the project area. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Level of Significance Before Mitigation: Potentially Significant

CR-3: Unintended Discovery Mitigation Measure

Comply with Mitigation Measure CR-2.

Level of Significance After Mitigation: Less than Significant

16 HAZARDOUS MATERIALS

REGULATORY CONTEXT

DEFINITIONS

The term “hazardous substances” refers to both hazardous materials and hazardous wastes. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a Federal, state or local regulatory agency, or if it has characteristics defined as hazardous by such an agency. A “hazardous material” is defined in the Code of Federal Regulations (CFR) as “a substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> “Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

The definition of a hazardous waste, as regulated by the California Environmental Protection Agency, Department of Toxic Substances Control (Cal EPA, DTSC), is found in the California Health and Safety Code Section 25141 (b), as follows:

> “…as hazardous waste because of its quantity, concentration, or physical, chemical, or infectious characteristics: (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; (2) pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bio-accumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.”

A hazardous waste is a “solid waste” that exhibits hazardous characteristics. The U. S. Environmental Protection Agency (EPA) has defined the term “solid waste” to include the following: any gaseous, liquid, semi-liquid, or solid material that is discarded or has served its intended purpose, unless the material is excluded from regulation. Such materials are considered wastes whether they are

discarded, reused, recycled, or reclaimed. The EPA classifies a waste as hazardous if it (1) is listed on the EPA's list of hazardous waste and/or (2) exhibits one or more of the following properties: ignitability (including oxidizers, compressed gases, and extremely flammable liquids and solids), corrosively (including strong acids and bases), reactivity (including materials that are explosive or generate toxic fumes when exposed to air or water), or toxicity (including materials listed by the EPA as capable of inducing systemic damage in humans or animals).

Federal Regulations

The federal government adopted laws, generally known as the Resource Conservation and Recovery Act (RCRA), to provide for the regulation of hazardous wastes and substances. The Resource Conservation and Recovery Act requires any business, institution, or other entity generating hazardous waste to identify and track such waste from its generation until it is recycled, reused, or disposed. The Resource Conservation and Recovery Act, subsequently amended in 1984 by the Hazardous and Solid Waste Act, extended the "cradle-to-grave" tracking system to hazardous substances, specifically prohibiting certain techniques of disposing specified hazardous substances.

The U.S. Environmental Protection Agency (EPA) was given primary responsibility for implementation of the Resource Conservation and Recovery Act. Individual states may implement their own hazardous substance management programs, if approved by the U.S. Environmental Protection Agency, with regulations at least as strict as the Resource Conservation and Recovery Act. In August 1992, the California Environmental Protection Agency (Cal EPA) received authorization to implement California's Resource Conservation and Recovery Act program, called the Hazardous Waste Control Act (HWCA). The Hazardous Waste Control Act and associated regulations are similar to Resource Conservation and Recovery Act but have a broader definition of "hazardous material" and, as a consequence, regulate more chemicals. Cal EPA's Department of Toxic Substances Control (DTSC) is the responsible agency for the implementation of the Hazardous Waste Control Act. The Department of Toxic Substances Control has the authority to delegate enforcement responsibility to local jurisdictions that enter into an agreement with the State agency for the generation, transport and disposal of hazardous substances under Hazardous Waste Control Act.

Hazardous Materials Transportation

The U.S. Department of Transportation developed regulations for the intrastate movement of hazardous materials that have been adopted by the State of California. California has also adopted provisions that regulate the transportation of hazardous material passing through and/or originating in the State. The regulations require hazardous waste be transported by a California registered hazardous waste transporter that meets specific requirements, including

possession of a valid Hazardous Waste Transporter Registration, liability insurance for environmental restoration, and compliance with Vehicle Code registration regulations. The California Highway Patrol (CHP) and Caltrans are primarily responsible for the enforcement of these regulations. Caltrans is primarily responsible for response to chemical spills and chemical identification, while the CHP enforces hazardous material and waste labeling and packaging regulations

State of California Regulations

California regulations governing hazardous materials are as stringent as (and in some cases, more stringent than) federal regulations. The state has been granted primacy (primary responsibility for oversight) by the EPA to administer and enforce hazardous waste management programs. State regulations also have detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce human health risks. California regulations pertaining to hazardous waste management are published in the California Code of Regulations (CCR). The California Code of Regulations is updated yearly and incorporates all legislation and final regulations enacted during the year, as well as specifying the agencies responsible for enforcing the various regulations.

- Department of Toxic Substances Control. 22 CCR gives the California Department of Toxic Substances Control (DTSC) responsibility for regulating hazardous waste management at the state level. The Department of Toxic Substances Control regulates the treatment, storage, and disposal of hazardous waste in accordance with 22 CCR and the Resource Conservation and Recovery Act. The Department of Toxic Substances Control administers the state and federal Superfunds for cleanup of major hazardous waste contamination sites.

- Regional Water Quality Control Board. 23 CCR charges the nine Regional Water Quality Control Boards (RWQCBs) with responsibility for overseeing water quality control. The Water Quality Control Boards are responsible for protecting actual or potential beneficial uses of water, including municipal, industrial, and agricultural water supplies and recreation. Each Water Quality Control Board has authority to supervise hazardous waste cleanup at sites referred by local agencies and in cases where water quality is affected or threatened. Either the Department of Toxic Substances Control or the Water Quality Control Board may be responsible for cleanup of sites of significant contamination by hazardous wastes. The two agencies often work together to ensure that their requirements are consistent and are implemented as intended.

- California Occupational Safety and Health Administration. Health and safety regulations applying to the investigation and cleanup of sites

contaminated with hazardous waste are enforced by Cal-OSHA under 8 CCR and the adopted federal regulations (29CFR 1910).

LOCAL REGULATIONS

ENVIRONMENTAL MANAGEMENT DEPARTMENT

Sacramento County is responsible for enforcing the State regulations, both in the incorporated cities and unincorporated areas of the County, governing hazardous waste generators, hazardous waste storage, and underground storage tanks (including inspections, enforcement and removals). The Sacramento County Environmental Management Department (EMD) regulates the use, storage and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities. The Environmental Management Department also oversees remediation of certain contaminated sites resulting from leaking underground storage tanks.

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County and establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to hazardous materials that pertain to the project. Any potential environmental impacts related to these policies will be discussed in the Impacts and Analysis section below.

HM-4:

> The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.

HM-7:

> Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercial facilities are protected from accidents and the mishandling of hazardous material.

HM-10:

Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

HM-11:

Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

SACRAMENTO COUNTY ZONING CODE

Section 4.8 of the Sacramento County Zoning Code contains rules and regulations pertaining to the Surface Mining (SM) Combining Land Use Zone. The Surface Mining Combining Zone is required in order to have mining be a permitted use. Several sections of the Surface Mining regulations address public safety and hazards. They are codified in the Zoning Code as follows:

Zoning Code Section 4.8; Purpose

The (SM) Surface Mining Combining Zone is designed to protect the mineral resources of Sacramento County from incompatible land use; to manage the mineral resources; to assure the County of an adequate supply of these resources with due consideration for the environment; and to provide for the restoration of mined lands for future use. The goals to be pursued by establishment of this zone include:

(a) That mineral resource areas be protected from preclusive and incompatible land uses.

(b) That surface mining be controlled to provide for protection of the environment.

(c) That surface mining be controlled to protect the public health, safety, welfare, and property values of residents living near surface mining operations.

(d) That provisions be made for the reclamation of mined lands.

Zoning Code Section 4.8.12.B; Fences

Unless otherwise provided by condition of the use permit, the following fence requirements shall apply:

1) Fences erected for safety purposes shall be chain-link. Fences erected for other purposes may be of other types, as designated in the use permit.

2) Fences shall be not less than 6 feet in height above the grade of the property outside the fence area.

3) Gates shall be installed to fence height at all entrances.

4) Fences shall be kept in good repair.

5) Fences shall conform to the ground to preclude opening of more than 4 inches between the ground and the fence.

6) Fences shall be placed around mining site and processing site boundaries as necessary to ensure public safety and security.

Zoning Code Section 4.8.12.C; Warning and Complaint Information Signs

1) The operator shall provide warning and trespass signs advising of the aggregate mining operation on the fences at interval of not more than 500 feet. Signs shall be kept legible and in good repair.

2) The operator shall provide signs containing information necessary for reporting complaint to the mine operator, and also for reporting fugitive dust to the Sacramento Metropolitan Air Quality Management District. Signs shall be placed to be easily visible by the public.

Zoning Code Section 4.8.12.F; Mining Setbacks

<u>Mining Setbacks</u> Setback area consisting of mined land shall be reclaimed to original grade within 1 year of the competition of mining activities. Unless otherwise provided as a condition of the use permit, mining areas shall be set back from the property lines, public streets and sewage disposal system as follows:

1) Periphery of Mining Sites Abutting Public Streets. There shall be a 25-foot minimum setback from all public streets consisting entirely of unmined land.

   <u>For Rights-of-Way with PUPFs</u>: (1) Periphery of Mining Site Abutting Public Streets. There shall be a 31-foot minimum setback from all public streets consisting entirely of unmined land.

2) Periphery of Mining Sites Adjacent to Habitable Structures and/or Potentially Incompatible Uses. The operator shall-maintain a 25-foot minimum setback for property lines that are adjacent to habitable structures and/or potentially incompatible uses, the first 10 feet of which shall consist entirely of undisturbed land. The setback area consisting of mined land shall be reclaimed to original grade within one year or less of completion of mining phase.

3) Periphery of Mining Sites Adjacent to Habitable Structures. For habitable structures existing at the time of mining use permit issuance (including habitable structures primarily used as a residence on a non-residentially zoned property) maintain a minimum of 50 feet of unmined land between the structure and mining activity. The distance from habitable structures is to be measured from the edge of a primary residence or residential accessory dwelling, whichever is closer to the property line. The distance is not to be measured from ancillary structures such as pools, decks, and patios.

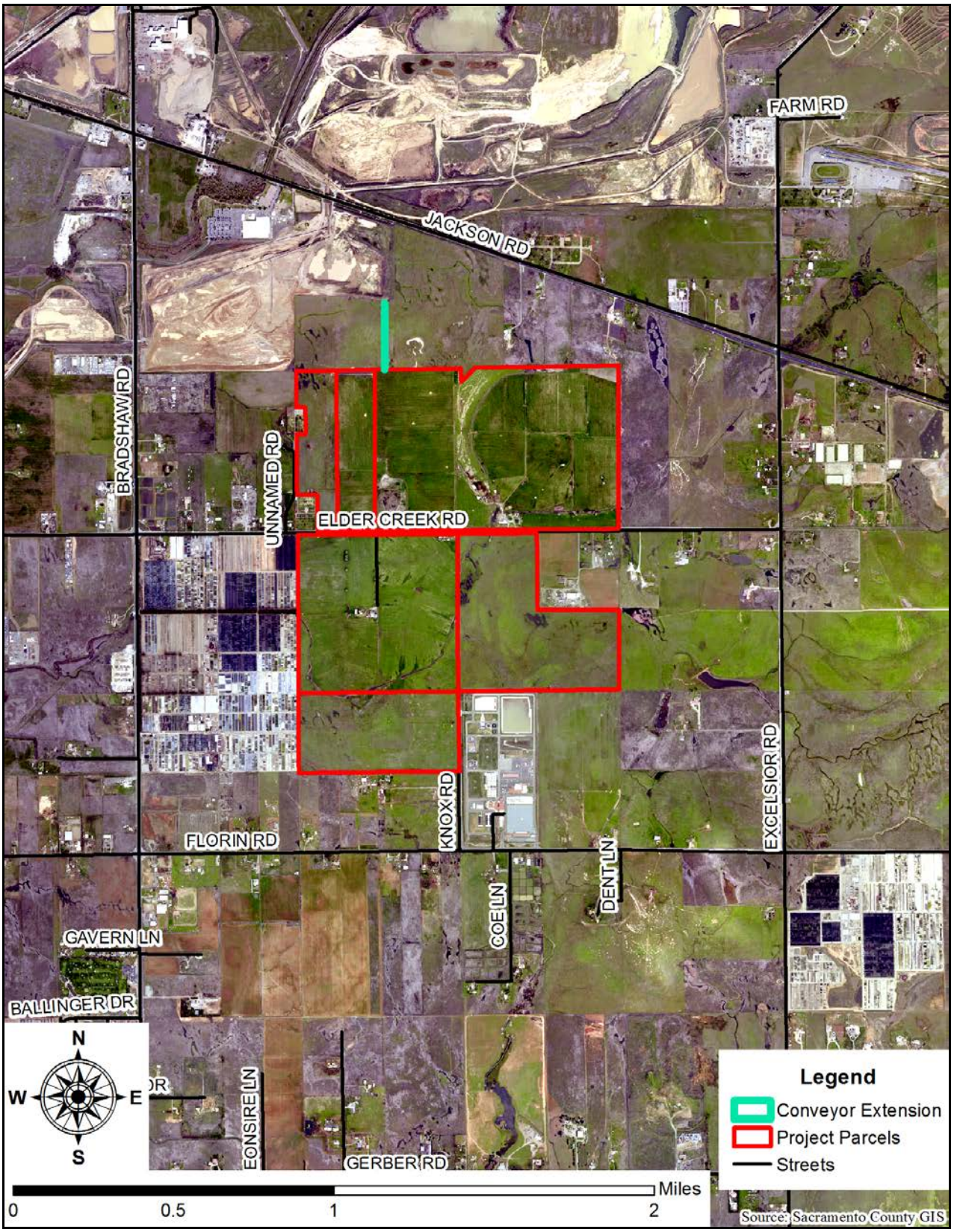
ENVIRONMENTAL SETTING

The project site (Plate HM-1) is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project is located in the Vineyard Community.

The project site is currently used as irrigated pasture and rangeland for livestock and rural residences. The surrounding area is much the same with large parcels that are used for agricultural pursuits and rural residences. There is also a County water treatment facility located south of the project site, a plant nursery located south-west of the site and other surface mines are located to the north and west of the project area.

The applicant is proposing no new permanent buildings or structures. There will be temporary trailers used for security and employee accommodations, an electric conveyor for moving the aggregate and heavy equipment that will excavate the site. The applicant will not construct any type of storage area where any hazardous material will be stored on the site.

Plate HM-1: Project Location



SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Hazards and Hazardous Materials the proposed project would have a significant impact if it:

HM-1: Creates a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or

HM-2: Exposes the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials; or

HM-3: Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school; or

HM-4: Is located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 resulting in a substantial hazard to the public or the environment; or

HM-5 Impairs the implementation of or physically interferes with an adopted emergency response or emergency evacuation plan.

The project site is not located within ¼ mile of an existing or proposed school. Furthermore, the project is not located on a known hazardous materials site. Lastly, there are no known adopted emergency response or emergency evacuation plans near the project site. Therefore, the project would not interfere with any known emergency response or excavation plan. Therefore, HM-3, HM-4, and HM-5 will not be further analyzed.

IMPACTS AND ANALYSIS

Impact Evaluation HM-1: Does the project create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The project is a surface mine that will excavate aggregate materials from the site using heavy equipment such as scrapers and loaders. The heavy equipment will be serviced by mobile maintenance trucks and fuel trucks as needed. The needed materials for equipment maintenance will be stored in the mobile maintenance trucks whether hazardous or not. The mobile maintenance trucks are stored off-site at Teichert's

equipment yard. The project applicant states that there will be no hazardous material stored at the site.

The Sacramento County Environmental Management Department reviewed the project application and materials. Environmental Management Department has requested conditions of approval for the use permit. These conditions include limits to the amount of hazardous materials that can be stored at the project site and compliance with the Hazardous Waste Control Act.

The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has indicted no storage or disposal of hazardous materials will occur at the project site, mitigation measure are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all applicable standards. The use of hazardous materials is limited to the minor maintenance conducted at the site. However, even with limited exposure to hazardous material, there is still the potential for accidents such as fuel spills that may occur during maintenance activities. Therefore, the impacts are potentially significant but with mitigation the impacts are less than significant.

Level of Significance Before Mitigation: Potentially Significant

HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure

A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities.

B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff.

C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.

Level of Significance After Mitigation: Less than Significant

Impact Evaluation HM-2: Does the project expose the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials?

The project is subject to Sacramento County Environmental Management Department (EMD) regulations which will protect the public and environment in regards to hazardous waste. EMD has provided comments and recommended conditions of approval for the project. EMD has requested that as part of ongoing operations, if the project site has storage of hazardous materials in excess of standards, the applicant must obtain a permit and submit a Hazardous Materials Business Plan to EMD. Furthermore, EMD requested any facility that generates hazardous waste must obtain a permit from EMD. The purpose of this is to ensure compliance with the Hazardous Waste Control Act.

The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Compliance with EMD regulations will ensure the impacts are less than significant.

Level of Significance: Less than Significant – No Mitigation Required

17 GREENHOUSE GAS EMISSIONS

REGULATORY CONTEXT

FEDERAL

SUPREME COURT RULING

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the Clean Air Act. The Supreme Court of the United States ruled on April 2, 2007 (*Massachusetts, et al., Petitioners v. Environmental Protection Agency, et al.)*, that carbon dioxide (CO_2) is an air pollutant as defined under the Clean Air Act, and that the EPA has authority to regulate emissions of Greenhouse Gases (GHGs). The ruling resulted in the EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

GREENHOUSE GAS PERMITTING REQUIREMENTS

In response to the issue of climate change, the EPA has taken actions to regulate, monitor, and potentially reduce Greenhouse Gas emissions

The Clean Air Act requires new major stationary emissions sources and major modifications at existing stationary sources to obtain an air pollution permit before starting construction. On May 13, 2010, the EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. This rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

Prevention of Significant Deterioration permitting requirements now cover new construction projects that emit Greenhouse Gas emissions of at least 100,000 tons of carbon dioxide equivalent (CO_2e) (90,718 metric tons [MT]) per year even if they do not exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that would increase GHG emissions by at least 75,000 tons (68,039 metric tons) per year will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant. Title V Operating Permit requirements apply to sources based on their GHG emissions even if they would not apply based on emissions of any other pollutant. Facilities that emit at least 100,000 tons (90,718 metric tons) per year of CO_2e will be subject to Title V permitting requirements.

The EPA issued a final rule on June 29, 2012 that continues to focus permitting on the largest emitters. The EPA did not revise the Greenhouse Gas permitting thresholds that were established by the GHG Tailoring Rule. Therefore, at this time, Prevention of

Significant Deterioration and Title V permitting requirements are not applicable to additional, smaller sources of GHG emissions.

MANDATORY GREENHOUSE GAS REPORTING RULE

On September 22, 2009, the EPA issued a final rule for mandatory reporting of Greenhouse Gases from large GHG emissions sources in the United States. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

STATE

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total Greenhouse Gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in Greenhouse Gas emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that is being phased in and started in 2012. To effectively implement the cap, AB 32 directs the California Air Resources Board to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN

In December 2008, the California Air Resources Board adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the State's projected 2020 emission level of 545 million metric tons of

CO_2e under a business-as-usual scenario. This is a reduction of 47 million metric tons CO_2e, or almost 10 percent, from 2008 emissions. The California Air Resource Board's original 2020 projection was 596 million metric tons CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008. The Scoping Plan, reapproved by the California Air Resource Board in August 2011, includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The first update to the Scoping Plan was approved by the California Air Resources Board in May 2014. The updated Scoping Plan revised the 2020 projection to 509 million metric tons CO_2e and the 2020 emission limit to 431 million metric tons CO_2e. The Scoping Plan also includes the California Air Recourses Board-recommended GHG reductions for each emissions sector of the State's GHG inventory. The California Air Resource Board estimates the following reductions in GHG emissions from sector-based measures:

- Energy (25 million metric tons CO_2e),
- Transportation (23 million metric tons CO_2e),
- High global warming potential (5 million metric tons CO_2e),
- Waste (2 million metric tons CO_2e), and
- Cap-and-Trade Regulations (23 million metric tons CO_2e).

SENATE BILL X7-7

Global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. These conditions can have major implications on the agriculture industry in California. Senate Bill X7-7 was enacted in November 2009 and requires all water suppliers in California to increase water use efficiency. Specifically, the legislation sets an overall goal for the State of California to reduce per capita urban water use by 20 percent by December 31, 2020. An interim goal of a 10 percent per capita reduction was set for December 31, 2015.

LOCAL

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento Metropolitan Air Quality Management District (SMAQMD) has adopted Greenhouse Gas thresholds, to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and Assemble Bill (AB) 32 in 2013. SMAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with AB 32.

SMAQMD utilized guidance from the California Air Pollution Control Officers Association to develop threshold concepts. The goal was to develop a threshold screening level that would capture 90 percent of emissions for new stationary sources and land development projects.

Sacramento Metropolitan Air Quality Management District (SMAQMD) Greenhouse Gas thresholds of significance are separated into two project types (Table GG 1). The first is the Land Development and Construction project type and the second project type is Stationary Source Only. Both of these project types are further subdivided into the construction phase and the operational phase. The adopted threshold for stationary sources projects in the operational phase is 10,000 metric tons of CO_2e per year while the construction phase threshold is 1,100 MT of CO_2e per year. Furthermore, the land development thresholds for both the construction and operational phase are 1,100 MT CO_2e per year.

Table GG 1: Sacramento Metropolitan Air Quality Management District Threshold of Significance for Greenhouse Gases

Land Development and Construction Projects		
	Construction Phase	Operational Phase
Greenhouse Gas as CO_2e	1,100 metric tons per year	1,100 metric tons per year
Stationary Source Only		
	Construction Phase	Operational Phase
Greenhouse Gas as CO_2e	1,100 metric tons per year	10,000 metric tons per year

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following is the most pertinent General Plan policy related to Greenhouse Gas Emissions that pertain to the project. Any potential environmental impact related to this policy will be discussed in the Impact and Analysis section below.

LU-115:

> It is the goal of the County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of state and local action.

SACRAMENTO COUNTY CLIMATE ACTION PLAN

In 2009 a Greenhouse Gas Emissions inventory for Sacramento County was prepared. The inventory included the following cites; Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento. Sacramento County than began preparing a multi-phase Climate Action Plan to meet the State's targets for Greenhouse Gas reductions. The Board of Supervisors adopted the Climate Action Plan – Strategy and Framework Document on November 9, 2011, which provided direction for the first and second phases of the Climate Action Plan.

The Board of Supervisors adopted the Climate Action Plan for Phase 1, Government Operations on September 11, 2012. The Phase 1 Climate Action Plan identified ways County-owned facilities, vehicles, and equipment could reduce Greenhouse Gas emissions. Additionally, The Sacramento County Department of Community Development is currently working on the second phase of the Climate Action Plan. Phase 2 will look at the emissions for the entire unincorporated County and not just County-owned facilities like Phase 1.

SACRAMENTO COUNTY GREENHOUSE GAS THRESHOLDS

Sacramento County published Greenhouse Gas thresholds of significance as part of the General Plan Environmental Impact Report (EIR), in May of 2009. In April 2011 the thresholds were updated via a memorandum to the Environmental Coordinator, and attached to this memorandum was a document titled "Sacramento County Greenhouse Gas Thresholds: Guidance on Application." The guidance document was subsequently updated in July 2012, to reflect new analysis information such as the availability of the California Emissions Estimator Model (CalEEMod). The thresholds were further revised in April 2014 to reflect minor changes to the Countywide GHG inventory. The thresholds are based on per capita metrics for residential projects and per 1,000 square feet for commercial/industrial projects. The significance thresholds used within Sacramento County are contained within below in Table GG 2.

Table GG 2: Sacramento County Thresholds of Significance for Greenhouse Gas Emissions

Sector	2005 Baseline	2020 Target	Thresholds
Residential Energy	1,033,142	878,275	1.33 per capita
Commercial & Industrial Energy	772,129	656,914	7.87 per 1,000 square feet
Transportation	2,066,970	1,757,236	2.67 per capita
Trucks	488,806	414,470	0.10 per Vehicle Mile Traveled (VMT)

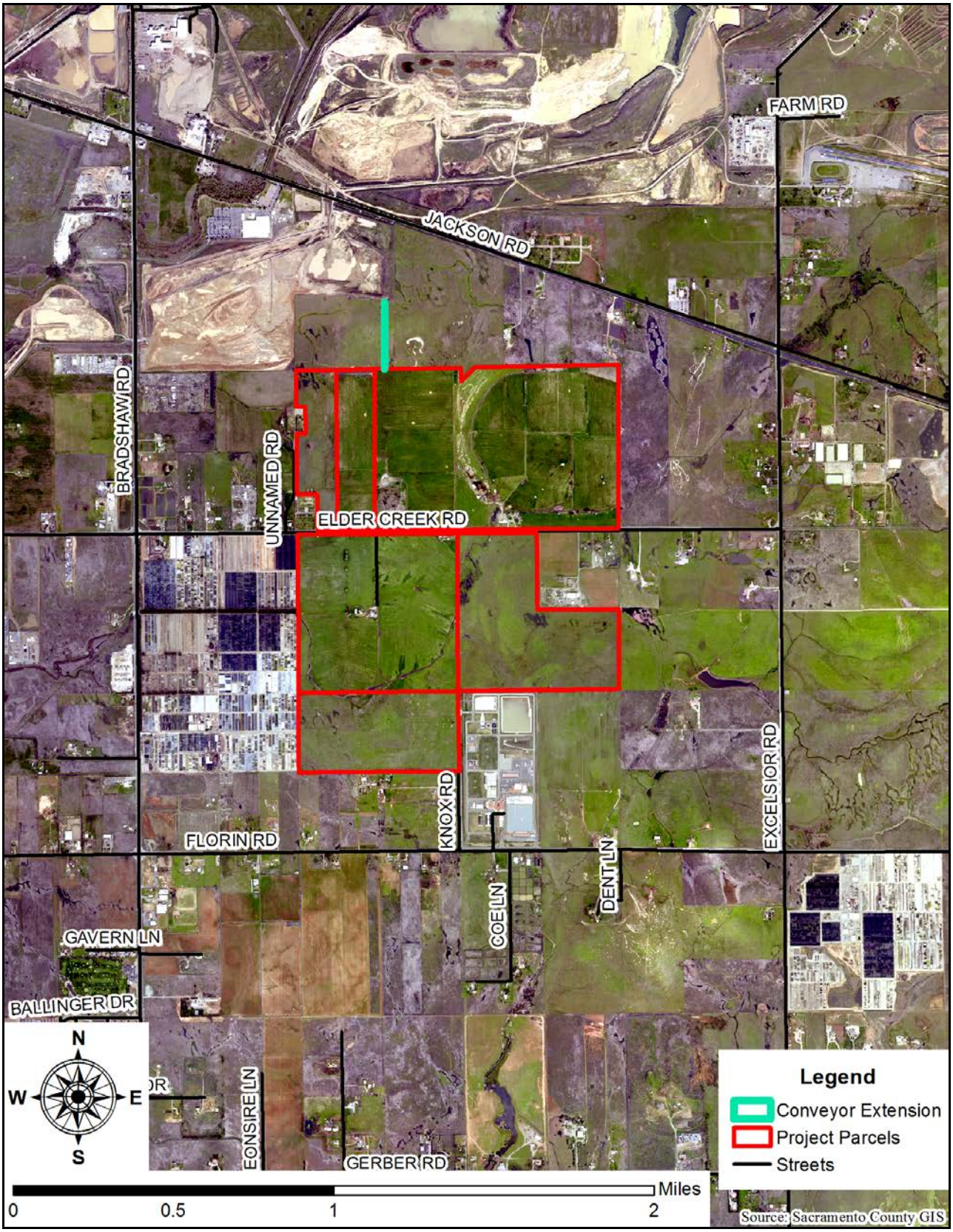
The County has acknowledged the established thresholds do not apply well to mining operations because expressing the threshold as a function of building square footage is not proportionate to mining's Greenhouse Gas impacts which are a function of haul truck traffic, off-road heavy equipment, worker commutes, on-site processing and energy usage.

ENVIRONMENTAL SETTING

The project site is located within Sacramento County; east of the city of Sacramento and south of Jackson Highway (Hwy-16) and approximately one-half mile east of Bradshaw Road (Plate GG-1). Elder Creek Road bisects the project site with Aspen VIII north of Elder Creek Road and Aspen IX south of Elder Creek Road. The project site is 683 acres and is located in the Vineyard Community.

The project site is also located within the Sacramento Valley Air Basin (SVAB). The Sacramento Valley Air Basin also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties also the western portion of Placer County and finally the eastern portion of Solano County. The ambient concentrations of air pollutant emission are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Plate GG-1: Location Map



GREENHOUSE GAS BACKGROUND

Certain gases in earth's atmosphere, classified as Greenhouse Gases, play a critical role in determining Earth's surface temperature. Solar radiation enters Earth's atmosphere from space. A portion of the radiation is absorbed by Earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from Earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Earth has a much lower temperature than the sun; therefore, Earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect and is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent Greenhouse Gases contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of Earth's climate which is known as global climate change or global warming.

Climate change is a global problem. Greenhouse Gases are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes about one day, GHGs have long atmospheric lifetimes; one year to several thousand years. GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere.

Similarly, impacts of Greenhouse Gases are realized globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates.

Attributing Climate Change – Greenhouse Gas Emission Sources

Emissions of Greenhouse Gases contributing to global climate change are attributable in large part to activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural emissions sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Emissions of CO_2 are byproducts of fossil fuel combustion. Methane (CH_4), a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and wastewater treatment plants. Nitrous oxide (N_2O) an even more potent GHG, is also largely attributable to agricultural practices and soil management. Carbon sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

Adaptation to Climate Change

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Program, global average temperature is expected to increase by three to seven degrees Fahrenheit by the end of the century, depending on future Greenhouse Gas emission scenarios. According to the California Natural Resources Agency, temperatures in California are projected to increase two to five degrees Fahrenheit by 2050 and by four to nine degrees Fahrenheit by 2100.

Other environmental resources could be indirectly affected by the accumulation of Greenhouse Gas emissions and resulting rise in global average temperature. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada's. According to the California Energy Commission, the snowpack portion of the state's water supply could potentially decline 30 to 90 percent by the end of the 21st century. An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the snowpack of the Sierra Nevada's until spring would flow into the Central Valley with winter storm events. This scenario would place more pressure on California's levee and flood control systems.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the State if suitable conditions are no longer available.

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also

expected. These changes are expected to lead to increased frequency and intensity of wildfires.

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and it is predicted to rise an additional seven to 22 inches by 2100, depending on the future levels of Greenhouse Gas emissions. California Natural Resources Agency projects that sea levels along California will rise five to 24 inches by 2050 and 17 to 66 inches by 2100.

METHODOLOGY

California Code of Regulations (CCR) Section 15064.4 and other guidance by the Governor's Office of Planning and Research recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of Greenhouse Gas emissions that would be generated by a project, including the emissions associated with construction activities, stationary sources, vehicular traffic, and energy consumption, and to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impact where feasible mitigation is available.

Greenhouse Gas emission levels associated with the project would be generated by off-road equipment use associated with mining, vehicle trips associated with workers and overburden export, and indirect emissions from electricity and water consumption. The project does not propose any new stationary sources on-site. In addition, no processing of materials would occur on-site. Mined materials would be transported to an off-site processing plant, Perkins Plant via electric conveyor for processing. Operations of the off-site Perkins Plant and associated truck trips are considered baseline by the County and Sacramento Metropolitan Air Quality Management District (SMAQMD).

Ascent Environmental consulting prepared a study titled, "Aspen VIII and Aspen IX Mining Project, Air Quality and Greenhouse Gas Study". This study analyzed the greenhouse gas impacts associated with the proposed mining project. Project specific data, including detailed mining information (equipment use, employee trips, etc.), was used in the analysis. Quantification of the GHG emissions were based on a combination of methods, including the use of emissions factors from EPA-published AP-42 emission factors, and emissions rates for OFFROAD 2011 and EMFAC 2011 as contained in California Emissions Estimator Model (CalEEMod) Version 2013.2.2. Reasonable worst-case project-generated emissions were estimated based on information provided in the project description.

Indirect emissions from electricity consumption were calculated based on utility emissions factors for the Sacramento Municipal Utility District (SMUD) for CO_2, N_2O, and CH_4 as provided by SMUD, and estimates of project-specific electricity consumption. Water and dust control would be provided by a groundwater well located on-site. Emissions associated with pumping the groundwater were estimated using SMUD emission factors. See Appendix AQ-1 for detailed calculations.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed a range of potential significant effects by topical area.

Related to Greenhouse Gas Emissions the proposed project would have a significant impact if it:

GG-1: Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

IMPACTS AND ANALYSIS

Impact Evaluation GG-1: Does the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Mining projects in Sacramento County do not fit neatly into any type of Greenhouse Gas screening or modeling.

For mining projects in the past, the threshold of significance for the commercial and industrial sector was determined using the Sacramento Area Council of Governments 2020 projection of building square footage for this sector. However, a significance threshold which utilizes building square footage is inappropriate given that mining operations are primarily exterior and can occur over large swaths of land. A mine is not similar to a land development or a construction project. A mine is not developing the land for future uses or constructing any structures; it merely extracts aggregate materials. Furthermore, most mine operations are not simultaneously excavating the entire site; instead the site is mined in smaller phases. The operator may work one phase of a mining project for over a year. Therefore, instead of using the County's industrial and commercial threshold, or SMAQMD's threshold of 1,100 metric tons per year for a typical land development such as a residential development, this analysis utilizes SMAQMD's stationary sources operational phase threshold of 10,000 metric tons per year.

The first step in the current Greenhouse Gas methodology of Sacramento County is to determine if a project screens out. This is accomplished by comparing the project with the Sacramento Metropolitan Air Quality Management District (SMAQMD) Greenhouse Gas Operations Screen Levels table. For example, if the project is a single family residential project with fewer than 57 dwelling units it will screen out and no additional analysis is required. For mining projects there is no Land Use Category that equates.

If the project does not initially screen out, then the planner will run the project information through the California Emissions Estimator Model (CalEEMod). The threshold for most projects is 1,100 metric tons of CO_2e per year. If the CalEEMod run for a land development project shows less than 1,100 metric tons per year, the project will again screen out and no additional analysis is required. If the project has not screened out using either of the above two methods then the project will be analyzed further. The complete CalEEMod results are than analyzed to discover what activities associated with project implementation cause the GHG impacts so mitigation measures can be crafted that lessen the impacts associated with GHG emissions.

For this mining project the appropriate screening threshold was determined to be 10,000 metric tons of CO_2e per year, consistent with SMAQMD's stationary sources operational phase threshold. The 10,000 metric ton threshold was discussed with staff at the Sacramento Metropolitan Air Quality Management District (SMAQMD) for use with this mining project. SMAQMD staff reviewed the project description and the air quality study and agreed that using the SMAQMD screening threshold of 10,000 metric tons of CO_2e per year is appropriate for this mining project.

The Greenhouse Gas emissions associated with the project, both direct and indirect, were evaluated by Ascent Environmental Consulting. The project-specific data, including detailed mining information was used in analysis. Quantification of GHG emissions were based on a combination of methods, including the use of emission factors from EPA-published AP-42 emission factors, and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in CalEEMod Version 2013.2.2.

The analysis concluded the project would result in 6,321 metric tons of CO_2e per year which is under the threshold of 10,000 metric tons of CO_2e per year. The project related operational emissions are shown in Table GG-3 (see appendix AQ-1 for all inputs and calculations).

Table GG-3: Summary of Greenhouse Gas Emissions Associated with the Project[1]

Source	CO_2e (Metric Ton /year)
On-site Equipment Use	1,467
Off-road Trucks (Overburden Haul to Aspen V South)	3,989
Mobile Sources (Worker commute, fuel truck)	73
Electricity Consumption	750
Water Consumption	42
Operational Total	**6,321**

Notes: CO_2e = Carbon dioxide equivalent, GHG = greenhouse gas; MT = metric tons
1 Detailed assumptions and modelling output files are included in Appendix AQ-1
Source: Modeled by Ascent Environmental

As shown in Table GG-3 operation of the project would result in the emission of approximately 6,321 metric tons of CO_2e per year. This level of emissions would occur when mining and overburden hauling are occurring simultaneously. Overburden hauling would cease after five years; therefore, annual Greenhouse Gas emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an increase in annual emissions estimated above. The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. Therefore, the project's Greenhouse Gas impacts are less than significant.

It is also useful to provide additional context for emissions from an aggregate mining operation. Aggregate demand arises from the need for construction materials for the new construction or maintenance of buildings, roads and structures. Such demand is typically driven by population growth. Therefore, an increasing demand for aggregate is the underlying trigger to any Greenhouse Gas emissions associated with a proposed aggregate mining facility. In most cases, aggregate has inelastic demand; that is, an increase or decrease in the price of aggregate has little or no effect on the quantity of aggregate demanded by consumers. As local sources of aggregate are depleted and aggregate is hauled longer distances to the consumer, prices will increase and so will the GHG emissions associated with the longer haul routes. The proposed project would meet the local need for aggregate driven by growth in the region and could potentially reduce the need to import aggregate from outside the Sacramento area.

Level of Significance: Less than Significant – No Mitigation Required

18 SUMMARY OF IMPACTS AND THEIR DISPOSITION

SIGNIFICANT EFFECTS WHICH CANNOT BE AVOIDED

AESTHETICS

VISUAL CHARACTER

The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. Despite the application of feasible mitigation measures that screen the proposed project site, the project will result in a ***significant and unavoidable*** impact related to aesthetics due to the irreversible change in the land form.

AIR QUALITY

NO_x EMISSIONS

The proposed project's maximum daily emissions for NO_x are 861.3 pounds per day which is substantially above the 65 pound per day threshold established by the Sacramento Metropolitan Air Quality Management District. Similarly, the average daily emissions for NO_X are 317.1 pounds per day and is substantially above the 65 pound per day threshold. Despite the application of exhaust control as mitigation measures, the project will result in a ***significant and unavoidable*** impact related to air quality.

SIGNIFICANT EFFECTS WHICH COULD BE AVOIDED WITH IMPLEMENTATION OF MITIGATION MEASURES

AGRICULTURAL RESOURCES

FARMLAND CONVERSION

The proposed project will convert a total of 357 acres of important farmland (consisting of 39 acres of prime farmland, 225 acres of farmland of statewide importance, 91 acres of farmland of local importance, and two acres of grazing land), which exceeds the significance threshold of 50 acres established by General Plan Policy AG-5. With in-kind preservation of farmland as mitigation, impacts associated with conversion of farmland will be ***less than significant.***

AESTHETICS

LIGHTING

The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. There is the potential for the project's lighting to impact negatively the adjacent homes and roadways. Therefore, the project may create a new source of light that would adversely affect day or nighttime views in the area and these impacts are potentially significant. With mitigation that shields the light source and directs the light away from the public right-of-way or adjacent properties, the impacts associated with lighting will be ***less than significant.***

AIR QUALITY

ROG

The maximum daily emissions for ROG are 72.3 pounds per day which is over the Sacramento Metropolitan Air Quality Management District threshold of 65 pounds per day. The average daily emissions for ROG are 27.2 pounds per day which is under the threshold of 65 pounds per day. Therefore, ROG maximum daily emission impacts are significant; however, with mitigation measures that implement exhaust controls, the impacts are reduced to less than significant.

PM EMISSIONS

The proposed project's maximum daily emissions for PM_{10} are 76 pounds per day and for $PM_{2.5}$ the maximum daily emissions are 29.0 pounds per day. The average daily emissions for PM_{10} are 51.0 pounds per day and the $PM_{2.5}$ average daily emissions are 14.7 pounds per day. If the applicant implements Best Available Control Technology (BACT) the threshold for PM_{10} becomes 80 pounds per day and for $PM_{2.5}$ the threshold becomes 82 pounds per day. The project's fugitive dust emissions are both below the BACT modified thresholds. With the implementation of Best Available Control Technology, the project's PM emissions will be less than significant; therefore with the Best Available Control Technology as mitigation the impacts are ***less than significant***.

PUBLIC SERVICES

PARK AND RECREATION

The proposed project site is in the Southgate Recreation and Park District (Southgate). The Southgate master trails plan includes a multi-use trail located on the project parcels along Elder Creek. The mining pit will limit the opportunities for placement of a trail at-grade. Therefore a mitigation measure has been added requiring a 20-foot wide easement for the multi-use trail along Elder Creek to mitigate for the impact of the mining pits limiting the placement of the multi-use trail at grade. The impacts to implementation and placement of the multi-use trail are considered to be potentially

significant but with the above mitigation the impacts are reduced to ***less than significant.***

TRANSPORTATION/TRAFFIC

ACCESS/CIRCULATION

The excavation of the mining pits at the project site could preclude Sacramento County Department of Transportation's (SacDOT) ability to provide a planned roadway extension (Knox/Vineyard Road). This impact is considered ***potentially significant***. Although a roadway easement is currently shown on the site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation and that SacDOT has the flexibility to modify the future roadway as needed to achieve their transportation goals. With mitigation the impacts are ***less than significant***.

NOISE

EXPOSES PERSONS TO NOISE LEVELS IN EXCESS OF STANDARDS

PROJECT NOISE LEVELS AT NEAREST RESIDENCES

The nearest six residences to the project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site's property lines vary. The closest residence to the proposed excavation is residence 3 (9895 Elder Creek Road: APN 063-0180-022) which is 250 feet from the mining pit. Noise modeling indicates that only residence 3 may expect mining noise above county standards. This noise can be mitigated with an earthen berm, landscaping and by limiting the amount of heavy equipment used near the residence. With the above noise mitigation measures, the project's impacts are ***less than significant***.

AMBIENT NOISE LEVELS IN PROJECT VICINITY

Median ambient noise levels at the project will be variable as the location of heavy earthmoving equipment operations are constantly changing. Nonetheless, the analysis concluded that the project could result in short-term substantial (in excess of 5 dB) increase in median noise levels at receptors 3 (9895 Elder Creek Road: APN 063-0180-022) and 4 (9881 Elder Creek Road: APN 063-0180-009). A similar finding occurs at receptor 5 but this residence will be removed as part of this project and as a result it is not considered a sensitive receptor for the purposes of this evaluation. Therefore, the impacts associated with median ambient noise levels are significant but with mitigation measures that limit the amount of heavy equipment used near the sensitive receptors and the use of earthen berms, the impacts are reduced to ***less than significant***.

GEOLOGY

UNSTABLE SOIL

The results of geotechnical analyses indicate that the proposed reclamation slopes will be appropriate for the proposed end use of the site from a static and seismic standpoint provided the consultant's recommendations are incorporated into the design and construction of the project. The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are ***potentially significant*** but with mitigation the impacts are ***less than significant***.

SOIL EROSION

The potential for the stockpiled topsoil to get mixed with overburden or otherwise eroded is a significant issue because the topsoil is the growth media of the soil. In other words, the topsoil contains organic materials that assist in plant growth and overburden does not contain the same organic materials. The topsoil is used to reclaim the site back to open space grassland. If the topsoil is gone, then overburden will have to be heavily fertilized to obtain the same results as topsoil. Furthermore, if the topsoil stockpile is not properly maintained the topsoil has the potential to be blown away with the wind or to run-off in a rain event. The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling. Compliance with the topsoil handling measures contained in the reclamation plan is therefore recommended to mitigate this ***potential significant*** impact. With mitigation the project's impacts to substantial soil erosion or loss of topsoil are ***less than significant***.

PALEONTOLOGICAL RESOURCES

The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. This impact is ***potentially significant***. Compliance with mitigation that requires all work to halt and the use of a qualified archeologist if a subsurface paleontological resource is discovered will assure that impacts are ***less than significant***.

BIOLOGICAL RESOURCES

SPECIAL STATUS SPECIES

The implementation of proposed project would result in temporary, direct, and/or indirect impacts on a number of special-status plant and animal species. The affected species are as follows:

Species	Impact Before Mitigation	Impact After Mitigation
Sanford's Arrowhead (plant)	Significant	Less than Significant

Vernal Pool Invertebrates	Significant	Less than Significant
Spadefoot Toad	Potentially Significant	Less than Significant
Western Pond Turtle	Potentially Significant	Less than Significant
Nesting White tail kite/Swainson Hawk	Potentially Significant	Less than Significant
Nesting Northern Harrier	Potentially Significant	Less than Significant
Other Nesting Raptors	Potentially Significant	Less than Significant
Roosting Burrowing Owl	Potentially Significant	Less than Significant
Nesting Birds Protected Under the Migratory Bird Treaty Act	Potentially Significant	Less than Significant
Loss of Foraging Habitat for White tail Kite and Swainson Hawk	Significant	Less than Significant
Loss of Winter Foraging Habitat for Merlin and Ferruginous Hawk	Less than Significant	Less than Significant
Nesting Loggerhead Shrike	Potentially Significant	Less than Significant
Roosting Yellow-Billed Magpie	Potentially Significant	Less than Significant
Nesting Tricolored Blackbird	Significant	Less than Significant

The project's impacts to biological resources are either ***significant or potentially significant***. The impacts are mitigated through transplanting, pre-construction surveys, avoidance, or compensatory mitigation to reduce the biological resources impacts to ***less than significant***.

Wetland Impacts

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site. The proposed project will result in the loss of 5.373 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater march, perennial stream, ephemeral stream, pond and ditch wetland habitats.

The proposed project will result in substantial adverse impacts on federally jurisdictional Water of the U.S., including wetlands, defined by Section 404 of the Clean Water Act. The impacts will also constitute an adverse effect on Waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Furthermore, these areas may be regulated by the California Department of Fish and Wildlife and are protected under the General Plan. Therefore, impacts to wetlands and other Waters are ***significant*** but with mitigation that includes placing a permanent easement or purchasing credits from a mitigation bank, the impacts are reduced to ***less than significant***.

Native or Landmark Trees

The project site contains a total of 102 trees representing 17 species that could be affected by the proposed mining operation. There are three valley oak and nine California black walnut trees that are of sufficient size to be protected by the Sacramento County Tree Ordinance. These trees will be removed as part of the project. The total diameter at breast height (dbh) for the oak trees is 23 inches and 157 inches for the California black walnut trees.

In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species was mapped within the survey study area. Most of the tree canopy is non-native, ornamental landscape trees such as Modesto ash, mulberry and red gum. There is also a small portion (0.469 acre) of native mixed riparian forest. Approximately 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with Valley oak or Northern California black walnut. Some riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore, excluded form canopy totals. Impacts to native trees (Valley oak and California black walnut) and tree canopy are considered to be ***significant***. Mitigation requiring the planting of native trees to compensate for the amount lost due to the proposed project will lessen the impacts to ***less than significant***.

Polices Protecting Biological Resources

The proposed project also conflicts with several General Plan Policies that protect biological resources. The proposed project has potential impacts associated with special status species and wetlands. Once again mitigation measures have been added to lessen the impacts to special status species and wetlands to less than significant. The project has the potential to conflict with local polices and ordinances therefore, the projects impacts are potentially significant. Mitigation measures have been tailored to each impacted species or wetland to lessen the impacts associated with local policies and ordinances to less than significant.

Cultural Resources

Archaeological Resources

Field surveys were conducted on the site in 2006 and again in 2014. The survey coverage was complete in nature with transects of no more than 15 meters wide. Additionally, a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project in 2007. The sites recorded at the time remain the only recorded resources within the area of potential effect. The sites are not eligible for the National Register of Historic Places or for the California Register. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Human Remains

The site was surveyed for subsurface anomalies near the Quiet Haven Cemetery and Belleview Cemetery. The trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site. Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the project area. But as a precaution for unintended discoveries, mitigation measures have been added in the event such a discovery is made.

Hazardous Materials

Transport, Use, or Disposal of Hazardous Materials

The project is a surface mine that will excavate aggregate materials from the site using heavy equipment such as scrappers and loaders. The heavy equipment will be serviced by mobile maintenance trucks and fuel trucks as needed. The needed materials for equipment maintenance will be stored in the mobile maintenance trucks whether hazardous or not. The mobile maintenance trucks are stored off-site at Teichert's equipment yard. The project applicant states that there will be no hazardous material stored at the site and that use of hazardous materials is limited to the minor maintenance conducted at the site. However, even with limited exposure to hazardous material, there is still the potential for accidents. Therefore, the impacts are ***potentially***

significant . With mitigation that will ensure no storage occurs at the site and if storage does occur it meets all applicable standards, the impacts are ***less than significant***.

EFFECTS FOUND NOT TO BE SIGNIFICANT

LAND USE

LAND USE PLAN

The applicant requests a rezone to add the Surface Mining combining zone to the project area. The Surface Mining combining zone would allow mining with approval of the requested conditional use permit. The project application conforms to Zoning Code section 4.8.11 which specifies the required data to be included in the project application. Furthermore, the proposed project conforms to the operating standards of Zoning Code section 4.8.12. This section includes requirements for the following: operating and haul out hours, fences, warning and complaint information signs, visual screening, mining setbacks, noise minimization, backfilling, slope stability, recontouring, and roadways. Upon approval of the requested community plan amendment, rezone, use permits, and reclamation plan, the project will be consistent with the Zoning Code. The project has no known conflicts with the Sacramento County General Plan or the Vineyard Community Plan. Therefore, the project's impacts are ***less than significant.***

LOSS OF HOUSING

There are three single-family residences located on the project site. Implementation of the proposed project would remove two of the three residences. The home at 10151 Elder Creek Road will remain. The project site is 683 acres in size and the loss of two homes is not substantial. Furthermore, the project site is closely located to the developing communities of North Vineyard Station, Florin-Vineyard Gap and Vineyard Springs which provide a source of readily available housing stock to meet the demand associated with the loss of two residences. Therefore, the project's impacts are ***less than significant.***

PHYSICALLY DIVIDES A COMMUNITY

There are no established communities near the project site. The nearest established residential neighborhood is located over two miles away to the northwest. Therefore the project's impacts are ***less than significant.***

INDUCES UNPLANNED POPULATION GROWTH

The project does not propose any new housing nor will it remove any barrier to growth. Therefore, the projects impacts are ***less than significant.***

Agricultural Resources

Williamson Act Contract

The project site was previously under two Williamson Act contracts both located on the proposed Aspen VIII project site. Williamson Act contract 70-AP-041 was for parcel 063-0160-001 and Williamson Act contract 76-AP-006 was for parcels 063-0180-005 and 006. Both of the Williamson Act contracts were noticed for non-renewal on September 11, 1989. The notice of non-renewal was filed with the Board of Supervisors and the contract expired automatically on February 28, 1999. There are no active Williamson Act contacts covering the project parcels for which the project could conflict. Therefore, the project's impacts are ***less than significant.***

Uses near Agricultural Uses

The applicant is requesting a use permit and rezone to mine the project site. The use is permitted on agricultural land with an approved use permit from the Board of Supervisors. The proposed mining operation will not be an incompatible use near agricultural uses. Currently there are numerous mines located near agricultural uses in the vicinity of the proposed project. The uses work well together because the mine operations normally don't interfere with the surrounding farm operations. Furthermore, the mines have to be reclaimed in accordance with their approved reclamation plans which usually specify agricultural uses or conservation areas as the end result of reclamation. The mining operation will allow for the extraction of important mineral resources and after the mining is complete the project site will be reclaimed to open space grassland uses. Open space grassland uses fit well with the surrounding agricultural uses; the proposed project will not introduce incompatible uses in the vicinity of existing agricultural use. Therefore, the project's impacts are ***less than significant.***

Aesthetics

The project site does not occur in the vicinity of any scenic highway, corridors, or vistas. Therefore, the project's impacts to altering the view sheds of scenic highways, corridors or vistas are ***less than significant***.

Airport Compatibility

Aircraft Noise

The project area is located to the south of the Mather Airport runway and is located in both the 50-55 Community Noise Equivalent Level (CNEL) and the 55-60 CNEL noise contours emanating from Mather Airport. Aspen VIII is located closer to Mather Airport and is in the 55-60 CNEL noise contour while Aspen IX is in the 50-55 CNEL noise contour. General Plan policy NO-2 permits mining and quarrying in the 60-65 (and quitter) CNEL. By virtue of the project's location, the surface mining use is compatible

with the airport noise standards of the General Plan. Therefore, the project's impacts that would expose people residing or working in the project area to aircraft noise levels in excess of applicable standards are ***less than significant***.

NAVIGABLE AIRSPACE

GROUND FOG

The site contains a total of 27.796 acres of wetlands and water of the U.S; this includes vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, perennial streams, ephemeral streams, ponds and ditch wetland habits. The project will eliminate 5.373 acres of these wetlands; the project will also create drainage basins to control flooding. The drainage basins will be located at the low point of the each mining pit and will be approximately 8,700 feet or 1.75 miles south of the runway. The runway at Mather Airport is configured on an east west alignment that reflects the prevailing wind direction. If ground fog is present at the project site it would be moved by the prevailing winds parallel to the runway at Mather Airport. Therefore, by virtue of lower elevation, the distance from the runway, and the prevailing winds, the project will not cause any additional adverse ground fog hazards for aircraft.

STRUCTURES

The project is a surface mining operation that does not propose to construct any permanent structures much less any structure over 200 feet in height. The project will use construction type trailers as the temporary office and security office at the site. The project will also include the use of electric conveyors to move the aggregate off the site. The electric conveyors are usually no more than five feet off the ground but in some cases the conveyors are raised up to make a pile of aggregate material. When raised the conveyers will not be over 50 feet in height; moreover they will be in the mining pit below grade. The project will not result in structures that are unsafe for aircraft. The impacts to the safe use of navigable airspace are ***less than significant***.

BIRD STRIKES

Due to the low number of aircraft that depart and arrive at Mather Airport and that nearly all flights cross the project site at about 1,000 feet of altitude. The existing bird aircraft collision hazard level is low because most bird flights occur below 1,000 feet of altitude. The proposed surface mine will reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher altitudes would decline in abundance. The net effect of the proposed project is to

reduce the potential for bird aircraft collisions. Therefore, the project's impacts to bird strikes are ***less than significant***.

Safety

The project site is located at the very edge of the Overflight Zone with most of the project area completely out of the Overflight Zone; mining is a permitted use within the Overflight Zone. Moreover, the Overflight Zone only extends approximately 300 feet into the extreme north-east portion of Aspen VIII while all of Aspen IX is completely out of the Overflight Zone. The mining operations will be located at the extreme edge of the overflight zone when they commence and will soon be completely out of the Overflight Zone. Furthermore, the concentration of miners at the site will be very limited in number. Therefore, the project will not result in a safety hazard for people residing or working in the vicinity of Mather airport. These impacts are ***less than significant***.

Air Traffic Patterns

There will be no change in air traffic patterns as a result of the proposed project. Furthermore, there will be no increase in air traffic or a location change that will result in safety risks, the project is a surface mine that will extract aggregate material from the site. Therefore, the project's impacts are ***less than significant.***

Public Services

Water Supply

The project will not result in an increased demand for water supply at build out because the end use of the mine is open space grassland. The temporary use of water for dust suppression will be insignificant and is countered by the temporary stop in irrigated agriculture on the project site. The proposed project will utilize water from the on-site wells for the water needs. Furthermore, Sacramento County Department of Water Resources reviewed the proposed project and determined the project does not impact future water supply projects. Therefore, the proposed project will not adversely impact water supply.

Wastewater Treatment

The proposed project is a surface mining facility. The project will not construct any permanent structures that require disposal through the wastewater system. Instead wastewater will be handled by use of temporary mobile restroom facilities that are commonly referred to as port-o-potties. Furthermore, the current project site utilizes septic tanks and not the County sewer system. Therefore, the project will not require additional wastewater services and will have adequate facilities.

Landfill

The project site is served by the Kiefer Landfill. The Kiefer Landfill has capacity to accommodate solid waste until the year 2030. Furthermore, the proposed project will remove two dwellings from the site. The solid waste generated by the project will be

substantially less than that generated by occupancy of the two removed homes. Therefore, the project will not significantly affect capacity of the Kiefer Landfill.

Water Supply or Wastewater

The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities.

Stormwater Facilities

Project construction would not require the addition of new stormwater drainage facilities. The applicant is proposing to construct stormwater detention ponds to serve as on-site stormwater detention basins for the mining pits. The stormwater detention basins will be approximately 14.2 acres in size and at least one stormwater detention basin will be at each of the proposed mine pits. They will be designed to provide minimum surface area and have steep-sides that will discourage wildlife use and shoreline vegetation growth (see the Airport Compatibility chapter for additional details). Therefore, there are no substantial adverse physical impacts associated with the provision of stormwater drainage facilities.

Electric or Gas Service

Currently the project site does not have Pacific Gas and Electrical (PG&E) service; instead the residences obtain their gas through on-site propane storage tanks. Electric power is provided via Sacramento Municipal Utility District (SMUD) to the existing three homes on the project site. As a result of the project two of the homes will be removed. The applicant is proposing to use temporary structures for an office/employee trailer, security trailer, and an electric conveyor system. The applicant is not proposing to use any natural gas service as part of the project. Electric service is already at the site and there may be a minor extension of the infrastructure to connect the office/employee trailer, security trailer and the conveyor system. These impacts will not result in an adverse physical impact because the project will not require the addition of substantial electrical power infrastructure at the site. In other words, the project does not require any new construction to the electrical or natural gas infrastructure but instead may construct a minor extension to serve the mines electrical needs. Therefore, there are no substantial adverse physical impacts associated with the electric or natural gas service.

Provisions of Emergency Services

The project will not substantially increase demand for emergency services, and would not cause substantial adverse physical impacts (such as require construction of a new fire station) as a result of providing adequate service.

Public School Services

The project will not require the use of public school services.

TRAFFIC

PARKING CAPACITY

The project is a surface mining operation and no new parking is required. There will be a limited number of mine employees and parking for their personal owned vehicle will be near the temporary employee and security trailers.

TRANSPORTATION POLICIES

No conflicts with adopted policies, plans, or programs supporting alternative transportation have been identified.

ROADWAY PUBIC SAFETY

The project will not substantially impact public safety on the roadway in that the overburden haul trucks will not operate upon the County roadway system. Furthermore, aggregate material will be removed from the project site via electric conveyor and not the public roadway.

PEAK HOUR VEHICLE TRIPS

The Sacramento County Traffic Impact Analysis Guidelines recommends conducting a traffic study when a project generates more than 100 new peak hour trips or more than 1,000 new daily trips. The applicant anticipates seven employees will report to the project site for work. The new peak hour trips generated from seven employees will not necessitate a traffic study. Furthermore, the amount of traffic generated by the seven employees will not result in any appreciable increase to peak hour vehicle trip-ends or any appreciable increase in new daily trips. Therefore, the project's impacts to peak hour trip ends are ***less than significant***.

AIR QUALITY

CARBON MONOXIDE (CO) CONCENTRATIONS

The project does not propose any overburden hauling on the County roadways. The project will also have limited amount of employees reporting to the site. Therefore, concentrations of CO from project traffic would not exceed the ambient standards. As a result, the impact of project CO would be ***less than significant***.

TOXIC AIR CONTAMINANTS (DIESEL PM)

Considering the highly dispersive properties of diesel PM and the distance to the nearest off-site sensitive receptor, it is not anticipated that mining related toxic air contaminant emissions would expose any sensitive receptors to an incremental increase in cancer risk that exceeds ten in one million or a hazard index greater than one. Project related activities would not expose nearby, off-site sensitive receptors to incremental increase in cancer, chronic, and acute risk that exceed applicable thresholds. Furthermore, mitigation measure NO-1.0 from the Noise Chapter limits the amount of heavy equipment within 600 of the residence to one

piece of heavy-equipment. This mitigation measure will help lessen the amount of diesel PM generated within 600 feet of the closest sensitive receptor. Therefore, the project's impacts to sensitive receptors would be ***less than significant***.

Odor

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and would not be generated at only one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. These activities will not result in the frequent exposure of objectionable odorous emissions. Therefore, the impacts are ***less than significant***.

Noise

Noise Levels in Excess of Standards

Project Noise Levels At Mine Boundaries

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the project site would be approximately 50 feet. At this distance estimated excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. The noise levels for the project site would satisfy the Zoning Code requirements of less than 90 dB L_{max} and 70 dB L_{50} at the project site boundaries.

Hydrology

Existing Drainage

The project as proposed will not generate any additional runoff because no new structures or impervious surfaces are proposed. Furthermore, the new culvert that is part of the project description will help prevent flooding impacts. Therefore, with the construction of the concrete box culvert which is part of the project design, the proposed project will not substantially alter the existing drainage patterns of the project area and/or increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site. Thus, the drainage and flooding impacts are ***less than significant***.

Floodplain

The northwest corner of Aspen IX is FEMA Zone AO and the southwest corner of Aspen VIII is FEMA Zone X (shaded). These areas will be mined but the culvert improvements on Elder Creek Road are expected to remove them from the floodplain. FEMA Zone AE occurs along Elder Creek and will not be mined. The remainder of the site is in FEMA Zone X outside of the 200-year floodplain and is the main area to be mined.

After implementation of the culvert improvements, the entire area proposed for mining will be outside of Elder Creek's 200-year flood limits, therefore the project's impacts are ***less than significant***.

Ground or Surface Water Quality

Surface runoff is not anticipated as the project site will be a self-contained basin. During mining activities, direct precipitation and drainage will be controlled through a combination of berms, silt fences, revegetation, hay bales and other erosion control measures, as needed, to ensure that land and water resources are protected from erosion, gullying, sedimentation, and potential contamination.

During the mining phase, the stockpiles for topsoil and overburden will be vegetated with native grasses to guard against erosion. The vegetation of the stockpiles is required by the approved reclamation plan and will be inspected at least once per year to insure compliance. Upon completion of mining activities, the site will be reclaimed to open space grassland and upon signoff of the approved reclamation plan, the site will be fully revegetated with an approved seed mix. Sacramento County will inspect to ensure compliance with the above standards. Furthermore, the Central Valley Regional Water Quality Control Board's requirements will also be implemented to ensure that project-related erosion and pollution impacts are ***less than significant.***

Flood Risk

The project is not proposing any type of structures that impede or redirect flood flows within the floodplain. Additionally, the project will not expose people or structures to a substantial risk of loss due to flooding. The mining operations will have only limited structures at the site. These structures are not used as dwellings and are temporary in nature; therefore, there is no substantial risk to structures in regards to flooding. The mine employees will not be exposed to a substantial risk of flooding. This is due to the fact the mine operations are not conducted during the winter and especially in rainy weather. In other words, if there is a chance for the mine pit to flood the employees will have ample time remove the equipment and themselves from danger.

Runoff

The project would not contribute runoff to the stormwater system. The proposed mining facility will create two large excavations at the project site. These excavations will have the ability to collect water and will not add additional capacity to the existing stormwater system.

Geology

Earthquake Fault

There are no Alquist-Priolo Zones (Earthquake faults) or Seismic Hazards Zones mapped within the project site thus the exposure to known earthquake faults and seismic hazards are minimal. Therefore, the impacts associated with known earthquake faults are ***less than significant***.

Loss of Mineral Resources

The proposed project is a surface mine that will extract mineral resources from the site. Therefore, the impacts to mineral resource not being utilized are ***less than significant***.

Septic Tanks

The proposed project will not construct any septic tanks or wastewater disposal systems. Therefore the impacts are ***less than significant***.

Biological Resources

Riparian Habitat

The project site does not have a well-developed riparian habitat. Elder Creek traverses the south-west portion of Aspen VIII and continues to the north-east portion of Aspen IX. Elder Creek has been modified, mostly likely due to agricultural activities, and now lacks substantial amounts of trees and shrubs that make a vibrant habitat. Therefore, given the lack of such habitat on or adjacent to the project site, the impacts to riparian habitat are ***less than significant***.

Movement of Migratory Fish or Wildlife

The project does not affect the movement of fish or wildlife species in that the project does not propose to construct any structure that would impede the movement of wildlife or migratory fish. Moreover, the excavation of the aggregate materials will most likely not effect wildlife movement because the vastness of the site. In other words, there should be ample room for the wildlife to maneuver around and through the project site. The final mining pit side slopes are at a 2:1 ratio which means for every two units of horizontal there is one unit of vertical; these slopes should not prevent wildlife from accessing the pit floor. Additionally, the project will be excavated in phases so that the entire site will not be in active excavation at one time. Furthermore the waterways contained in the site will not be altered to prevent the movement of migratory fish. Therefore, the impacts are less than significant.

Adopted Habitat Plan

The project site is not located in any adopted habitat conservation plan. Therefore, the impacts are ***less than significant***.

Cultural Resources

Historical Resources

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area. Therefore, these impacts are ***less than significant.***

Hazardous Materials

Hazardous Materials

The applicant is not anticipating any storage of hazardous materials at the site. Furthermore, the mobile fleet that services the heavy equipment has to comply with safety standards and vehicle regulations that will help insure no impact from hazardous materials. Therefore, the projects impacts are ***less than significant.***

Hazardous Emissions Near School

The project site is not located within ¼ mile of an existing or proposed school.

Hazardous Materials Site

The project is not located on a known hazardous materials site.

Emergency Response Plans

The project would not interfere with any known emergency response or excavation plan.

Greenhouse Gas

Generation of Greenhouse Gas Emissions

The project would result in the emission of approximately 6,321 metric tons of CO_2e per year. This level of emissions would occur when mining and overburden hauling are occurring simultaneously. Overburden hauling would cease after five years, therefore, annual Greenhouse Gas (GHG) emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an incremental increase in annual emissions estimated above. The annual GHG emissions for the project are below the 10,000 metric ton of CO_2e per year screening threshold. Therefore, the project's Greenhouse Gas impacts are ***less than significant***.

Cumulative Impacts

An EIR must discuss the "cumulative impacts" of a project when its incremental effect will be cumulatively considerable. This means that the incremental effects of the individual project would be considerable when viewed in connection with the effects of other current projects, and the effects of probable future projects (CEQA Guidelines Section 15065(c)).

CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." This Section further states that "Individual effects may be changes resulting from a single project or a number of separate

projects." Additionally, "The cumulative impact from several projects is [defined as] the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

Section 15130(a)(3) states also that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Finally, Section 15130(b) indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, that it should reflect the severity of the impacts and their likelihood of occurrence, and that it should be focused, practical, and reasonable.

To be adequate, a discussion of cumulative effects must include the following elements:

> Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are referenced and made available for public inspection at a specified location;

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130(c)).

As used above, the phrase "past, present and probable future projects" includes existing approved, planned, or budgeted projects; projects which are currently under construction; and projects requiring an agency approval for an application which has been received at the time of Notice of Preparation (NOP) release. (Section 15130(b)(1)(B)(2)).

FORESEEABLE PROJECTS IN THE VICINITY OF THE PROJECT AREA

The West Jackson Highway Master Plan (PLNP2008-00240) is a masterplan for the area around and including the Aspen VIII and IX project site. The plan has residential, commercial and open space uses projected for the area. The West Jackson Highway Master Plan includes approximately 5,913 acres and will have a variety of urban land uses in an area that was used by Teichert Aggregates and Granite Construction for aggregate mining. The proposed Master Plan creates two Distinct Plan areas. The District Plans establish specific land uses, policies and development standards for the properties within the District Areas. Overall, the project includes a mixture of residential, recreational, and employment nodes.

The Jackson Township Specific Plan (PLNP2011-00095) is a specific plan that will add residential and commercial uses in the vicinity. The Jackson Township Specific Plan encompasses approximately 1,391 acres and will provide a wide variety of housing, commercial, employment, open space, and recreational uses. The proposal includes three elementary schools, a middle school/high school, a public-quasi public site for a fire station, and several parks. In addition, large portions of the project area along the northern and eastern perimeter are planned to be wetland preserves.

The Newbridge Specific Plan (PLNP2010-00081) is a specific plan that adds residential and commercial uses. The Newbridge Specific Plan encompasses 1,095 acres and includes three Planning Areas referred to as North, South, and West. Only those properties within the North and South Planning Areas encompassing 790 acres are proposed for development. The West Planning Area is within the project area but is not proposed for development as part of the project. Rather, a large, single parcel in the southwest corner of Kiefer Boulevard and Eagles Nest Road will serve as a habitat mitigation area in support of the proposed South Sacramento Habitat Conservation Plan (SSHCP).

Plate SM-1 shows the three plans discussed above in proximity to the project site area.

The Florin Vineyard Community Plan also known as the Florin-Vineyard Gap Plan (2004-0096) is a community plan that adds residential and commercial uses. The plan was approved by the County of Sacramento Board of Supervisors on December 15, 2010. The Florin-Vineyard Gap encompasses approximately 3,872 acres. The plan established a center that combines commercial, residential, civic and cultural uses. The plan also allows the continued agricultural residential land uses that help preserve existing rural communities.

Northeast Bradshaw Florin rezone (PLNP2013-00213) is a rezone from commercial and office to low density residential that is located to the south west of the project site. The project area is approximately 47.7 acres and is proposed to be rezoned from Shopping Center (SC) to RD-5 residential zoned property.

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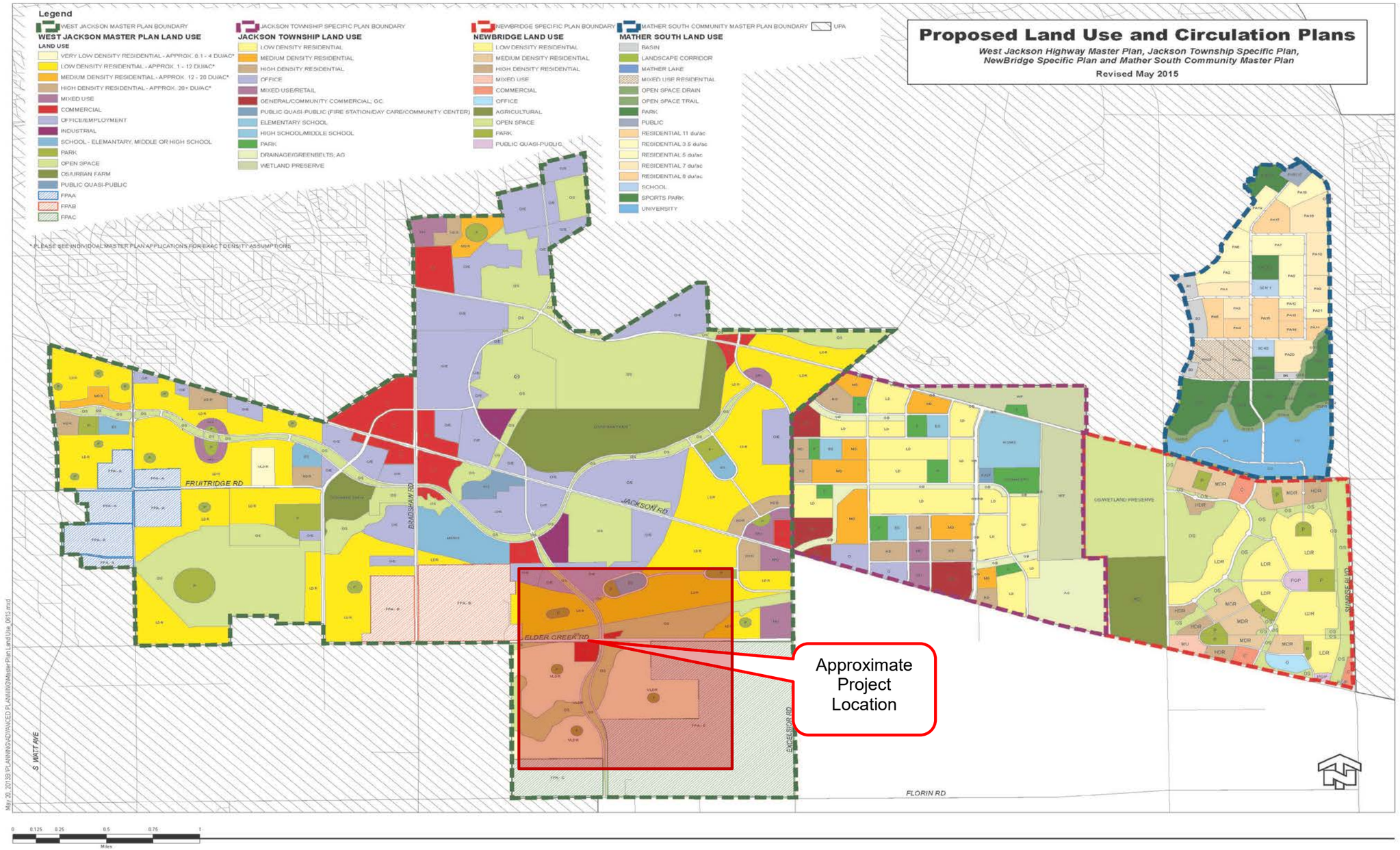
Legend
WEST JACKSON MASTER PLAN BOUNDARY
WEST JACKSON MASTER PLAN LAND USE
LAND USE
VERY LOW DENSITY RESIDENTIAL - APPROX. 0.1 - 4 DU/AC*
LOW DENSITY RESIDENTIAL - APPROX. 1 - 12 DU/AC*
MEDIUM DENSITY RESIDENTIAL - APPROX. 12 - 20 DU/AC*
HIGH DENSITY RESIDENTIAL - APPROX. 20+ DU/AC*
MIXED USE
COMMERCIAL
OFFICE/EMPLOYMENT
INDUSTRIAL
SCHOOL - ELEMANTARY, MIDDLE OR HIGH SCHOOL
PARK
OPEN SPACE
OS/URRAN FARM
PUBLIC QUASI-PUBLIC
FPAA
FPAB
FPAC
JACKSON TOWNSHIP SPECIFIC PLAN BOUNDARY
JACKSON TOWNSHIP LAND USE
LOW DENSITY RESIDENTIAL
MEDIUM DENSITY RESIDENTIAL
HIGH DENSITY RESIDENTIAL
OFFICE
MIXED USE/RETAIL
GENERAL/COMMUNITY COMMERCIAL; GC
PUBLIC QUASI-PUBLIC (FIRE STATION/DAY CARE/COMMUNITY CENTER)
ELEMENTARY SCHOOL
HIGH SCHOOL/MIDDLE SCHOOL
PARK
DRAINAGE/GREENBELTS; AG
WETLAND PRESERVE
NEWBRIDGE SPECIFIC PLAN BOUNDARY
NEWBRIDGE LAND USE
LOW DENSITY RESIDENTIAL
MEDIUM DENSITY RESIDENTIAL
HIGH DENSITY RESIDENTIAL
MIXED USE
COMMERCIAL
OFFICE
AGRICULTURAL
OPEN SPACE
PARK
PUBLIC QUASI-PUBLIC
MATHER SOUTH COMMUNITY MASTER PLAN BOUNDARY
UPA
MATHER SOUTH LAND USE
BASIN
LANDSCAPE CORRIDOR
MATHER LAKE
MIXED USE RESIDENTIAL
OPEN SPACE DRAIN
OPEN SPACE TRAIL
PARK
PUBLIC
RESIDENTIAL 11 du/ac
RESIDENTIAL 3.5 du/ac
RESIDENTIAL 5 du/ac
RESIDENTIAL 7 du/ac
RESIDENTIAL 8 du/ac
SCHOOL
SPORTS PARK
UNIVERSITY
* PLEASE SEE INDIVIDUAL MASTER PLAN APPLICATIONS FOR EXACT DENSITY ASSUMPTIONS
Proposed Land Use and Circulation Plans
West Jackson Highway Master Plan, Jackson Township Specific Plan, NewBridge Specific Plan and Mather South Community Master Plan
Revised May 2015
FRUITRIDGE RD
BRADSHAW RD
JACKSON RD
ELDER CREEK RD
EXCELSIOR RD
FLORIN RD
S WATT AVE
Approximate Project Location
May 20, 2013S:\PLANNING\ADVANCED PLANNING\MasterPlan\LandUse_0613.mxd

IMPACTS

The discussion of cumulative impacts reflects the likelihood of impacts occurring and the severity of the impact when the project's impacts are combined with other projects in the vicinity. The major impacts associated with the proposed project are aesthetics and air quality; these project impacts are considered significant and unavoidable even after mitigation measures are applied. The project also has impacts associated with agricultural resources, noise, and biological resources. These project impacts have been mitigated to less than significant on an individual basis.

The project vicinity has many active and reclaimed surface mining facilities resulting in numerous mining pits in the area. The determination of the significance of aesthetic impacts of those pits has varied over time. However, current significance determinations in Sacramento County consider any large, open mining pit to be a significant impact due to the irreversible change to the landform. The proposed project's already significant impact to aesthetics will exacerbate the aesthetics impacts existing from the other mining pits. Therefore, this project's contributions to cumulative aesthetic impacts are considered significant and unavoidable.

CEQA requires an air quality analysis for all projects to determine if there is an impact. Air quality is analyzed for the project area and not just the project site. This is because air quality impacts are considered cumulative. The proposed project is in the vicinity of many surface mines that operate heavy-equipment at the mine sites. The proposed project will also excavate the site using heavy-equipment and this will add to the cumulative air quality impacts of the projects in the vicinity. However, mitigation measures have been included in an attempt to lessen the impacts. The applicant of the project will utilize cleaner emission heavy-equipment at the project site to help reduce the project impacts. Furthermore, mitigation has been added to limit the amount heavy-equipment used near sensitive receptors. This should reduce some of the impacts but will not eliminate the air quality impacts associated with the project or in the cumulative. Therefore, the cumulative impacts associated with air quality are considered significant and unavoidable.

The proposed project will convert farmland to mining uses and the converted farmland will be mitigated for on a 1:1 basis as part of mitigation. This mitigation will retain farmland of equal value and size in another part of Sacramento County. However with 1:1 mitigation there is still an overall loss of the original farmland as the mitigation only preserves existing farmland and does not create any new farmland. With 1:1 mitigation, eventually a 50% reduction of the resource will occur.

The other mining projects in the area also converted agricultural land to mining uses. Some of these mines have reclamation plans to return to farmland after mining but they are now located within master plan areas that ultimately seek to urbanize the land. The other mining facilities and the foreseeable projects in the vicinity, in combination with the proposed project, will have impacts to farmland that are cumulatively considerable because together, the projects result in a shift from an agricultural community to an urban community. The foreseeable projects could remove many thousands of acres of farmland and add potentially thousands of residential units and corresponding

commercial uses to the vicinity of the proposed project. Therefore, the project's cumulative contribution to agricultural resources impacts is considered significant and unavoidable.

Noise generated from the project site has the potential to be a significant impact. The project's generated noise exceeds the County's threshold and increases the ambient noise level in the project vicinity. The noise evaluation for CEQA uses the project area and not just the project site; in other words, the noise evaluation for CEQA basically is the cumulative noise impacts in the vicinity of the project area. As stated above the project will exceed the ambient noise levels and will generate noise in excess of the noise standards. Mitigation measures have been included to lessen the noise impacts for the proposed project to less than significant. The other mining operations in the vicinity also generate noise mainly from the heavy-equipment used at the sites. The noise impacts for the other mines also have mitigation to lessen the noise impacts. Cumulative impacts related to noise are considered less than significant.

The proposed project will have a significant effect on special status species, wetlands and trees. Mitigation measures have been added to reduce the proposed project's impacts to less than significant. The other mining facilities and projects in the vicinity have a similar effect on biological resources. Singularly, all of the projects are required to mitigate their biological impacts and generally it is determined that such mitigation reduces individual impacts to less than significant. With the individual mitigation and compliance with any required State or federal endangered species permitting the cumulative impacts are less than significant. However as growth continues, the available lands for mitigating biological impacts are diminishing and mitigation is occurring across the landscape without any particular strategy or application of a comprehensive plan that would assure biological and functional success. To address this, the South Sacramento Habitat Conservation Plan (SSHCP) is currently in preparation and undergoing environmental review.

The working draft of the SSHCP was released in 2010. The SSHCP is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region. The SSHCP will consolidate and enhance wetlands, primarily vernal pools and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory hurdles and facilitate the permitting process for development projects. The SSHCP will cover 28 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP.

It would be ideal if all future biological mitigation were accomplished in a comprehensive manner. If the SSHCP was already approved, this cumulative impact analysis would evaluate whether or not the Aspen VIII and IX project, when combined with other pending and foreseeable projects could jeopardize the SSHCP by mitigating outside of

the comprehensive SSHCP framework. However, without an adopted plan, the analysis would be speculative. None the less, it is noted that every effort should be made to direct mitigation in a manner complimentary to the comprehensive preservation strategies contained in the working draft of the SSHCP.

GROWTH INDUCING IMPACTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the vicinity of the project, and how that growth will, in turn, affect the surrounding environment (see CEQA Guidelines Section 15126.2(d)).

The proposed project is a sand and gravel mining facility that produces aggregate materials for the local Sacramento construction market. Aggregate materials are an inflexible commodity; in other words, there is no substitute to aggregate materials and if a construction project requires aggregate materials the project managers will have to obtain the aggregate materials, even if it means shipping it in at higher cost and environmental impact, in order to complete the construction.

The project as proposed does not have growth inducing impacts beyond the fact that the material mined at the site will be used in some way on most local construction projects. The project does not propose to expand water or waste water services or remove any barrier to growth. Furthermore, the project does not create a demand for additional housing or public services. The proposed project is also not changing any policies related to development in the County. Therefore, the proposed project will not result in growth inducing impacts.

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20 GLOSSARY OF ACRONYMS / ABBREVIATIONS

AB	Assembly Bill
ADT	average daily trips
ALUP	Airport Land Use Compatibility Plan
amsl	At mean sea level
Army Corps	U.S. Army Corps of Engineers
AOA	Airport Operations Area
APE	Area of Potential Effect
AQMP	Air Quality Mitigation Plan
ARB	California Air Resources Board
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
Bgs	Below Ground Surface
BMP	Best Management Practices
CAA	Clean Air Act (Federal)
CAAQS	California Ambient Air Quality Standards
Cal EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	Concrete Box Culvert
CCAA	California Clean Air Act
CCR	California Code and Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act

CEC	California Energy Commission
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CLUP	Comprehensive Land Use Plan
CMP	Corrugated Metal Pipe
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plane Society
Coast Guard	U.S. Coast Guard
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County DWR	Sacramento County Department of Water Resources
CRHP	California Register of Historic Places
CRPR	California Rare Plan Ranks
CPUC	California Public Utilities Commission
CSMP	Corridor System Management Plan
CVFED	Central Valley Floodplain Evaluation and Delineation
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted sound levels

dbh	diameter at breast height
DHS	California Department of Health Services
DNL	Day-Night Average Sound Level
DTSC	California Department of Toxic Substances Control
DWMR	Sacramento County Department of Waste Management and Recycling
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMD	Sacramento County Environmental Management Department
EPA	U.S. Environmental Protection Agency
(F)	Floodzone
FAA	Federal Aviation Administration
FACE	Financial Assurance Cost Estimate
FAR	Federal Aviation Regulation
FAM	Financial Assurance Mechanism
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FIRM	Federal Insurance Rate Maps
FOS	Factor of Safety
FSZ	Farmland Security Zone
GIS	Geographic Information Systems
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
HAP	hazardous air pollutants
HEC-RAS	Hydrologic Engineering Center – River Analysis System
HOV	High Occupancy Vehicle

HUD	U.S. Department of Housing and Urban Development
HWCA	Hazardous Waste Control Act
HSC	health and safety code
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent transportation system
JPA	Joint Powers Authority
L_{dn}	day-night noise level
L_{eq}	equivalent sound level
L_{max}	A-weighted maximum sound level
L_{50}	sound level exceeded 50% of the time, the Median sound level
lb/day	pounds per day
LID	Low Impact Design
LNG	Liquefied Natural Gas
LOMAR	Letter of Map Revision
LOS	level of service
MBTA	Migratory Bird Treaty Act
Methane	CH_4
MRZ	Mineral Resource Zones
MSL	Mean Sea Level
MT	Metric Tons
MTP	Metropolitan Transportation Plan
MMT	Million metric tons
MPH	miles per hour
N_2O	nitrous oxide
NA	not applicable

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOA	Notice of Availability
NOAA Fisheries	National Oceanic and Atmospheric Administration (Fisheries)
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OES	Office of Emergency Services
pcplpm	passenger cars per lane per mile
PCE	passenger car equivalent
PGA	Peak Ground Acceleration
PG&E	Pacific Gas & Electric Company
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
PSD	Prevention of Significant Deterioration

ROG	reactive organic gases
Pb	lead
Porter-Cologne	Porter Cologne Water Quality Act
RCRA	Resource Conservation and Recover Act
Regional Water Board	Regional Water Quality Control Board
RS	River Station
RT	Regional Transit
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SacDOT	Sacramento County Department of Transportation
SAFCA	Sacramento Area Flood Control Agency
SB	Senate Bill
SCC	Sacramento County Code
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
(SM)	Surfacing Mining Combing Zone
SMARA	Surface Mining and Reclamation Act of 1975
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utilities District
SO_2	sulfur dioxide
Southgate	Southgate Recreation and Park District
SSC	Species of Special Concern
SSHCP	South Sacramento County Habitat Conservation Plan
SSQP	Sacramento Stormwater Quality Partnership

State Water Board	State Water Resources Control Board
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminants
TOD	Transit Oriented Development
TOG	total organic gases
TMDL	Total Maximum Daily Load
TCR	Transportation Concept Report
UBC	Uniform Building Code
UDA	Urban Development Area
UPA	Urban Policy Area
USB	Urban Service Boundary
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VELB	Valley Elderberry Longhorn Beetle
v/c ratio	volume to capacity ratio
WAP	Work Authorization Permit
Water Board	State of California Water Resources Control Board
Waters of the U.S.	Waters of the United States
WSE	Water Surface Elevation
Zoning Code	Sacramento County Zoning Code
°C	Celsius
°F	Fahrenheit
µg/m3	micrograms per cubic meter

21 ACKNOWLEDGEMENTS

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Attention: John Lane

22 RESPONSE TO COMMENTS

The Draft Environmental Impact Report (DEIR) was released on May 27, 2016, with a 45 day public review period. The review period for the DEIR closed on July 11, 2016. A total of five individual letters were received during the comment period. Additionally, the project applicant provided a letter after the close of the written comment period that contained supplemental materials to support their original letter. All six letters are included at the end of this Response to Comments chapter. Each letter has been given a numeric designation (e.g. Letter 1).

Comment letters were received from the following individuals and/or agencies:

Letter 1 California Department of Fish and Wildlife, North Central Region, Habitat Conservation, Tanya Sheya (June 9, 2016).

Letter 2 Regional San/SASD, Policy and Planning, Jonathan Medina (June 17, 2016).

Letter 3 State of California, Department of Transportation (Caltrans), District 3, Sacramento Area Office, Office of Transportation Planning – South Branch, Eric Fredericks (July 6, 2016).

Letter 4 Sacramento Municipal Utility District (SMUD), Rob Ferrera (July 11, 2016).

Letter 5 Taylor & Wiley, Attorneys, representing the project applicant, Matthew S. Keasling (July 11, 2016).

Letter 6 Taylor & Wiley, Attorneys, representing the project applicant, Matthew S. Keasling (August 9, 2016).

Each DEIR reviewer that submitted written comments is introduced below, along with the text of the submitted comments and a response to each comment. Individual comments addressing separate subject within each letter are labeled in this chapter based on the letter's numeric designation and comment number (e.g. 1-1). The text of the comments has been provided, followed by a response. Note that the preface language of the letters is often excluded (where the text consists of salutations and brief descriptions of the commenting organization).

Where changes to the text of the EIR are required as a result of the comments received, those changes are shown with ***bold italics underline*** for text added and ~~strikethrough~~ for text deleted

In some cases the response to comment is "comment noted". Pursuant to Section 15088 of the CEQA Guidelines, no written responses are provided for those letters or comments that did not address the adequacy of the DEIR. While no response to the comment is provided, the comment letters are forwarded to the Board of Supervisors for consideration via this Environmental Impact Report (EIR).

Opportunity for oral comments on the DEIR was offered at the Sacramento County Planning Commission hearing on July 25, 2016. The Planning Commission hearing did not yield any oral comments on the DEIR.

Written Comments on the EIR

LETTER 1

Tanya Sheya, Environmental Scientist; California Department of Fish and Wildlife: written correspondence; dated June 9, 2016.

COMMENT 1-1

Although the DEIR discusses impacts to tricolored black bird nesting habitat it does not discuss the project impacts to foraging habitat. Individuals may forage up to 9 km (5.6 miles) from their colonies, but in most cases only a small part of the area within this range provides suitable foraging. Foraging distance is heavily influenced by the presence of concentrated food resources. Breeding individuals typically forage away from their nest sites, often well out of sight of the colony, but where insect foods are locally abundant, much foraging occurs well within sight of the colony (Meese et al 2014). CDFW recommends that the EIR includes an analyses of the projects impacts to tricolored blackbirds foraging habitat and proposes measures to reduce that impact to a less than significant level.

RESPONSE 1-1

A discussion of potential loss of foraging habitat for tricolored blackbird has been added to the Biology Chapter (Chapter 14). As part of that discussion, mitigation measure BR-1.12 has been added to reduce impacts.

COMMENT 1-2

Additionally, CESA take authorization, should be obtained if the proposed project has the potential to result in take of a State-listed plant or wildlife species. Issuance of a CESA permit is subject to CEQA documentation; therefore the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the proposed Project will impact CESA listed species, early consultation is encouraged, as significant modification to the proposed Project and mitigation measures may be required in order to obtain a CESA permit. A CESA permit may only be obtained if the impacts of the authorized take of the species are minimized and fully mitigated and adequate funding has been ensured to implement the mitigation measures. The CDFW may only issue a CESA permit if the CDFW determines that issuance of the permit does not jeopardize the continued existence of the species. The CDFW will make this determination based on the best scientific information available, and shall include consideration of the species' capability to survive and reproduce, including the species known population trends and known threats to the species. Issuance of a CESA permit may take up to 180 days from receipt of an application from the applicant.

RESPONSE 1-2

Comment noted. This is not a comment of the adequacy of the EIR and has been forwarded to the Board of Supervisors for their consideration.

COMMENT 1-3

The proposed project will have an impact to fish and/or wildlife habitat and should be evaluated in such a manner to reduce its impacts to biological resources. Assessment of fees under Public Resources Code §21089 and as defined by FGC §711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

RESPONSE

The EIR's Biological Resources Chapter discusses the impacts associated with fish and/or wildlife habitat. CDFW's CEQA Environmental Document Filing Fees will be paid for the project with any filing of a Notice of Determination.

LETTER 2

Johnathan Medina, EIT; Regional San/SASD Policy and Planning; written correspondence; dated June 17, 2016.

COMMENT

Regional San and SASD do not foresee any impacts as there are no existing sewer facilities within the project area. In the future, the Elder Creek interceptor and trunk system will traverse the entire project area along Elder Creek Road. The planned sewer projects and the future sewer facilities are not anticipated to be impacted by the proposed project.

RESPONSE

Comment noted.

LETTER 3

Eric Fredericks, Chief; State of California Office of Transportation Planning – South Branch; written correspondence; dated July 6, 2016.

COMMENT

Multi-Modal Transportation Impact Analysis

Caltrans requests further clarification from the County, preferably in the form of a transportation impact study, for the potential impacts from increased truck traffic on the State Highway System from the Perkins Processing Plan, due to an increase in materials being shipped there from the Aspen VIII and IX mining sites. In particular, we would to understand the potential effects and impacts to the Watt/US 50 interchange and the Watt/SR 16 intersection. Any significant increase in truck traffic from the processing plant is a concern for Caltrans because of the proximity of the Perkins Processing Plan to SR 16.

RESPONSE

The processing plant is an existing facility located off-site from the proposed Aspen VIII and IX mining project site, and is a permitted use in the M-2 (heavy industrial). The amount of aggregate materials being processed at the off-site plant is not expected to increase due to the new mining area being approved. This is because as the proposed project begins mining operations, other mines that use the off-site processing plant will stop production. No increase in truck traffic is therefore expected.

LETTER 4

Rob Ferrera, Environmental Specialist; Sacramento Municipal Utility District (SMUD); written correspondence; dated July 11, 2016.

COMMENT 4-1

SMUD has the following comments as it relates to work in and around our transmission facilities:

1. Please provide detailed engineering drawings for any improvements that are proposed within SMUD's transmission line easement. SMUD engineering will review the plans and provide comments as required.

2. Prior to any grading or construction within SMUD's transmission easement, the project applicant shall obtain rights from SMUD's real estate department.

3. Any grading shall not affect the integrity of the tower footings. No cut or fill will be allowed within 25 feet measured from the face of transmission steel lattice towers.

4. SMUD reserves the right to construct new or move existing facilities as necessary within its legal easement. Any developments installed by owner or assignees within this easement may need to be removed or modified as a result of the new or existing installed facilities.

5. SMUD reserves the right to use any portion of its easement and shall not be responsible for any damages to the developed property within said easement.

6. Project Owner or contractor is responsible for assessing any impacts (including but not limited to induced voltage and current effects) to its facilities as a result of constructing and operating their facilities within close proximity to SMUD's high voltage transmission lines.

7. Project Owner or contractor is responsible for ensuring that any subcontractor performing work in the subject right of way is aware and abides by these conditions.

8. Any proposed SMUD transmission facilities modifications/relocations by the project owner shall be performed under an executed cost recovery agreement. Project owner shall provide 18 months' timeframe to allow for design and construction of identified facilities.

9. There shall be no storage of fuel or combustibles and no fueling of vehicles within the SMUD easement.

10. There shall be no long term staging or storage of construction materials within the SMUD easement, such materials shall be removed from the easement at the completion of the project.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed project. Please ensure that the information included in this response is conveyed to the project planners and the appropriate project proponents.

RESPONSE 4-1

Comment noted. This is not a comment of the adequacy of the EIR and has been forwarded to the Board of Supervisors for their consideration.

LETTER 5

Matthew Keasling, Attorney; Taylor and Wiley; written correspondence dated; July 11, 2016.

COMMENT

Chapter 8. Public Services

Pages 8-25 and 8-26, Mitigation Measure PS-1(A). The last paragraph in the Impact Evaluation states that "Although a trail easement is already proposed as part of the project's reclamation plans, mitigation is recommended to ensure that the easement is in place *prior to on-site excavation*…" (DEIR, page 8-26; *emphasis added*.). The dedication of an easement requires that the precise location be known for an accurate description and recordation of the legal interest. As indicated on Plates PS-5, PS-7, and PD-17, the 20-foot wide easement will be located on top of a berm which will, at several project locations, be built-back atop the previously mined area using compacted fill material. Consequently, dedication of the trail easement at all such locations is not possible until after the mining occurs and the berm is subsequently constructed. Only after the berm is physically built will its precise location be surveyable and an easement capable of dedication. For these reasons Teichert recommends that, similar to Mitigation Measure TT-1 for the future right-of-way for Knox/Vineyard Road, PS-1 be revised to include a new (A), renumber the existing (A) to (B), and revise the language thereof as follows:

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Community Development.

~~A.~~ ***B.*** Prior to ~~issuance of Work Authorization Permit~~ ***signoff of the reclamation plan***, the applicant shall dedicate a 20- foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District.

RESPONSE

Mitigation Measure PS-1, Multi-Use Interconnected Trail System Easement, has been modified in the Final EIR to incorporate the recommended changes.

COMMENT

Page 8-26, Mitigation Measure PS-1(B). The mitigation measure requires a compacted base rock foundation over the entire 20-foot wide easement area. This is not typical nor desired by Southgate Recreation and Park District (Southgate). Compacted base rock is only appropriate in a centered, 12-foot wide section of the overall 20-foot wide easement. Additionally, the second sentence pertaining to the design of the future recreational trail lacks specificity and simply defers to Southgate. Teichert recommends that the mitigation measure be revised to reference all plates identifying the location and design of the future trail easement, including but not limited to the attached "Typical Berm Detail" which has been revised to reflect a 20-foot wide easement area (Attachment A).

~~B.~~ ***C.*** Prior to signoff of the reclamation plan the applicant shall ~~install a~~ ***improve the trail easement area by constructing a trail surface not exceeding 20-feet in width, which will include*** a ***12-foot section of*** suitably compacted base rock foundation for the multi-use trail along Elder Creek, the grade and slopes of which shall be designed ~~to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be to the satisfaction of Southgate Recreation and Park District~~ ***and constructed consistent with Plates PS-4, PS-5, PS-6 and PS-7 as revised for width.***

RESPONSE

Mitigation Measure PS-1 has been modified in the Final EIR to address the expressed concerns. The design of the trail/easement will continue to be to the satisfaction of Southgate Recreation and Park District, but now also acknowledges that the trail should be consistent with the Plates PS-4, Plates PS-5, Plate PS-6, and Plate PS-7.

COMMENT

Chapter 9. Transportation and Traffic

Page 9-4, second full paragraph, fourth sentence. This sentence describes the driveway access onto Aspen VIII, as depicted on Plate TT-2 (page 9-9), which was designed when the project included the off-site sale of overburden and associated haul trucks that may have contributed to trackout. However, with off-site haul trucks no longer entering and leaving the site, this design is unnecessary to achieve trackout control. As such, Teichert proposes the revised driveway design depicted in Attachment B. The redesigned access includes a paved parking area near the entrance and several

design features, such as K-rails, stabilized unpaved segments, gravel segments, rumble strips, and an extensive paved connection to Elder Creek Road that will help to eliminate track out. More specifically, the K-rails retain the important design element of forcing any vehicle exiting the site to make several turn movements which stretch the tires and allow compacted dirt and material trapped in the tire tread to release prior to exit. To more accurately describe the redesigned site access, Teichert recommends revising this sentence as follows: "Aspen VIII will have a ~~sinuous~~ ***an access*** driveway ***that includes a paved employee parking area and several design features*** that will aid in eliminating track out of mud and other materials onto the County roadway system."

RESPONSE

The referenced text in the EIR has been modified to reflect changes to the entrance driveway as now proposed by the project applicant.

COMMENT

Page 9-9, Plate TT-2: Access Driveways. Please supplement Attachment B for Plate TT-2: Access Driveways.

RESPONSE

Plate TT-2 has been replaced with the new exhibit provided by the project applicant which shows the currently proposed access driveway configuration.

COMMENT □□□

Chapter 10. Air Quality

Pages 10-29, Mitigation Measure AQ-1.1. The mitigation measure includes requirements that are appropriate for construction projects which are generally short-term and contain fluctuating equipment fleets. However, unlike a typical construction project, mining projects are long-term with rather stable equipment fleets that make measures such as weekly reporting requirements unnecessary and onerous. Likewise, Sacramento Metropolitan Air Quality Management District's (District) mitigation fee program applies only to construction emissions. Therefore, it is not appropriate for a long-term mining operation such as the project. Recognizing the unique character of a mining project, Teichert, in consultation with the District, proposes the following revisions to AQ-1.1:

> To mitigate ~~construction-related~~ ozone precursor emissions, the following shall apply:
>
> A. ~~The project shall provide a plan for approval by~~ ***Prior to approval of the Work Authorization Permit, an equipment inventory shall be submitted to and approved by*** the District demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low- emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. ***Use of*** any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be ~~repaired~~ ***discontinued*** immediately, and the lead agency and District shall be notified within 48 hours of identification of non- compliant equipment. ~~A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.~~ ***By May 1st of each year and for the duration of the project, an annual summary of the previous year's use of all off-road equipment, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the District.*** The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

~~D. To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.~~

RESPONSE

The County consulted with Sacramento Metropolitan Air Quality Management District (SMAQMD) staff regarding the proposed changes to the mitigation measure. SMAQMD concurred that the proposed changes are appropriate for the project. As such, the proposed changes have been incorporated into the Final EIR.

SMAQMD noted that the proposed changes to parts A and B provide appropriate timing for implementation, while recognizing that mining projects are long term and operational in scope due to the phased nature of mining, stable equipment fleets and relative duration of projects. The deletion of part D is based on the fact SMAQMD's fee program is for short-term construction impacts only; the SMAQMD does not have a fee program for long-term operational impacts.

COMMENT

Pages 10-31 and 10-32, Mitigation Measure AQ-1.2. For the same reasons identified in our comments on Mitigation Measure AQ-1.1, above, Teichert requests that Mitigation Measure AQ-1.2 be revised as follows:

> Implement ~~Basic Construction Emission Control Practices~~ ***the following measures*** to control PM emissions on and off-site, including:
>
> - ~~Water all exposed surfaces two times daily. Exposed surfaces~~

~~include,~~ ***All disturbed areas on-site, including*** but ~~are~~ not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads***, shall be treated with appropriate dust suppressants, watered regularly, vegetated, or otherwise treated to minimize fugitive dust***.

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material ~~on the~~ ***off***-site ***and onto public roadways***. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- ***Prevent the trackout of mud or dirt onto adjacent public roads through the incorporation of a combination of rumble strips, gravel aprons, and other appropriate dust suppressants at the site entrances as shown on Plate TT-2. If trackout of mud or dirt persists, Teichert shall work with County and the District to identify and implement additional measures. Visible trackout mud or dirt shall be removed through*** use ***of a*** wet power vacuum street sweepers ~~to remove any visible trackout mud or dirt onto adjacent public roads at least once a day~~. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- ~~All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.~~
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- ~~Water exposed soil with adequate frequency for continued moist soil~~***All disturbed areas on-site shall be treated with appropriate dust suppressants, watered regularly, vegetated or otherwise***

treated to minimize fugitive dust. ~~However, do~~ ***When water is used as a dust suppressant, do*** not overwater to the extent that sediment flows off the site.

- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- ~~Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.~~
- ~~Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.~~

UNPAVED ROADS (ENTRAINED ROAD DUST)

- ~~Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.~~ ***Prevent the trackout of mud or dirt onto adjacent public roads through the incorporation of a combination of rumble strips, gravel aprons, and other appropriate dust suppressants at the site entrances as shown on Plate TT-2. If trackout of mud or dirt persists, Teichert shall work with County and the District to identify and implement additional measures. Visible trackout mud or dirt shall be removed through use of a wet power vacuum street sweepers. Use of dry power sweeping is prohibited.***
- ~~Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.~~
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

RESPONSE

The County consulted with Sacramento Metropolitan Air Quality Management District (SMAQMD) staff regarding the proposed changes to the mitigation measure. SMAQMD concurred that the proposed changes are appropriate for the project. As such, the proposed changes have been incorporated into the Final EIR.

The District noted that the proposed language allows the mining operator the flexibility to choose the most appropriate and effective dust control method(s) to address actual

site conditions, while also providing a mechanism for the applicant to work with the County and the SMAQMD in the event that measures are ineffective.

COMMENT

Chapter 11. Noise

Page 11-11, Mitigation Measure NO-1(A). Mitigation measure NO-1(A) exceeds that which is necessary to mitigate median noise levels by 2dB and imposes mitigation that renders mining within 850 feet of the residence at 9895 Elder Creek Road infeasible. As discussed in the attached technical memorandum from Bollard Acoustical Consultants, Inc. (Attachment C, "BAC" memorandum dated June 17, 2016), a noise reduction in excess of the required 2dB at the nearest residence during the initial phase of mining may be achieved by implementing either of the following mitigation measures which will reduce project noise by 5dB and 3dB, respectively:

A. Prior to mining operations within 400 feet of Receptor 3, an 8-foot tall earthen berm or temporary noise barrier shall be constructed along the property line between the project site and Receptor 3.

B. When initial excavation operations are occurring within 400 feet of Receptor 3, the number of scrapers used for initial overburden removal should be reduced by 50% until the excavation equipment has recessed in the pit a sufficient depth such that the excavation equipment is shielded from view of this residence.

Either of these measures will sufficiently mitigate Impact NO-1 to a level that is considered less than significant. However, for reasons discussed below on Impact NO-2, Teichert requests that DEIR mitigation measure NO-1(A) be stricken and replaced with an obligation to implement both of the mitigation measures proposed above.

RESPONSE

The EIR preparers have reviewed the additional information provided by the noise consultant in a memorandum dated June 17, 2016. The mitigation measure has been modified to reflect the updated noise analysis. Furthermore, the 50% reduction in measure B was specified to a maximum of three scrapers that are permitted until the excavation equipment has been recessed in the pit. The memorandum dated June 17, 2016 can be found in Appendix NO-2 in this EIR.

COMMENT □□□

Page 11-11 and 11-12, Impact NO-2. This section addresses project impacts to ambient noise levels at Receptors 3 and 4, and states that "to reduce the ambient noise levels impacts to less than significant the ambient noise will have to be reduced by approximately 11 dB." (p.11-12). For the reasons discussed in the BAC Noise Analysis (DEIR, Appendix NO-1 Noise Assessment, September 16, 2015, pp. 10-11) and further elaborated upon in the BAC technical memorandum (Attachment C, pp. 2-3), Teichert requests that the reference to "11 dB" be stricken and replaced with "6-8 dB."

As discussed in the comments on NO-1 above, the mitigation measures identified for Impact NO-1, will reduce noise impacts by 5dB and 3dB, respectively. BAC indicates that implementing both mitigation measures will reduce ambient noise by 8dB (Attachment C, p.3). As drafted, Mitigation Measure NO-2 states, "See Mitigation Measure NO-1.0." With the decibel level corrected to reflect the necessary decrease of 6-8 dB to mitigate for the project's impact on ambient noise at Receptors 3 and 4, and if Mitigation Measure NO-1 is revised as proposed herein, then the current language of Mitigation Measure NO-2 is satisfactory.

RESPONSE □□□

Comment noted. See Response to Comment 5-7.

COMMENT □□□

Chapter 12. Hydrology and Water Quality

Page 12-13, Second Paragraph, Third Sentence. This sentence should be modified to include the following language: "The proposed project will eliminate the westbound ***and northbound*** spill***s*** from Elder Creek's right bank just upstream of the Elder Creek Road culvert."

RESPONSE □□□

The sentence has been modified to reflect the requested change.

COMMENT □□□□

Page 12-13, Fourth Paragraph, Second Sentence. As discussed above and shown in Attachment A, the berm that separates the mining pit from the Elder Creek floodplain will have a minimum top-width of 20 feet. Please revise this sentence to remove "~~12~~" and replace it with "***20***".

RESPONSE □□□□

The sentence has been modified to reflect the requested change.

COMMENT □□□□

Chapter 13. Geology and Soils

Page 13-29, Mitigation Measure GS-1(E). The mitigation measure requires Teichert to submit annual reports, prepared by an engineer, to the Department of Community Development, Aggregate Resources Manager describing the status of site slope stability. However, pursuant to Public Resources Code, Section 2774(b), the mine will be subject to annual inspections by the Aggregate Resources Manager who will, at such time, be afforded the opportunity to view and assess the status of all slopes. Therefore, we ask that this costly mitigation measure be stricken as unnecessary and duplicative.

RESPONSE □□□□

See Response 6-6. Mitigation Measure GS-1(E) has been modified to apply only to those slopes adjacent to Elder Creek.

COMMENT □□□□

Supplemental Geotechnical Analysis. Please consider and include in the final EIR the attached geotechnical memorandum from Geocon Consultants (Attachment D, "Additional Seepage and Slope Stability Evaluation" dated July 7, 2016). As shown on Plates GS-6 through GS-12, Geocon previously considered a built condition in which the berm is underlain with undisturbed soils. Consistent with Plates PD-13, Section 8F, on page 2-15 and PD-17, "Typical Berm Detail," page 2-20, the supplemental evaluation assesses two additional conditions in which the underlain material is comprised of (1) partially reclaimed and (2) fully reclaimed fill material. It is anticipated that all three berm conditions will exist at the project site. The attached supplemental geotechnical analysis ensures that the seepage and slope stability impacts associated with the future berm have been adequately analyzed for any of the three final conditions.

RESPONSE □□□□

The July 2016 Additional Seepage and Slope Stability Evaluation has been incorporated into the Geology and Soils Chapter of the EIR and can be found in Appendix GS-2 in this EIR.

COMMENT □□□□

Chapter 14. Biological Resources

Page 14-36; Mitigation Measure BR-1.5(B). This measure requires a focused survey for Swainson's hawk nests within a ½ mile radius of the project site. However, it has been demonstrated that a 0.25-mile threshold is sufficient within areas that have some level of existing anthropomorphic activity given that hawks acclimate to this activity and are, therefore, not disturbed at a greater distance. (Attachment E, email of M. Bumgardner, July 1, 2016.) Therefore, it is recommended that the measure utilize a 0.25-mile threshold for focused surveys and be revised as follows:

> B. The survey shall include a focused survey for Swainson's hawk nests within a ~~½ mile~~ ***¼ mile*** radius of the project site, and shall cover all potential habitat on-site and offsite up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.

RESPONSE □□□□

The California Department of Fish and Wildlife (CDFW) was contacted to determine if the ¼ mile survey area would be appropriate. CDFW staff (T. Sheya) indicated that because the site is located within a rural setting it will need the ½ mile survey area consistent with guidelines contained in the *State Fish and Game Staff Report regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California*.

COMMENT

Pages 14-44 and 14-45; Impact Evaluation BR-3. Slight changes to the impacts to waters of the U.S. occurred when the "area of impact" was adjusted, post application submittal, to account for modifications to the Knox/Vineyard Road alignment. The revised impact area as well as an updated table of impact acreages is reflected on the attached figure entitled "Impacts to Waters of the U.S." (Attachment F). Please revise the referenced section as follows:

> A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site (Table BR 4). The proposed project will result in the loss of ~~5.373~~ ***5.386*** acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, pond and ditch wetland habitats (Plate BR-2).

Table BR 4: Wetland Impacts Summary

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	~~0.597~~ ***0.596***
Seasonal Wetland	5.741	~~1.500~~ ***1.499***
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	---
Pond	0.920	0.185
Ditch	2.444	~~2.178~~ ***2.193***
Totals	27.795	~~5.373~~ ***5.386***

RESPONSE

The relevant section has been revised in the Final EIR to reflect the updated information and Attachment F has been added as plate BR-4.

COMMENT

Page 14-45; Mitigation Measure BR-3(A). Teichert has applied for a 404 permit to authorize impacts to waters of the United States. As the agency charged with overseeing the 404 permitting process, the U.S. Army Corps of Engineers is the appropriate entity to review and approve Teichert's proposed mitigation for these impacts. However, to ensure that the County is fully apprised of Teichert's satisfaction of its obligations under Section 404, we propose that proof of compliance be made to the County. As such, Teichert requests revision of the referenced section as follows:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods~~, subject to the approval of the Environmental Coordinator~~. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required. ***Proof of all mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.***

RESPONSE

Mitigation measure BR-3 (A) has been modified to reflect the recommended changes.

COMMENT

Pages 14-46 and 14-47; Mitigation Measure BR-4. This measure requires that "replacement tree planting shall be completed prior to approval of a Work Authorization Permit." However, a Work Authorization Permit is required before Teichert can conduct any construction activities onsite, including tree planting. Teichert accordingly requests removal of this sentence. Instead, as reflected in the current text (p. 14-47), prior to the approval of a Work Authorization Permit, Teichert will submit a "Replacement Tree Planting Plan" for approval by the Environmental Coordinator which will include timeframes for mandatory plantings.

RESPONSE

The requirement for replacement tree plantings to be completed prior to approval of the Work Authorization Permit has been deleted from mitigation measure BR-4.

LETTER 6 SUPPLEMENTAL LETTER

Matthew Keasling, Attorney; Taylor and Wiley; written supplemental correspondence dated; August 9, 2016.

COMMENT 6-1

Chapter 1. Executive Summary and Mitigation Measures

Table ES-1: Executive Summary of Impacts and Mitigation. Table ES-1lists mitigation measures or determinations of level of significance that do not coincide with the actual language identified in the corresponding topical chapters. The following bullets identify areas in Table ES-1 that should be revised for accuracy:

- Page 1-2. Mitigation measure AG-1 should be revised in Table ES-1 to replicate the language on pages 5-11 and 5-12.
- Pages 1-12 and 1-13. Mitigation measure TT-1 should be revised in Table ES-1 to replicate the language on page 9-17.
- Page 1-13. The level of significance for NOx, after implementation of mitigation measure AQ-1.1, should be revised in Table ES-1 to "S", significant and unavoidable, consistent with the conclusion on page 10-30.
- Page 1-21. The box for the mitigation measure addressing impact HW-1 currently states "None Recommended" but should be revised in Table ES-1 to replicate the language on page 12-16.

In addition to those portions of Table ES-1 identified above, for any mitigation that is modified in the Final EIR as a result of comments received, please also revise the corresponding section of summary table for consistency.

RESPONSE 6-1

The Executive Summary has been corrected to coincide with the mitigation language in the topical chapters for mitigation measure AG-1 and TT-1.

The first impact description under “Hydrology and Water Quality” in the Executive Summary, and the associated level of significance before mitigation and mitigation measure (HW-1), have been corrected to coincide with the information contained in the corresponding topical chapter.

On page 1-15 of the Draft EIR, Table ES-1 correctly identifies that the level of significance for NOx, after implementation of Mitigation Measure AQ-1.1, is “SU”, significant and unavoidable. However, the table is somewhat confusing because while the impacts for ROG and NOx are described separately, they share a single mitigation measure (AQ-1.1), which is titled “ROG and NOx”. As a result, it can appear that the “LS” level of significance after mitigation for ROG applies to NOx as well Subheadings for ROG and NOx impacts have been added to the impacts column of Table ES-1 to lessen the confusion.

All modifications to mitigation measures resulting from comments on the Draft EIR have been incorporated into Table ES-1, as well as the corresponding topical chapters.

COMMENT 6-2

Chapter 4. Land Use/Population and Housing

Page 4-4, first paragraph, second sentence. This sentence describes the post-reclamation end use of the site as agriculture. Please strike "~~agricultural uses~~" and identify the end use as *"**open space grassland**."*

RESPONSE 6-2

The section has been modified to reflect the change.

COMMENT 6-3

Chapter 6. Aesthetics

Page 6-11, Mitigation Measure AE-1(B). This mitigation measure addresses the visual impact of mining on the private residence at 9895 Elder Creek Road. The measure requires the creation of a landscaped berm to screen the view of the mining operation from this residence. The measure also requires consultation with the resident in determining the aesthetic design of this visual screen.

Similarly, to mitigate for noise impacts, Teichert is required to build an eight-foot tall berm or noise-attenuating fence between the mine site and the residence at 9895 Elder Creek Road. In consultation with the neighboring resident regarding the potential for a berm and fence, the resident has indicated her preference that the eight-foot tall noise- attenuating fence remain as separation between the project site and her residence. This solid fence will mitigate for visual impacts, as well as noise impacts. As such, we request that AE-1(B) be revised as follows:

> B. Additional berms and landscaping, ***or an 8-foot tall solid fence***, shall be placed to screen the view of the mining pit for the ***benefit of those properties located west of Aspen VIII, including the*** residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and ***the cemeteries at 9899 Elder Creek Road, on assessor parcel number 063-0180-022*** ~~*west* of Aspen VIII~~. This shall consist of a berm and landscaping combination, ***or a fence to visually screen***, to the satisfaction of the Department of Community Development with input from the ***neighboring property owners*** ~~*resident* of 9895 Elder Creek Road~~.

RESPONSE 6-3

Mitigation Measure AE-1(B) has been modified to reflect the comments above. However, the assessor parcel number (apn) for 9899 Elder Creek Road is 063-0180-029 and not the apn listed in the comment letter; therefore, the update was made with the correct number.

COMMENT 6-4

Chapter 8. Public Services

Page 8-23 and 8-24, Impact Evaluation PS-5. Please strike all reference to stormwater "~~detention~~" basins and replace with stormwater *"**retention**"* basins.

RESPONSE 6-4

The sections have been updated to reflect the corrected language.

COMMENT 6-5

Chapter 12. Hydrology and Water Quality

Page 12-16, Mitigation Measure HW-1. Since the release of the Draft EIR, Sacramento County DWR has finalized its May 2016 baseline model. Consistent with the preliminary review by Sacramento County DWR discussed in the DEIR (p. 12-15), Cunningham Engineering's updated hydraulic analysis finds that water surface elevations increase by more than 0.1 feet at certain downstream locations as a result of the project. More specifically, the increased downstream water surface elevations result from project increasing the capacity of the culverts under Elder Creek Road which will allow the creek to pass and remain within its channel. Despite the hydraulic improvement of new culverts that remove an artificial impediment to Elder Creek's floodwaters, the resultant increase in water surface elevations downstream from the project site in excess of 0.1 feet are a potentially significant impact.

To mitigate this impact to a level deemed less than significant, Teichert proposes to construct a side-weir on Elder Creek to divert the excess flows into the Aspen IX mine pit (Mitigation Measure HW-1, first bullet). A schematic model of the proposed side- weir is attached to the for County review and consideration (Attachment A). The weir is designed to be located along the periphery of the floodplain, as it is revised under the current model, but more than 150-feet from the creek channel. Although we believe that the effects of implementing this mitigation are sufficiently analyzed in the EIR, we request that the County Department of Community Development confirm this assumption in its responses to comments thereby negating the need for additional CEQA analysis prior to implementing the chosen mitigation measure.

RESPONSE 6-5

The May 2016 model results indicate that the water surface elevations downstream of the project will increase in excess of 0.1 feet and are is therefore potentially significant. Therefore mitigation measure HW-1, (1) has been removed. Furthermore, mitigation measure HW, (2) has been modified to remove the reference, “if the analysis concludes that the project may result in an increase in base flood elevation of 0.1 or greater” has been stricken out.

Department of Water Resources (DWR) staff reviewed the comment letter, the supplemental comment letter and all attachments. The design of the weir will require

additional modeling analysis but DWR staff is comfortable with mitigation measure HW-1, which allows for flexibility in the weir design. Furthermore, the mitigation measure allows the weir to be constructed to the satisfaction of DWR. The last paragraph of mitigation measure HW-1 has also been modified to reflect the results of the May 2016 model that indicate an increase in surface water elevation. Based on the May 2016 model results, mitigation measure HW-1 has been adequately analyzed for CEQA. Therefore, the sentence stating additional CEQA compliance may be required has been stricken out.

COMMENT 6-6

Chapter 13. Geology and Soils

Page 13-29, Mitigation Measure GS-1(E). Our prior submittal requested that this mitigation measure be removed since any instability in the finished slope is likely to be detected during annual inspections. However, during the course of subsequent discussions, it has become clear that the County is seeking assurance that the slopes identified in the GeoCon report are actually constructed in the manner identified therein in order to ensure future slope stability and to prevent seepage for the health and safety of surrounding property owners and the community at large.

Attached is a geotechnical memorandum from GeoCon Consultants, Inc. indicating that its previously submitted seepage slope stability analysis pertains only to those reclamation slopes adjacent to Elder Creek (Attachment B). All other reclaimed perimeter slopes are to be constructed of compacted overburden at an inclination of 2H:1V, which GeoCon notes is the industry standard and should be sufficiently stable. As such, we request that Mitigation Measure GS-1(E) be revised as follows:

At the beginning of each year (in the month of January) a written ~~maintenance plan that specifies specified actions that ensure slopes are in good repair, stable and safe~~ ***report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed*** shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. ***The report shall indicate whether such slopes were constructed in a manner consistent with the GeoCon Seepage and Stability Evaluation.*** The report shall also include ~~an~~ ***a performance*** evaluation of ~~the~~ ***all slopes built adjacent to Elder Creek to date and*** ~~prior year recommended actions to ensure that the actions have gone into effect and hov1 the actions~~ ***appropriate measures to*** correct~~ed~~ any deficiencies ***if necessary***. This report shall be prepared by a registered and licensed civil engineer in good standing.

RESPONSE 6-6

Mitigation measure GS-1(E) has been modified to reflect the updated information. Attachment B mentioned above can be found as appendix GS-3 (Supplemental Slopes) dated 7-25-16 in this EIR.

COMMENT 6-7

Chapter 14. Biological Resources

Pages 14-44 and 14-45, Impact Evaluation BR-3. In our July 11 comment letter we requested modification the number of acres identified for impacts to waters of the U.S. (Table BR-4). Our request to modify impact acreages is due to the fact that, following submittal of its Section 404 application to the Army Corps of Engineers, Teichert slightly adjusted its "area of impact" to account for modifications to the Knox/Vineyard Road alignment as well as other roadway improvements. The revisions to the "area of impact" and updated impact acreages are discemable by comparing the attached figure entitled "Figure 2: Applicant's Proposed Alternative" to the revised figure entitled "Impacts to Waters of the U.S." which reflects inclusion of the future roadway alignment (Attachment C). Teichert will be submitting this revised impact information to the Corps within the next week. We will provide the County with a copy of our transmittal to the Corps and any related documentation. We seek to have the acreages in Table BR-4 adjusted to properly reflect the true impact to waters of the U.S. so that the County's environmental analysis will be consistent with the revised Corps application.

RESPONSE 6-7

Comment noted. See Response to Comment 5-14.

Letter 1

The California Department of Fish and Wildlife (CDFW) has reviewed the Draft Environmental Impact Report (DEIR) for the Aspen 8 and 9 Mining Use Permit Project (SCH# 2015022062).

The project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road.

The proposed project would include a rezone 682 acres of the 683 acre project site with the Surface Mining Combining Zone (SM) (Plate PD-4) and a use permit to mine aggregate material (sand and gravel) from two mining pits (Plate PD-5 and Plate PD-6), Aspen VIII and Aspen IX. Mining on Aspen VIII is proposed in two phases (Plate PD-7), Areas A & B. Area A is proposed to be approximately 133 acres while Area B is proposed to be approximately 122 acres. The total for phases A & B on Aspen VIII is approximately 255 acers. Mining on Aspen IX will be in phase C (Plate PD-8) and is proposed to be approximately 98 acres. Thus the total for all the mining pits is approximately 353 acres. A use permit to allow the extension and continued use of an electric conveyor system to transport mined material across other parcels to the existing off-site Perkins processing plant (Plate PD-9) is also being requested as well as a reclamation plan that specifies open space grassland as the end use of the mine. The reclamation plan proposes alignments for a future right-of-way through the mining pit on Aspen VIII and along the eastern pit boundary on Aspen IX as well as a graded easement for a future multi-use trail adjacent to the mine boundary and Elder Creek (Plate PD-10 and Plate PD-11), and it specifies slope standards, roadway details and cross sections (Plate PD-12, Plate PD-13, Plate PD-14, and Plate PD-15).

As a trustee for California's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Fish & G. Code, § 1802). CDFW may also act as a Responsible Agency (Cal. Code Regs., § 21069) for a project where it has discretionary approval power under the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) and the Lake and Streambed Alteration Program (Fish & G. Code, § 1600 et seq.). CDFW also administers the Native Plant Protection Act, Natural Community Conservation Program, and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources.

CDFW is primarily concerned with the DEIR's analysis of the projects impacts to tricolored blackbird (*Agelaius tricolor*) and offers the following comments and recommendations for this project in our role as a trustee and responsible agency pursuant to the California Environmental Quality Act (CEQA).

As stated in the MND, tricolored blackbird is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the project site. It also has been documented nesting approximately 900 feet east of the eastern boundary of Aspen VIII and several other locations within four miles or less of the project site. Tricolored blackbird is a candidate species under CESA and as such it is afforded full protection under the act. Although the DEIR discusses impacts to tricolored black bird nesting habitat it does not discuss the project impacts to foraging habitat. Individuals may forage up to 9 km (5.6 miles) from their colonies, but in most cases only a small part of the area within this range provides suitable foraging. Foraging distance is heavily influenced by the presence of concentrated food resources. Breeding individuals typically forage away from their nest sites, often well out of sight of the colony, but where insect foods are locally abundant, much foraging occurs well within sight of the colony (Meese et al 2014). CDFW recommends that the EIR includes an analyses of the projects impacts to tricolored blackbirds foraging habitat and proposes measures to reduce that impact to a less than significant level.

Additionally, CESA take authorization, should be obtained if the proposed project has the potential to result in take of a State-listed plant or wildlife species. Issuance of a CESA permit is subject to CEQA documentation; therefore the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the proposed Project will impact CESA listed species, early consultation is encouraged, as significant modification to the proposed Project and mitigation measures may be required in order to obtain a CESA permit. A CESA permit may only be obtained if the impacts of the authorized take of the species are minimized and fully mitigated and adequate funding has been ensured to implement the mitigation measures. The CDFW may only issue a CESA permit if the CDFW determines that issuance of the permit does not jeopardize the continued existence of the species. The CDFW will make this determination based on the best scientific information available, and shall include consideration of the species' capability to survive and reproduce, including the species known population trends and known threats to the species. Issuance of a CESA permit may take up to 180 days from receipt of an application from the applicant.

The proposed project will have an impact to fish and/or wildlife habitat and should be evaluated in such a manner to reduce its impacts to biological resources. Assessment of fees under Public Resources Code §21089 and as defined by FGC §711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Pursuant to Public Resources Code §21092 and §21092.2, the Department requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife Region 2, 1701 Nimbus Road, Rancho Cordova, CA 95670.

Thank you for considering our concerns for the proposed project and providing the opportunity to comment. I am available for consultation regarding biological resources and strategies to minimize impacts. If you have questions please contact me by e-mail at Tanya.Sheya@wildlife.ca.gov or by phone at (916) 358-2953.

Tanya Sheya
Environmental Scientist

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE

North Central Region | Habitat Conservation
1701 Nimbus Road | Rancho Cordova, CA 95670
Phone 916.358.2953 | Fax 916.358.2912
Tanya.Sheya@wildlife.ca.gov

Every Californian should conserve water. Find out how at:

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References

Meese, Robert J., Edward C. Beedy and William J. Hamilton, Iii. 2014. Tricolored Blackbird (Agelaius tricolor), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:
http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/423

Letter 2

REGIONALSAN
TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District

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County Of Sacramento
Department of Community Development
Planning and Environmental Review Division

Catherine Hack
Environmental Coordinator
Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento, CA 95814

Subject: Draft Environmental Impact Report for the Aspen VIII and IX Mining Use Permit (Control Number PLNP2014-00201)

Dear Ms. Hack:

Sacramento Area Sewer District (SASD) and the Sacramento Regional County Sanitation District (Regional San) have the following comments regarding the proposed project:

The Regional San Board of Directors adopted the Interceptor Sequencing Study (ISS) in February 2013. The ISS updated the SRCSD Master Plan 2000 and can be found on the Regional San website at http://www.regionalsan.com/ISS.

The most current SASD planning document, the 2010 System Capacity Plan Update (SCP) was approved by the SASD Board of Directors in January 2012. The SCP can be found on the SASD website at http://www.sacsewer.com/devres-standards.html.

Local sewer service for this project area would be provided by SASD. Conveyance from local SASD trunk sewers to the Sacramento Regional Wastewater Treatment Plant (SRWTP) would be provided by Regional San through large pipelines called interceptors.

Regional San and SASD do not foresee any impacts as there are no existing sewer facilities within the project area. In the future, the Elder Creek Interceptor and trunk system will traverse the entire project area along Elder Creek Road. The planned sewer projects and the future sewer facilities are not anticipated to be impacted by the proposed project.

If you have any questions regarding these comments, please contact me at 916-876-6339.

Sincerely,

JMedina

Johnathan Medina, EIT
Regional San/SASD
Policy and Planning

Cc: Regional San Development Services, SASD Development Services, Michael Meyer, Dave Ocenosak, Christoph Dobson

Letter 3

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

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SACRAMENTO, CA 95833
PHONE (916) 274-0635
FAX (916) 274-0602
TTY 711
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Serious drought.
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July 6, 2016

032016-SAC-0134
03-SAC-16 / 6.22
SCH#2015022062

Mr. Mark Michelini
Senior Planner
County of Sacramento Long Range Planning
827 7th Street, Room 235
Sacramento, CA 95814

Draft Environmental Impact Report (DEIR) – Aspen VII and IX Mining User Permit

Dear Mr. Michelini:

Thank you for including the California Department of Transportation (Caltrans) in the review process for the Draft Environmental Impact Report (DEIR) for the Aspen VII and IX Mining User Permit. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System (SHS) in keeping with our mission, vision and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl.

The project site is east of Elder Creek Rd. and Bradshaw Rd, and south of State Route (SR) 16, and includes (1) a use permit to allow surface mining on approximately 355 acres of a 683 acre project site; (2) a use permit to allow for the extension and continued use of an electric conveyor system to transport the mined materials across adjacent parcels to the existing off-site processing plant; (3) a Community Plan Amendment and Rezone to add the Surface Mining Combining Zone (SM to 682 acres of IR, AG-80, AG-80(F), AG-160 and AG-160(F) land; (4) a Reclamation Plan to include open space grassland uses as the end use of the mine; and (5) a Development Agreement between the applicant and the County of Sacramento.

The following comments are based on the DEIR.

"Provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability"

Multi-Modal Transportation Impact Analysis

Caltrans requests further clarification from the County, preferably in the form of a transportation impact study, for the potential impacts from increased truck traffic on the State Highway System from the Perkins Processing Plan, due to an increase in materials being shipped there from the Aspen VIII and IX mining sites. In particular, we would to understand the potential effects and impacts to the Watt/US 50 interchange and the Watt/SR 16 intersection. Any significant increase in truck traffic from the processing plant is a concern for Caltrans because of the proximity of the Perkins Processing Plan to SR 16.

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to these documents.

If you have any questions regarding these comments or require additional information, please contact Alex Fong, Intergovernmental Review Coordinator at (916) 274-0616 or by email at: alexander.fong@dot.ca.gov.

Sincerely,

ERIC FREDERICKS, Chief
Office of Transportation Planning—South Branch

c: Scott Morgan, State Clearinghouse

Letter 4

Powering forward. Together.

SMUD™

July 11, 2016

Catherine Hack
Environmental Coordinator
Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento CA 95814

Subject: Draft Environmental Impact Report for Aspen VIII and IX Mining Use Permit

Dear Ms. Hack

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Draft Environmental Impact Report (EIR) for the Aspen VIII and IX Mining Use Permit project. SMUD is the primary energy provider for Sacramento County and the proposed project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

As is discussed in the EIR, SMUD has overhead distribution and transmission lines in and around the project area. Our distribution facilities include a 69 kilovolt (kV) and 12kV line along Elder Creek Road and other 12kV lines that serve the residences on the property.

The transmission line also crosses the project area; the towers have been delineated on many of the project figures. It appears that the towers themselves will be avoided, but mining could occur within SMUD's transmission line easement. Please view the following link on smud.org for more information regarding transmission encroachment: https://www.smud.org/en/do-business-with-smud/real-estate-services/transmission-right-of-way.htm

SMUD has the following comments as it relates to work in and around our transmission facilities:

1. Please provide detailed engineering drawings for any improvements that are proposed within SMUD's transmission line easement. SMUD engineering will review the plans and provide comments as required.

2. Prior to any grading or construction within SMUD's transmission easement, the project applicant shall obtain rights from SMUD's real estate department.

SMUD HQ | 6201 S Street | P.O. Box 15830 | Sacramento, CA 95852-0830 | 1.888.742.7683 | smud.org

3. Any grading shall not affect the integrity of the tower footings. No cut or fill will be allowed within 25 feet measured from the face of transmission steel lattice towers.

4. SMUD reserves the right to construct new or move existing facilities as necessary within its legal easement. Any developments installed by owner or assignees within this easement may need to be removed or modified as a result of the new or existing installed facilities.

5. SMUD reserves the right to use any portion of its easement and shall not be responsible for any damages to the developed property within said easement.

6. Project Owner or contractor is responsible for assessing any impacts (including but not limited to induced voltage and current effects) to its facilities as a result of constructing and operating their facilities within close proximity to SMUD's high voltage transmission lines.

7. Project Owner or contractor is responsible for ensuring that any subcontractor performing work in the subject right of way is aware and abides by these conditions.

8. Any proposed SMUD transmission facilities modifications/relocations by the project owner shall be performed under an executed cost recovery agreement. Project owner shall provide 18 months' timeframe to allow for design and construction of identified facilities.

9. There shall be no storage of fuel or combustibles and no fueling of vehicles within the SMUD easement.

10. There shall be no long term staging or storage of construction materials within the SMUD easement, such materials shall be removed from the easement at the completion of the project.

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed project. Please ensure that the information included in this response is conveyed to the project planners and the appropriate project proponents.

Environmental leadership is a core value of SMUD and we look forward to collaborating with you on this project. Again, we appreciate the opportunity to provide input on this EIR for the Aspen VIII and XI Mining Use Permit project. If you have any questions regarding this letter, please contact Emily Bacchini, SMUD Environmental Specialist at 916-732-6334 or emily.bacchini@smud.org.

Sincerely,

Rob Ferrera
Environmental Specialist

SMUD HQ | 6201 S Street | P.O. Box 15830 | Sacramento, CA 95852-0830 | 1.888.742.7683 | smud.org

Environmental Management
Workforce and Enterprise Services
Sacramento Municipal Utility District

Cc: Emily Bacchini
Jose Bodipo-Memba
Pat Durham
Joseph Schofield

SMUD HQ | 6201 S Street | P.O. Box 15830 | Sacramento, CA 95852-0830 | 1.888.742.7683 | smud.org

Letter 5

TAYLOR & WILEY
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KATHLEEN R. MAKEL

July 11, 2016

HAND-DELIVERED
Mark Michelini
County of Sacramento
Department of Community Development
827 7th Street, Room 225
Sacramento, California 95814

Re: Draft EIR for Teichert's Aspen VIII and IX Mining Use Permit (Control No: PLNP2014-00201/State Clearinghouse # 2015022062)

Dear Mr. Michelini:

As you know, Taylor & Wiley represents the applicant, Teichert Materials ("Teichert"), with respect to the Aspen VIII and IX Mining Use Permit ("Project"). The purpose of this letter is to provide supplemental materials and comments on the Draft Environmental Impact Report (DEIR) for the Project. The comments herein are based on technical input from Teichert's project team.

Suggested revisions to the DEIR text are indicated in ***bold italics*** font for text proposed to be inserted and in ~~strike-out~~ font for text proposed for deletion.

Chapter 8. Public Services

Pages 8-25 and 8-26, Mitigation Measure PS-1(A). The last paragraph in the Impact Evaluation states that "Although a trail easement is already proposed as part of the project's reclamation plans, mitigation is recommended to ensure that the easement is in place *prior to on-site excavation…*" (DEIR, page 8-26; *emphasis added*.). The dedication of an easement requires that the precise location be known for an accurate description and recordation of the legal interest. As indicated on Plates PS-5, PS-7, and PD-17, the 20-foot wide easement will be located on top of a berm which will, at several project locations, be built-back atop the previously mined area using compacted fill material. Consequently, dedication of the trail easement at all such locations is not possible until after the mining occurs and the berm is subsequently constructed. Only after the berm is physically built will its precise location be surveyable and an easement capable of dedication. For these reasons Teichert recommends that, similar to Mitigation Measure TT-1 for the future right-of-way for Knox/Vineyard Road, PS-1 be revised to include a new (A), renumber the existing (A) to (B), and revise the language thereof as follows:

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A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Community Development.

~~A.~~ ***B.*** Prior to ~~issuance of Work Authorization Permit~~ ***signoff of the reclamation plan***, the applicant shall dedicate a 20- foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District.

Page 8-26, Mitigation Measure PS-1(B). The mitigation measure requires a compacted base rock foundation over the entire 20-foot wide easement area. This is not typical nor desired by Southgate Recreation and Park District (Southgate). Compacted base rock is only appropriate in a centered, 12-foot wide section of the overall 20-foot wide easement. Additionally, the second sentence pertaining to the design of the future recreational trail lacks specificity and simply defers to Southgate. Teichert recommends that the mitigation measure be revised to reference all plates identifying the location and design of the future trail easement, including but not limited to the attached "Typical Berm Detail" which has been revised to reflect a 20-foot wide easement area (Attachment A).

~~B.~~ ***C.*** Prior to signoff of the reclamation plan the applicant shall ~~install a~~ ***improve the trail easement area by constructing a trail surface not exceeding 20-feet in width, which will include*** a ***12-foot section of*** suitably compacted base rock foundation for the multi-use trail along Elder Creek, the grade and slopes of which shall be designed ~~to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be to the satisfaction of Southgate Recreation and Park District~~ ***and constructed consistent with Plates PS-4, PS-5, PS-6 and PS-7 as revised for width.***

Chapter 9. Transportation and Traffic

Page 9-4, second full paragraph, fourth sentence. This sentence describes the driveway access onto Aspen VIII, as depicted on Plate TT-2 (page 9-9), which was designed when the project included the off-site sale of overburden and associated haul trucks that may have contributed to trackout. However, with off-site haul trucks no longer entering and leaving the site, this design is unnecessary to achieve trackout control. As such, Teichert proposes the revised driveway design depicted in Attachment B. The redesigned access includes a paved parking area near the entrance and several

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design features, such as K-rails, stabilized unpaved segments, gravel segments, rumble strips, and an extensive paved connection to Elder Creek Road that will help to eliminate track out. More specifically, the K-rails retain the important design element of forcing any vehicle exiting the site to make several turn movements which stretch the tires and allow compacted dirt and material trapped in the tire tread to release prior to exit. To more accurately describe the redesigned site access, Teichert recommends revising this sentence as follows: "Aspen VIII will have a ~~sinuous~~ ***an access*** driveway ***that includes a paved employee parking area and several design features*** that will aid in eliminating track out of mud and other materials onto the County roadway system."

Page 9-9, Plate TT-2: Access Driveways. Please supplement Attachment B for Plate TT-2: Access Driveways.

Chapter 10. Air Quality

Pages 10-29, Mitigation Measure AQ-1.1. The mitigation measure includes requirements that are appropriate for construction projects which are generally short-term and contain fluctuating equipment fleets. However, unlike a typical construction project, mining projects are long-term with rather stable equipment fleets that make measures such as weekly reporting requirements unnecessary and onerous. Likewise, Sacramento Metropolitan Air Quality Management District's (District) mitigation fee program applies only to construction emissions. Therefore, it is not appropriate for a long-term mining operation such as the project. Recognizing the unique character of a mining project, Teichert, in consultation with the District, proposes the following revisions to AQ-1.1:

> To mitigate ~~construction-related~~ ozone precursor emissions, the following shall apply:
>
> A. ~~The project shall provide a plan for approval by~~ ***Prior to approval of the Work Authorization Permit, an equipment inventory shall be submitted to and approved by*** the District demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low- emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

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B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. ***Use of*** any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be ~~repaired~~ ***discontinued*** immediately, and the lead agency and District shall be notified within 48 hours of identification of non- compliant equipment. ~~A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.~~ ***By May 1st of each year and for the duration of the project, an annual summary of the previous year's use of all off-road equipment, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the District.*** The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

~~D. To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency.~~

Pages 10-31 and 10-32, Mitigation Measure AQ-1.2. For the same reasons identified in our comments on Mitigation Measure AQ-1.1, above, Teichert requests that Mitigation Measure AQ-1.2 be revised as follows:

Implement ~~Basic Construction Emission Control Practices~~ ***the following measures*** to control PM emissions on and off-site, including:

- ~~Water all exposed surfaces two times daily. Exposed surfaces~~

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~~include,~~ ***All disturbed areas on-site, including*** but ~~are~~ not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads***, shall be treated with appropriate dust suppressants, watered regularly, vegetated, or otherwise treated to minimize fugitive dust.***

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material ~~on the~~ ***off***-site ***and onto public roadways***. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- ***Prevent the trackout of mud or dirt onto adjacent public roads through the incorporation of a combination of rumble strips, gravel aprons, and other appropriate dust suppressants at the site entrances as shown on Plate TT-2. If trackout of mud or dirt persists, Teichert shall work with County and the District to identify and implement additional measures. Visible trackout mud or dirt shall be removed through*** use ***of a*** wet power vacuum street sweepers ~~to remove any visible trackout mud or dirt onto adjacent public roads at least once a day~~. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- ~~All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.~~
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- ~~Water exposed soil with adequate frequency for continued moist soil~~***All disturbed areas on-site shall be treated with appropriate dust suppressants, watered regularly, vegetated or otherwise***

Mr. Mark Michelini
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treated to minimize fugitive dust. ~~However, do~~ ***When water is used as a dust suppressant, do*** not overwater to the extent that sediment flows off the site.

- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- ~~Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.~~
- ~~Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.~~

UNPAVED ROADS (ENTRAINED ROAD DUST)

- ~~Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.~~ ***Prevent the trackout of mud or dirt onto adjacent public roads through the incorporation of a combination of rumble strips, gravel aprons, and other appropriate dust suppressants at the site entrances as shown on Plate TT-2. If trackout of mud or dirt persists, Teichert shall work with County and the District to identify and implement additional measures. Visible trackout mud or dirt shall be removed through use of a wet power vacuum street sweepers. Use of dry power sweeping is prohibited.***
- ~~Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.~~
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Chapter 11. Noise

Page 11-11, Mitigation Measure NO-1(A). Mitigation measure NO-1(A) exceeds that which is necessary to mitigate median noise levels by 2dB and imposes mitigation that renders mining within 850 feet of the residence at 9895 Elder Creek Road infeasible. As discussed in the attached technical memorandum from Bollard Acoustical Consultants, Inc. (Attachment C, "BAC" memorandum dated June 17, 2016), a noise reduction in excess of the required 2dB at the nearest residence during the initial phase of mining may be achieved by implementing either of the following mitigation measures which will reduce project noise by 5dB and 3dB, respectively:

will have a minimum top-width of 20 feet. Please revise this sentence to remove "~~12~~" and replace it with "***20***".

Chapter 13. Geology and Soils

Page 13-29, Mitigation Measure GS-1(E). The mitigation measure requires Teichert to submit annual reports, prepared by an engineer, to the Department of Community Development, Aggregate Resources Manager describing the status of site slope stability. However, pursuant to Public Resources Code, Section 2774(b), the mine will be subject to annual inspections by the Aggregate Resources Manager who will, at such time, be afforded the opportunity to view and assess the status of all slopes. Therefore, we ask that this costly mitigation measure be stricken as unnecessary and duplicative.

Supplemental Geotechnical Analysis. Please consider and include in the final EIR the attached geotechnical memorandum from Geocon Consultants (Attachment D, "Additional Seepage and Slope Stability Evaluation" dated July 7, 2016). As shown on Plates GS-6 through GS-12, Geocon previously considered a built condition in which the berm is underlain with undisturbed soils. Consistent with Plates PD-13, Section 8F, on page 2-15 and PD-17, "Typical Berm Detail," page 2-20, the supplemental evaluation assesses two additional conditions in which the underlain material is comprised of (1) partially reclaimed and (2) fully reclaimed fill material. It is anticipated that all three berm conditions will exist at the project site. The attached supplemental geotechnical analysis ensures that the seepage and slope stability impacts associated with the future berm have been adequately analyzed for any of the three final conditions.

Chapter 14. Biological Resources

Page 14-36; Mitigation Measure BR-1.5(B). This measure requires a focused survey for Swainson's hawk nests within a ½ mile radius of the project site. However, it has been demonstrated that a 0.25-mile threshold is sufficient within areas that have some level of existing anthropomorphic activity given that hawks acclimate to this activity and are, therefore, not disturbed at a greater distance. (Attachment E, email of M. Bumgardner, July 1, 2016.) Therefore, it is recommended that the measure utilize a 0.25-mile threshold for focused surveys and be revised as follows:

> B. The survey shall include a focused survey for Swainson's hawk nests within a ~~½ mile~~ ***¼ mile*** radius of the project site, and shall cover all potential habitat on-site and offsite up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be

Mr. Mark Michelini
July 11, 2016
Page 9

submitted to the Environmental Coordinator prior to commencement of construction.

Pages 14-44 and 14-45; Impact Evaluation BR-3. Slight changes to the impacts to waters of the U.S. occurred when the "area of impact" was adjusted, post application submittal, to account for modifications to the Knox/Vineyard Road alignment. The revised impact area as well as an updated table of impact acreages is reflected on the attached figure entitled "Impacts to Waters of the U.S." (Attachment F). Please revise the referenced section as follows:

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the project site (Table BR 4). The proposed project will result in the loss of ~~5.373~~ ***5.386*** acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, pond and ditch wetland habitats (Plate BR-2).

Table BR 4: Wetland Impacts Summary

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	~~0.597~~ ***0.596***
Seasonal Wetland	5.741	~~1.500~~ ***1.499***
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	---
Pond	0.920	0.185
Ditch	2.444	~~2.178~~ ***2.193***
Totals	27.795	~~5.373~~ ***5.386***

Page 14-45; Mitigation Measure BR-3(A). Teichert has applied for a 404 permit to authorize impacts to waters of the United States. As the agency charged with overseeing the 404 permitting process, the U.S. Army Corps of Engineers is the appropriate entity to review and approve Teichert's proposed mitigation for these impacts. However, to ensure that the County is fully apprised of Teichert's satisfaction of its obligations under Section 404, we propose that proof of compliance be made to the County. As such, Teichert requests revision of the referenced section as follows:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable

means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods~~, subject to the approval of the Environmental Coordinator~~. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required. ***Proof of all mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.***

Pages 14-46 and 14-47; Mitigation Measure BR-4. This measure requires that "replacement tree planting shall be completed prior to approval of a Work Authorization Permit." However, a Work Authorization Permit is required before Teichert can conduct any construction activities onsite, including tree planting. Teichert accordingly requests removal of this sentence. Instead, as reflected in the current text (p. 14-47), prior to the approval of a Work Authorization Permit, Teichert will submit a "Replacement Tree Planting Plan" for approval by the Environmental Coordinator which will include timeframes for mandatory plantings.

Thank you for the opportunity to provide our comments on the DEIR. Please feel free to call if you have any questions or need further information regarding our comments.

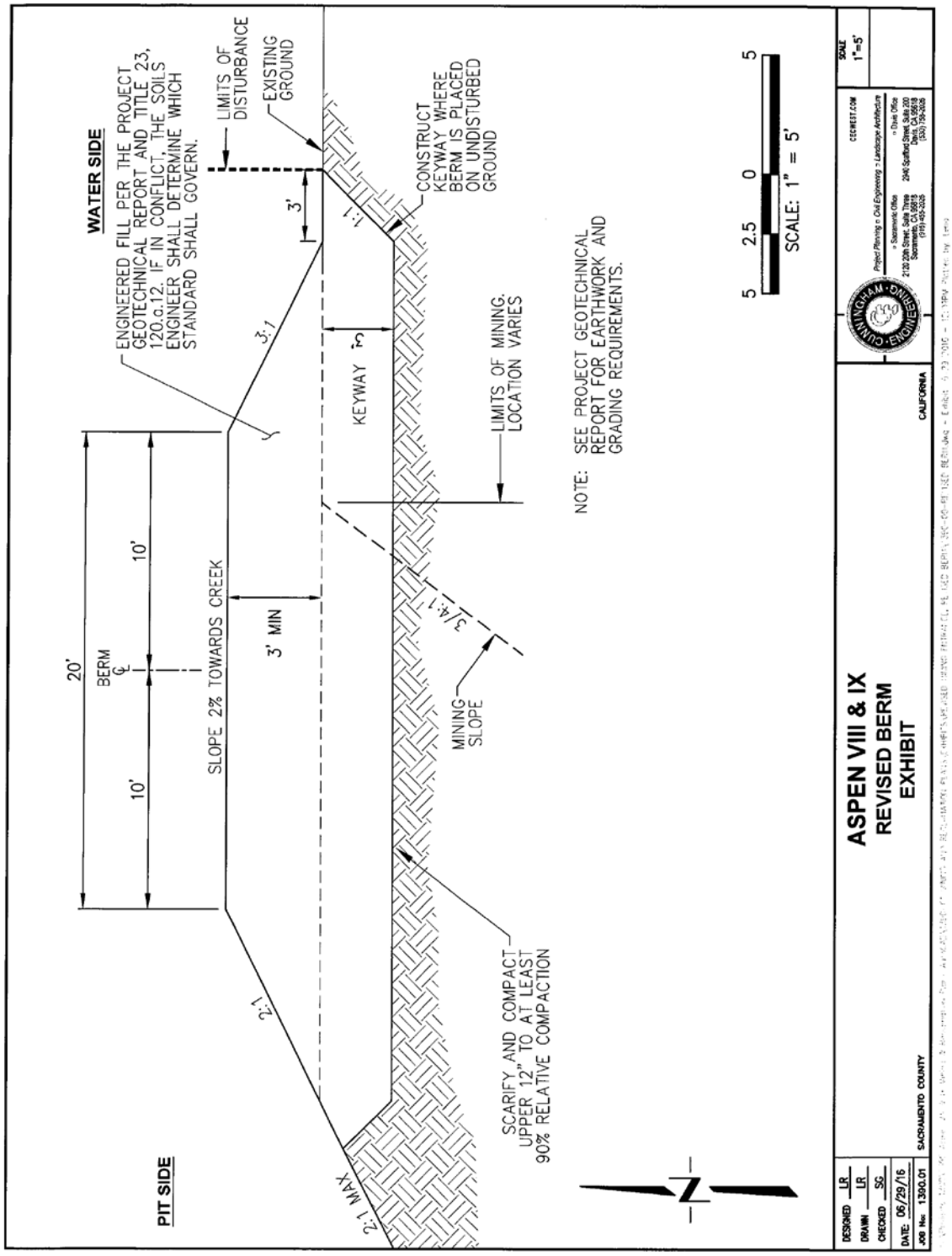
Very truly yours,

Matthew S. Keasling

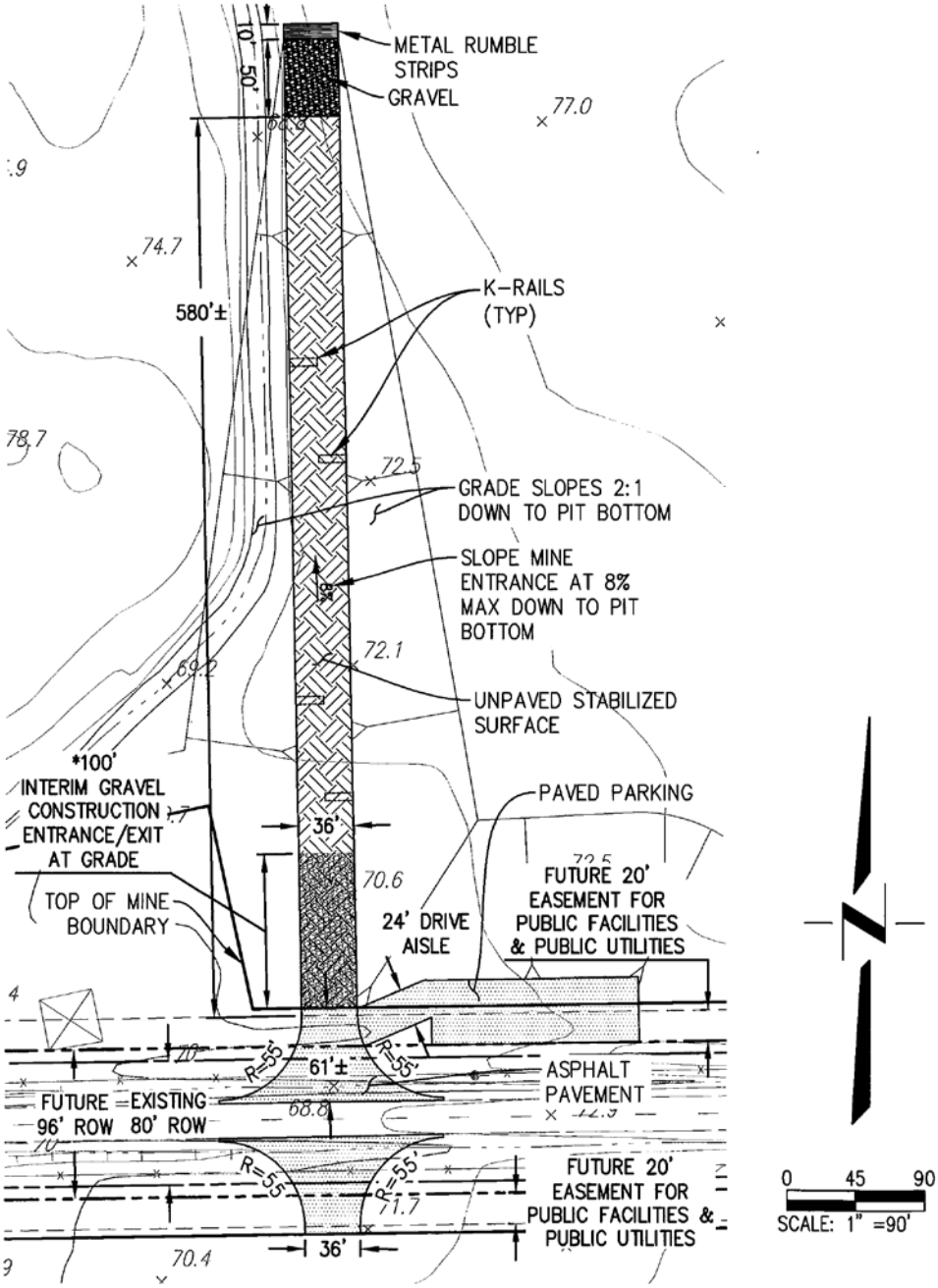
Enclosures

cc: Cathy Hack
John Lundgren
John Lane
Michael Smith
John Taylor

Attachment A


WATER SIDE
ENGINEERED FILL PER THE PROJECT GEOTECHNICAL REPORT AND TITLE 23, 120.a.12. IF IN CONFLICT, THE SOILS ENGINEER SHALL DETERMINE WHICH STANDARD SHALL GOVERN.
LIMITS OF DISTURBANCE
EXISTING GROUND
3'
1:1
CONSTRUCT KEYWAY WHERE BERM IS PLACED ON UNDISTURBED GROUND
3:1
KEYWAY
LIMITS OF MINING. LOCATION VARIES
NOTE: SEE PROJECT GEOTECHNICAL REPORT FOR EARTHWORK AND GRADING REQUIREMENTS.
5 2.5 0 5
SCALE: 1" = 5'
20'
BERM ℄
10'
10'
SLOPE 2% TOWARDS CREEK
3' MIN
3/4:1
MINING SLOPE
2:1
2:1 MAX
SCARIFY AND COMPACT UPPER 12" TO AT LEAST 90% RELATIVE COMPACTION
PIT SIDE
ASPEN VIII & IX
REVISED BERM
EXHIBIT
CALIFORNIA
SACRAMENTO COUNTY
DESIGNED LR
DRAWN LR
CHECKED SC
DATE: 06/29/16
JOB No: 1390.01
SCALE 1"=5'
CGCWEST.COM
CUNNINGHAM ENGINEERING
Project Planning • Civil Engineering • Landscape Architecture
• Sacramento Office
2120 20th Street, Suite Three
Sacramento, CA 95818
(916) 455-2025
• Davis Office
2046 Stafford Street, Suite 200
Davis, CA 95616
(530) 759-2025

Attachment B



ENLARGED MINE DRIVEWAY ENTRANCE DETAIL

* INTERIM GRAVEL CONSTRUCTION ENTRANCE/EXIT TO BE IN PLACE AT EXISTING GRADE UNTIL SUCH TIME THAT MINING REACHES PIT BOTTOM IN THIS PORTION OF ASPEN VIII

Attachment C

BOLLARD ACOUSTICAL CONSULTANTS, INC.
Acoustics ▸ Vibration ▸ Noise Control Engineering

June 17, 2016

Mr. John Lane
Teichert Aggregates
Submitted via e-mail.

Subject: **Bollard Acoustical Consultants, Inc. (BAC) comments on the Draft EIR for the Aspen VIII and IX Mining Use Permit (Control Number: PLNP2014-00201 State Clearinghouse Number: 2015022062, Date: May 27, 2016)**

Dear Mr. Lane:

Pursuant to your request, BAC has reviewed the DEIR for the above referenced project. As you know, BAC prepared a noise study for this project which was subsequently used by Sacramento County staff in the preparation of the DEIR for this project. BAC's comments on the DEIR are as follows:

1. **Noise study report version:** The noise study included at the Sacramento County website containing the project environmental documents is not the latest version of the noise study. Specifically, the version at the County Website is dated August 22, 2014 while BAC's latest version is dated September 16, 2015. While the two report versions are very similar, the later version contains a discussion of potential noise impacts relative to ambient conditions which would have been useful in the evaluation of Impact NO-2 and the noise mitigation related to that impact.

2. **Impact NO-1, Exceedance of the County's 55 dB noise standard at Receptor 3:** Regarding Impact NO-1, the DEIR correctly identifies an impact at Receptor 3 due to a predicted median noise level resulting from initial (at grade) mining activities being 2 dB in excess of the County noise standard (predicted level of 57 dB relative to County standard of 55 dB). However, noise mitigation measure Mitigation Measure NO-1(A), which was developed to mitigate Impact NO-1, goes beyond what would be required to reduce this impact to a level of insignificance. MM NO-1(A) is reproduced below:

   NO-1: Median Noise Levels Mitigation Measure

   A. One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time.

   As noted above, the exceedance of the County noise standard which triggered the finding of significance for Noise Impact NO-1 was only 2 dB. This 2 dB exceedance would only occur when initial excavation operations were occurring within 300 feet of Receptor B (within 50 feet of the proposed mine site boundaries).

3551 Bankhead Road ➢ Loomis, CA 95650 ➢ Phone: (916) 663-0500 ➢ Fax: (916) 663-0501 ➢ BACNOISE.COM

A reduction of 2 dB could be achieved by either of the following mitigation measures:

- When initial excavation operations are occurring within 300 feet of Receptor 3, the number of scrapers used for initial overburden removal should be reduced by 50% until the excavation equipment has recessed in the pit a sufficient depth such that the excavation equipment is shielded from view of this residence. This measure would result in a 3 dB decrease in excavation-related noise generation.

  OR

- An 8-foot tall property line earthen berm or temporary noise barrier shall be constructed between initial excavation operations and Receptor 3. This measure would result in a 5 dB decrease in excavation-related noise generation.

Either of these two mitigation alternatives would be sufficient to mitigate impact NO-1.

3. **Impact NO-2, significant increases in ambient noise levels at Receptors 3 and 4:** BAC concurs with the DEIR finding that the noise impact associated with short-term increases in ambient noise levels at 9895 and 9897 Elder Creek Road (BAC noise study Receptors 3 & 4), would be significant. The DEIR notes that implementation of Mitigation Measure NO-1(A) would reduce Impact NO-2 to a less than significant level. As noted above, Mitigation measure NO-1 requires that only one piece of heavy equipment operate within 850 feet of Receptors 3 and 4 at any given time.

   Page 11-12 of the DEIR states that, in order to reduce the ambient noise level impacts to less than significant, the ambient noise will have to be reduced by approximately 11 dB. BAC does not believe that this conclusion is accurate, and provides the following information in support of an alternative noise mitigation option:

   As noted in Table NO-5, the predicted, unmitigated, noise-generation of the project is 57 dB L_{50} at Receptor 3 and 55 dB L_{50} at Receptor 4. The daytime ambient conditions at these receptors was determined from noise monitoring at Site A as being 45-46 dB L_{50}. Therefore, the noise generation of the project would exceed the ambient conditions by approximately 11 dB at Receptor 3 and 9 dB at Receptor 4.

   Because the threshold of significance for a project-related noise increase is 5 dB, the allowable ambient conditions with the project would be 5 dB above existing ambient levels without the project, or approximately 51 dB. Provided the noise generation of the project does not exceed 49 dB at Receptors 3 & 4, existing plus project noise levels would not exceed 51 dB at those locations, and the noise impact of the project would be less than significant. Therefore, the actual noise attenuation required of the project to mitigate this impact to a level of insignificance would be 8 dB (57 dB – 49 dB) at Receptor 3 and 6 dB at Receptor 4. Without mitigation, noise generated by initial excavation operations is predicted to exceed 49 dB L_{50} within 800 feet of Receptors 3 & 4. Excavation activities beyond that distance would not trigger a significant increase in ambient noise levels or require additional mitigation.

To achieve the 6-8 dB decreases in noise generated by initial excavation activities at Receptors 3 & 4 required to mitigate this impact to a level of insignificance, the following two noise mitigation options should both be implemented:

- An 8-foot tall property line earthen berm or temporary noise barrier shall be constructed between initial excavation operations and Receptor 3. This measure would result in a 5 dB decrease in excavation-related noise generation.

  AND

- Initial excavation operations are occurring within 400 feet of Receptor 3, the number of scrapers used for initial overburden removal should be reduced by 50% until the excavation equipment has recessed in the pit a sufficient depth such that the excavation equipment is shielded from view of this residence. This measure would result in a 3 dB decrease in excavation-related noise generation.

The combined noise reduction of these two mitigation options would reduce initial excavation noise levels by approximately 8 dB, thereby reducing this impact at Receptor 3 to a less than significant level.

This concludes BAC's comments on this DEIR. Please call me at (916) 663-0500 if you have any questions regarding this proposal, or if I can otherwise be of assistance.

Sincerely,

Bollard Acoustical Consultants, Inc.

Paul Bollard

Paul Bollard
President

Attachment D

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
July 7, 2016

VIA U.S. AND ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

Reference: 1. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), December 11, 2014.

Dear Mr. Lane:

In accordance with your request, we have prepared this correspondence summarizing the results of additional seepage and slope stability analyses for future aggregate mining and reclamation at the Teichert Aspen VIII and IX sites located on Elder Creek Road between Bradshaw and Excelsior Roads in Sacramento County, California.

In our previous study (referenced above), we analyzed seepage and slope stability for Elder Creek berm where the mining slope extends from the outside toe of the future berm, such that the new berm is founded on a full-width keyway underlain by undisturbed, native materials (Figure A, below). We understand that, in some locations, the limits of mining may be such that the mining slope is located below the approximate mid-point of the future berm such that the berm is underlain partially by reclamation fill and partially by undisturbed native materials (Figure B, below) or underlain fully by reclamation fill (Figure C, below).

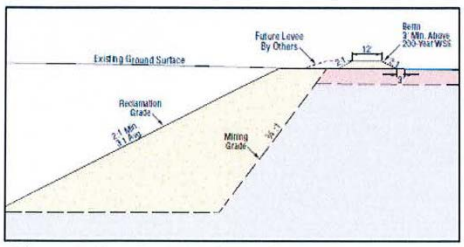


Figure A – Previously Analyzed Condition

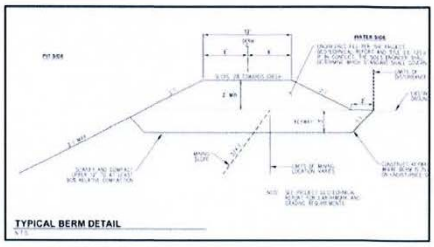


Figure B – New Condition 1

3160 Gold Valley Drive, Suite 800 ■ Rancho Cordova, CA 95742-7515 ■ Telephone 916.852.9118 ■ Fax 916.852.9132

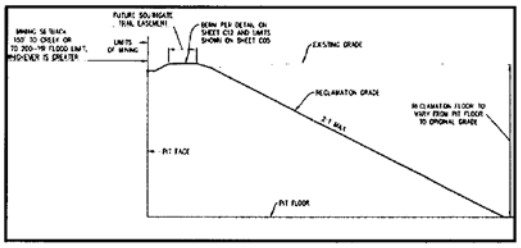


Figure C – New Condition 2

As requested, we have analyzed the new conditions to evaluate whether there is an appreciable reduction/decrease in slope stability resistance and/or adverse seepage.

Seepage Analysis and Results

To model seepage conditions, we used the computer program *SEEP/W, Version 7* (Geo-Slope International). In our analyses, we modeled the "worst case" transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes for both new conditions under low-flow or 200-year flood conditions. This result is consistent with our previous analysis. Our seepage analysis results are presented graphically on Figures 1 through 4.

Slope Stability Analysis and Results

We analyzed stability of the proposed final reclamation slopes using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for the "worst case" 200-year flood conditions. Similar to our previous analysis, Spencer's Method with a circular failure mechanism was used.

The results of our previous and new slope stability analyses are summarized in Table 2. Graphical representations of the potential critical failure surfaces and parameters used for each stability analysis are presented on Figures 1 and 2.

TABLE 2
SLOPE STABILITY ANALYSIS RESULTS

Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Previous Analysis (200-Year Flood Event)	1.7	1.5
New Condition 1 (200-Year Flood Event)	1.7	1.5
New Condition 2 (200-Year Flood Event)	1.7	1.5

Based on the results of our analyses, from a geotechnical viewpoint, the new conditions yield nearly identical seepage and slope stability results. In our opinion, similar to the previously analyzed condition, the new conditions are not expected to result in adverse seepage and/or slope stability conditions.

LIMITATIONS

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

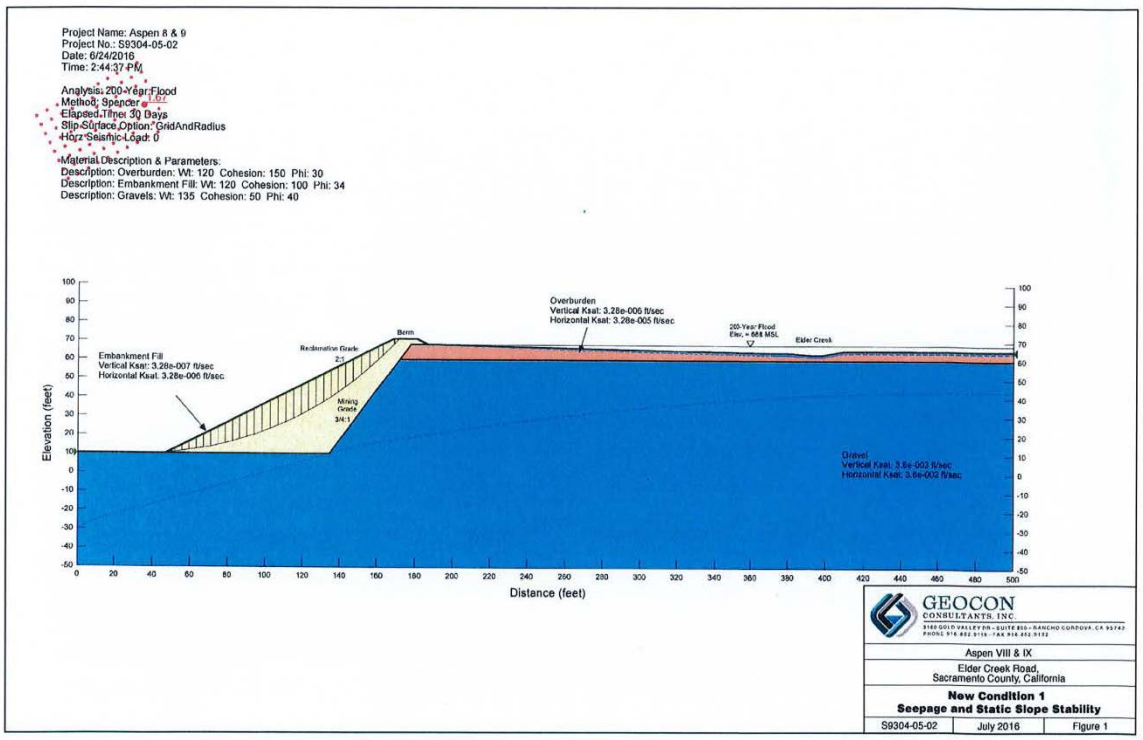
GEOCON CONSULTANTS, INC.

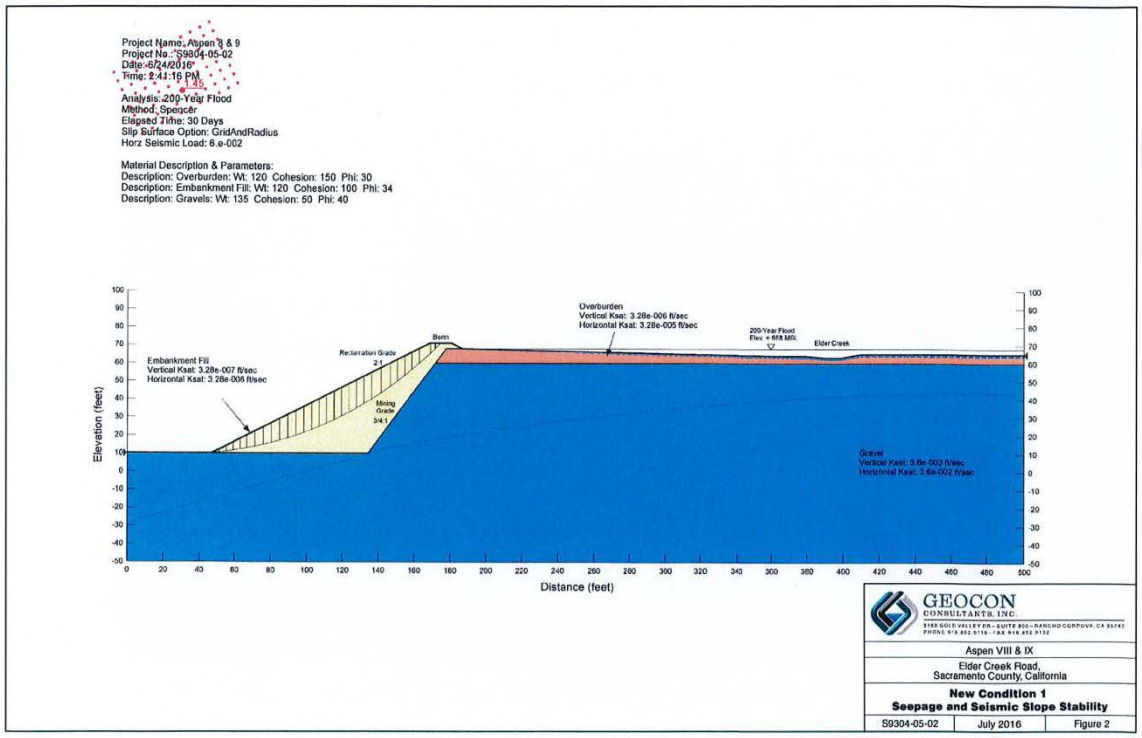
REGISTERED PROFESSIONAL ENGINEER JEREMY J. ZORNE No. 2636 GEOTECHNICAL STATE OF CALIFORNIA

Jeremy J. Zorne, PE, GE
Senior Engineer

William Sanders, EIT
Senior Staff Engineer

Attachments: Figure 1, New Condition 1 – Seepage and Static Slope Stability
Figure 2, New Condition 1 – Seepage and Seismic Slope Stability
Figure 3, New Condition 2 – Seepage and Static Slope Stability
Figure 4, New Condition 2 – Seepage and Seismic Slope Stability


Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 6/24/2016
Time: 2:44:37 PM
Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0
Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40
Overburden
Vertical Ksat: 3.28e-006 ft/sec
Horizontal Ksat: 3.28e-005 ft/sec
Berm
Reclamation Grade
2:1
Embankment Fill
Vertical Ksat: 3.28e-007 ft/sec
Horizontal Ksat: 3.28e-006 ft/sec
Mining Grade
3/4:1
200-Year Flood
Elev. = 68 MSL
Elder Creek
Gravel
Vertical Ksat: 3.8e-002 ft/sec
Horizontal Ksat: 3.8e-002 ft/sec
Elevation (feet)
Distance (feet)
GEOCON
CONSULTANTS, INC.
Aspen VIII & IX
Elder Creek Road,
Sacramento County, California
New Condition 1
Seepage and Static Slope Stability
S9304-05-02
July 2016
Figure 1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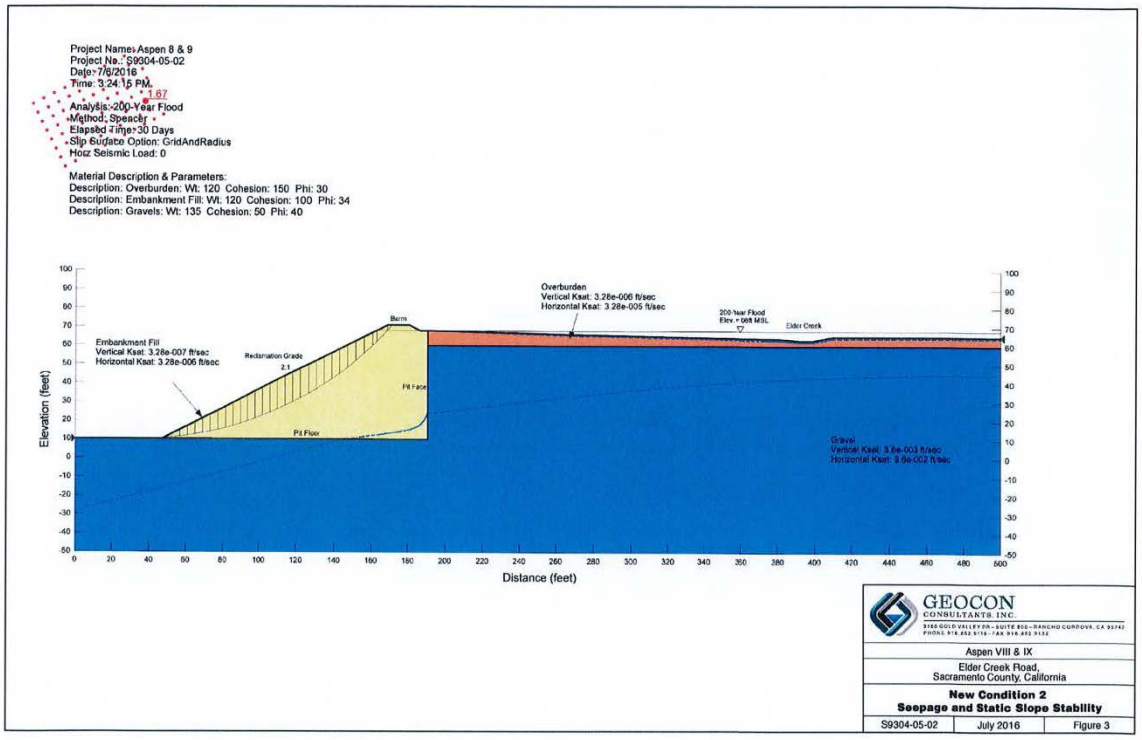
Project No.: S9804-05-02
Date: 6/24/2016
Time: 2:41:16 PM
Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002
Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40
Overburden
Vertical Ksat: 3.28e-006 ft/sec
Horizontal Ksat: 3.28e-005 ft/sec
200-Year Flood
Elev. = 658 MSL
Elder Creek
Berm
Reclamation Grade
2:1
Mining
Grade
3:4:1
Embankment Fill
Vertical Ksat: 3.28e-007 ft/sec
Horizontal Ksat: 3.28e-006 ft/sec
Gravel
Vertical Ksat: 3.8e-003 ft/sec
Horizontal Ksat: 3.8e-002 ft/sec
Elevation (feet)
Distance (feet)
GEOCON
CONSULTANTS, INC.
Aspen VIII & IX
Elder Creek Road,
Sacramento County, California
New Condition 1
Seepage and Seismic Slope Stability
S9304-05-02
July 2016
Figure 2


Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 7/6/2016
Time: 3:24:15 PM
1.67
Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0
Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40
Overburden
Vertical Ksat: 3.28e-006 ft/sec
Horizontal Ksat: 3.28e-005 ft/sec
200-Year Flood
Elev. = 68 MSL
Elder Creek
Berm
Embankment Fill
Vertical Ksat: 3.28e-007 ft/sec
Horizontal Ksat: 3.28e-006 ft/sec
Reclamation Grade
2:1
Pit Face
Pit Floor
Gravel
Vertical Ksat: 3.6e-003 ft/sec
Horizontal Ksat: 3.6e-002 ft/sec
Elevation (feet)
Distance (feet)
GEOCON
CONSULTANTS, INC.
Aspen VIII & IX
Elder Creek Road,
Sacramento County, California
New Condition 2
Seepage and Static Slope Stability
S9304-05-02
July 2016
Figure 3

Attachment E

From: Michael Bumgardner [mailto:michael.bumgardner@att.net]
Sent: Friday, July 01, 2016 9:15 AM
To: Barry Baba <BBaba@teichert.com>
Subject: Nesting Swainson's Hawk Mitigation

Barry,

As you have requested, this email addresses justification for the use of a 0.25-mile threshold from active nests when considering potential impacts to nesting Swainson's hawks. The use of the larger 0.5-mile threshold, in my experience, has been unnecessary. Swainson's hawks rarely react to human activities more than approximately 800 feet from a nest site and when they do, it is under predictable circumstances (i.e., the nest is located in rangeland where there is no nearby human disturbance from farm equipment or other human activities during the nesting season). Individuals nesting in other circumstances are more tolerant of human activities (sometimes within as little as 200 feet). In addition, it should be noted that effective surveys out to 0.5-mile often cannot be conducted since there is no legal access to adjacent lands not under the control of the project applicant. When scanning offsite lands for active nests (i.e., from the project boundary), it is often impossible to assess the status of nests that are more than approximately 0.25-mile away.

Mike

Bumgardner Biological Consulting
11571 Prospect Hill Drive
Gold River, CA 95670

(916) 638-7368 (office)
(916) 812-2540 (cell)
michael.bumgardner@att.net
www.bumgardnerbio.com

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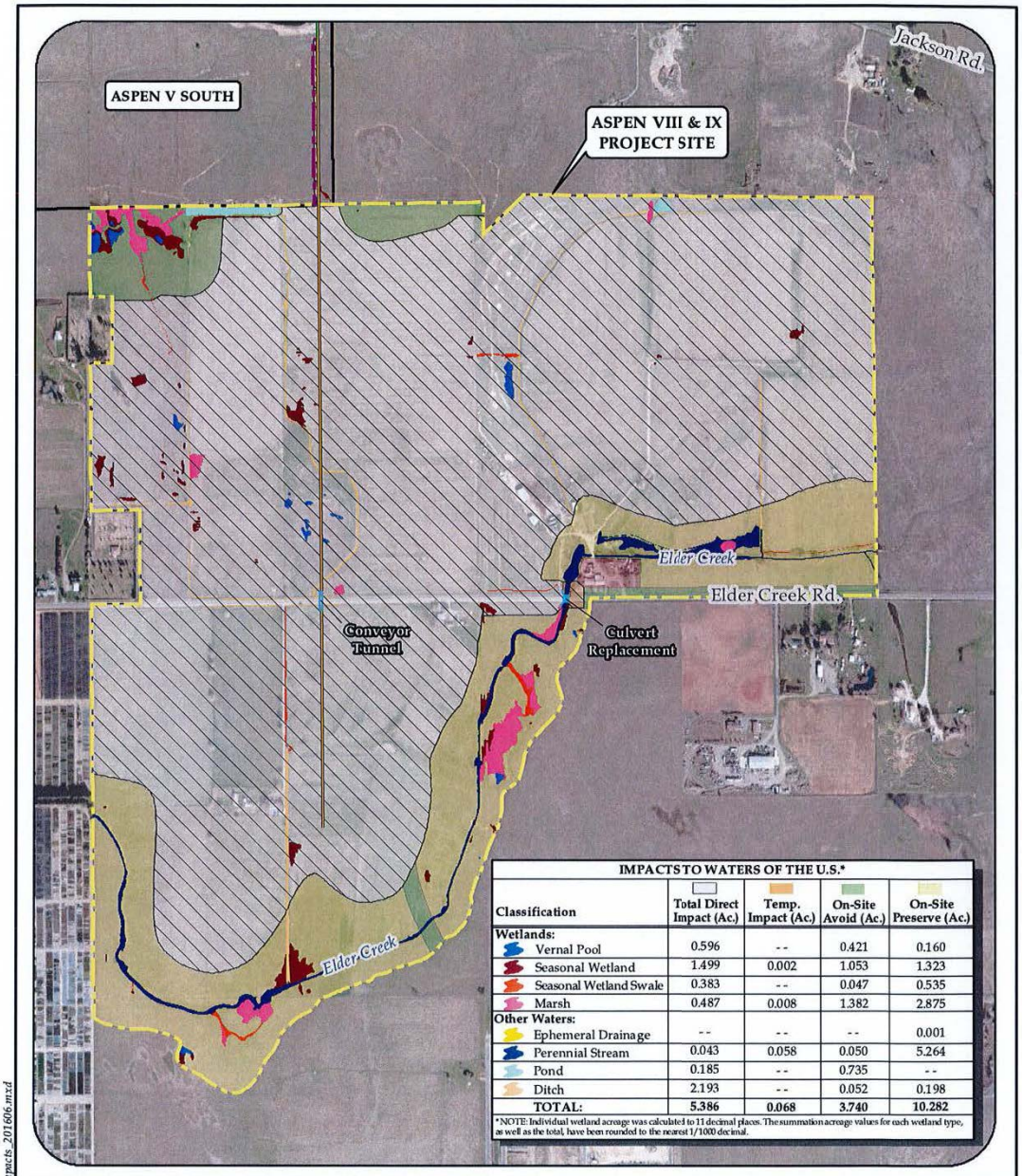
Attachment F



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	Temp. Impact (Ac.)	On-Site Avoid (Ac.)	On-Site Preserve (Ac.)
Wetlands:				
Vernal Pool	0.596	--	0.421	0.160
Seasonal Wetland	1.499	0.002	1.053	1.323
Seasonal Wetland Swale	0.383	--	0.047	0.535
Marsh	0.487	0.008	1.382	2.875
Other Waters:				
Ephemeral Drainage	--	--	--	0.001
Perennial Stream	0.043	0.058	0.050	5.264
Pond	0.185	--	0.735	--
Ditch	2.193	--	0.052	0.198
TOTAL:	**5.386**	**0.068**	**3.740**	**10.282**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

TEICHERT MATERIALS

LEGEND:
- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Limits of Disturbance
- House to Remain
- Project Site
- Off-Site Area

SOURCE:
- Aspen VIII & IX Wetland Delineation (ECORP, April 2014)
- Aspen V South Verified Wetland Delineation (May 2007)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 450 900 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

IMPACTS TO WATERS OF THE U.S.

ASPEN VIII & IX TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/22/2016 A58_A59_Impacts_201606.mxd

Letter 6 Supplemental Letter

TAYLOR & WILEY
A PROFESSIONAL CORPORATION
ATTORNEYS
2870 GATEWAY OAKS DR., SUITE 200
SACRAMENTO, CALIFORNIA 95833
TELEPHONE: (916) 929-5545
TELEFAX: (916) 929-0283

JOHN M. TAYLOR
JAMES B. WILEY
JESSE J. YANG
KATE A. WHEATLEY
MATTHEW S. KEASLING

OF COUNSEL
KATHLEEN R. MAKEL

August 9, 2016,

HAND-DELIVERED
Mark Michelini
County of Sacramento
Department of Community Development
827 7th Street, Room 225
Sacramento, California 95814

Re: Supplemental Comments on the Draft EIR for Teichert's Aspen VIII and IX Mining Use Permit (Control No: PLNP2014-00201/State Clearinghouse # 2015022062)

Dear Mr. Michelini:

On behalf of Teichert Materials ("Teichert"), Taylor & Wiley submits the following comments on the Draft EIR for the Aspen VIII and IX Mining Project ("Project"). The purpose of this letter is to provide supplemental materials that support our July 11, 2016 comments and to provide minor additional observations.

Suggested revisions to the DEIR text are indicated in ***bold italics*** font for text proposed to be inserted and in ~~strike-out~~ font for text proposed for deletion.

Chapter 1. Executive Summary and Mitigation Measures

Table ES-1: Executive Summary of Impacts and Mitigation. Table ES-1lists mitigation measures or determinations of level of significance that do not coincide with the actual language identified in the corresponding topical chapters. The following bullets identify areas in Table ES-1 that should be revised for accuracy:

- Page 1-2. Mitigation measure AG-1 should be revised in Table ES-1 to replicate the language on pages 5-11 and 5-12.
- Pages 1-12 and 1-13. Mitigation measure TT-1 should be revised in Table ES-1 to replicate the language on page 9-17.
- Page 1-13. The level of significance for NOx, after implementation of mitigation measure AQ-1.1, should be revised in Table ES-1 to "S", significant and unavoidable, consistent with the conclusion on page 10-30.
- Page 1-21. The box for the mitigation measure addressing impact HW-1 currently states "None Recommended" but should be revised in Table ES-1 to replicate the language on page 12-16.

Mr. Mark Michelini
August 9, 2016
Page 2

In addition to those portions of Table ES-1 identified above, for any mitigation that is modified in the Final EIR as a result of comments received, please also revise the corresponding section of summary table for consistency.

Chapter 4. Land Use/Population and Housing

Page 4-4, first paragraph, second sentence. This sentence describes the post-reclamation end use of the site as agriculture. Please strike "~~agricultural uses~~" and identify the end use as "***open space grassland***."

Chapter 6. Aesthetics

Page 6-11, Mitigation Measure AE-1(B). This mitigation measure addresses the visual impact of mining on the private residence at 9895 Elder Creek Road. The measure requires the creation of a landscaped berm to screen the view of the mining operation from this residence. The measure also requires consultation with the resident in determining the aesthetic design of this visual screen.

Similarly, to mitigate for noise impacts, Teichert is required to build an eight-foot tall berm or noise-attenuating fence between the mine site and the residence at 9895 Elder Creek Road. In consultation with the neighboring resident regarding the potential for a berm and fence, the resident has indicated her preference that the eight-foot tall noise-attenuating fence remain as separation between the project site and her residence. This solid fence will mitigate for visual impacts, as well as noise impacts. As such, we request that AE-1(B) be revised as follows:

> B. Additional berms and landscaping***, or an 8-foot tall solid fence,*** shall be placed to screen the view of the mining pit for the ***benefit of those properties located west of Aspen VIII, including the*** residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and ***the cemeteries at 9899 Elder Creek Road, on assessor parcel number 063-0180-022***~~west of Aspen VIII~~. This shall consist of a berm and landscaping combination***, or a fence to visually screen,*** to the satisfaction of the Department of Community Development with input from the ***neighboring property owners***~~resident of 9895 Elder Creek Road~~.

Chapter 8. Public Services

Page 8-23 and 8-24, Impact Evaluation PS-5. Please strike all reference to stormwater "~~detention~~" basins and replace with stormwater "***retention***" basins.

Mr. Mark Michelini
August 9, 2016
Page 3

Chapter 12. Hydrology and Water Quality

Page 12-16, Mitigation Measure HW-1. Since the release of the Draft EIR, Sacramento County DWR has finalized its May 2016 baseline model. Consistent with the preliminary review by Sacramento County DWR discussed in the DEIR (p. 12-15), Cunningham Engineering's updated hydraulic analysis finds that water surface elevations increase by more than 0.1 feet at certain downstream locations as a result of the project. More specifically, the increased downstream water surface elevations result from project increasing the capacity of the culverts under Elder Creek Road which will allow the creek to pass and remain within its channel. Despite the hydraulic improvement of new culverts that remove an artificial impediment to Elder Creek's floodwaters, the resultant increase in water surface elevations downstream from the project site in excess of 0.1 feet are a potentially significant impact.

To mitigate this impact to a level deemed less than significant, Teichert proposes to construct a side-weir on Elder Creek to divert the excess flows into the Aspen IX mine pit (Mitigation Measure HW-1, first bullet). A schematic model of the proposed side-weir is attached to the for County review and consideration (Attachment A). The weir is designed to be located along the periphery of the floodplain, as it is revised under the current model, but more than 150-feet from the creek channel. Although we believe that the effects of implementing this mitigation are sufficiently analyzed in the EIR, we request that the County Department of Community Development confirm this assumption in its responses to comments thereby negating the need for additional CEQA analysis prior to implementing the chosen mitigation measure.

Chapter 13. Geology and Soils

Page 13-29, Mitigation Measure GS-1(E). Our prior submittal requested that this mitigation measure be removed since any instability in the finished slope is likely to be detected during annual inspections. However, during the course of subsequent discussions, it has become clear that the County is seeking assurance that the slopes identified in the GeoCon report are actually constructed in the manner identified therein in order to ensure future slope stability and to prevent seepage for the health and safety of surrounding property owners and the community at large.

Attached is a geotechnical memorandum from GeoCon Consultants, Inc. indicating that its previously submitted seepage slope stability analysis pertains only to those reclamation slopes adjacent to Elder Creek (Attachment B). All other reclaimed perimeter slopes are to be constructed of compacted overburden at an inclination of 2H:1V, which GeoCon notes is the industry standard and should be sufficiently stable. As such, we request that Mitigation Measure GS-1(E) be revised as follows:

Mr. Mark Michelini
August 9, 2016
Page 4

> At the beginning of each year (in the month of January) a written ~~maintenance plan that specifies specific actions that ensure slopes are in good repair, stable and safe~~ ***report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed*** shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. ***The report shall indicate whether such slopes were constructed in a manner consistent with the GeoCon Seepage and Stability Evaluation.*** The report shall also include ~~an~~ ***a performance*** evaluation of ~~the~~ ***all slopes built adjacent to Elder Creek to date and*** ~~prior year~~ recommend~~ed actions to ensure that the actions have gone into effect and how the actions~~ ***appropriate measures to*** correct~~ed~~ any deficiencies ***if necessary***. This report shall be prepared by a registered and licensed civil engineer in good standing.

Chapter 14. Biological Resources

Pages 14-44 and 14-45, Impact Evaluation BR-3. In our July 11 comment letter we requested modification the number of acres identified for impacts to waters of the U.S. (Table BR-4). Our request to modify impact acreages is due to the fact that, following submittal of its Section 404 application to the Army Corps of Engineers, Teichert slightly adjusted its "area of impact" to account for modifications to the Knox/Vineyard Road alignment as well as other roadway improvements. The revisions to the "area of impact" and updated impact acreages are discernable by comparing the attached figure entitled "Figure 2: Applicant's Proposed Alternative" to the revised figure entitled "Impacts to Waters of the U.S." which reflects inclusion of the future roadway alignment (Attachment C). Teichert will be submitting this revised impact information to the Corps within the next week. We will provide the County with a copy of our transmittal to the Corps and any related documentation. We seek to have the acreages in Table BR-4 adjusted to properly reflect the true impact to waters of the U.S. so that the County's environmental analysis will be consistent with the revised Corps application.

We hope that this additional information provides sufficient support for our previous comments. Please feel free to call if you have any questions or need further information.

Very truly yours,

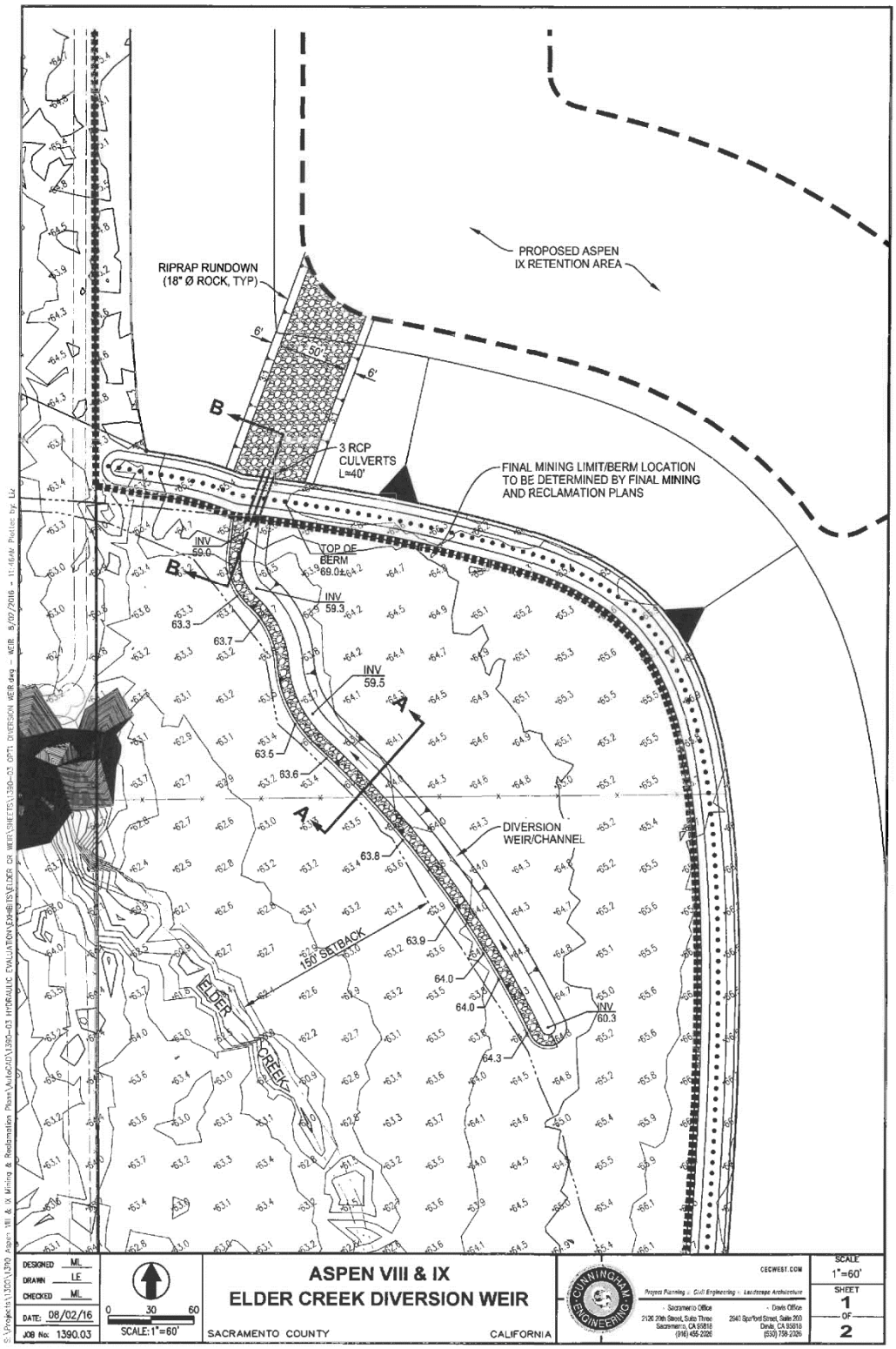
Matthew S. Keasling

Mr. Mark Michelini
August 9, 2016
Page 5

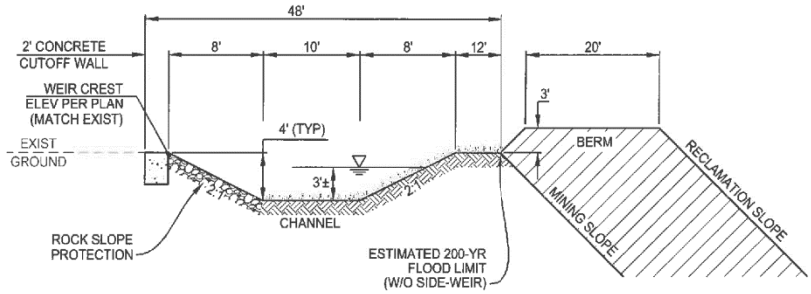
Enclosures

cc: Cathy Hack
John Lane
Michael Smith
John Taylor

ATTACHMENT A

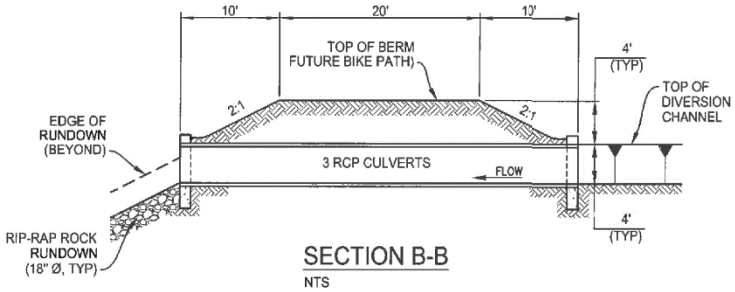


ATTACHMENT C



SECTION A-A (TYP)

NTS



SECTION B-B

NTS

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DESIGNED ML DRAWN LE CHECKED ML DATE: 08/02/16 JOB No: 1390.03	**ASPEN VIII & IX** **ELDER CREEK DIVERSION WEIR** SACRAMENTO COUNTY CALIFORNIA	CUNNINGHAM ENGINEERING CECWEST.COM Project Planning • Civil Engineering • Landscape Architecture • Sacramento Office: 2120 29th Street, Suite Three, Sacramento, CA 95818, (916) 455-2626 • Davis Office: 2940 Spafford Street, Suite 200, Davis, CA 95618, (530) 758-2026	SCALE NTS SHEET 2 OF 2

ATTACHMENT C

ATTACHMENT B

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
July 25, 2016

VIA ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

References:

1. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), December 11, 2014.
2. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), July 7, 2016.

Dear Mr. Lane:

Geocon previously prepared the referenced technical memoranda (Refs. 1 and 2) related to the geotechnical aspects of the planned mining and reclamation slopes for the future Teichert Aspen VIII and IX mining site adjacent to Elder creek in Sacramento County, California.

Our previous analyses and recommendations were associated solely with the slopes related to proposed mining and reclamation adjacent to Elder Creek. We understand that the remainder of the planned reclamation perimeter slopes away from the creek will be constructed using compacted overburden soil from the project at an inclination of 2H:1V (horizontal to vertical) or flatter, which is typical of nearly all of the reclamation slopes for the aggregate mining quarries in the area. Based on the past performance of these slopes, and our experience analyzing stability of similar slopes, these slopes should perform satisfactorily from a global stability perspective without special measures beyond typical periodic maintenance.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

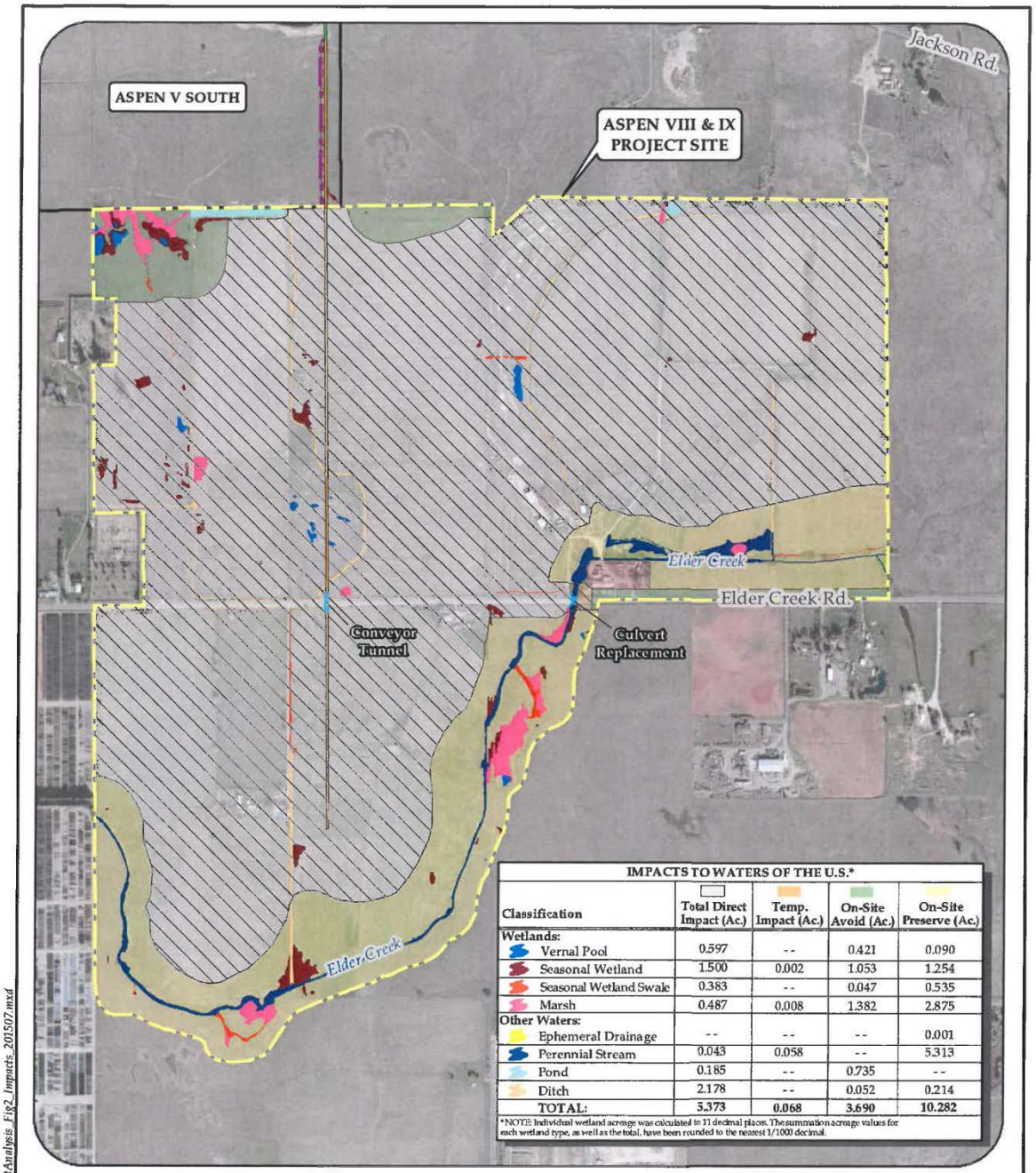
GEOCON CONSULTANTS, INC.

REGISTERED PROFESSIONAL ENGINEER
JEREMY J. ZORNE
No. 2698
GEOTECHNICAL
STATE OF CALIFORNIA

Jeremy J. Zorne, PE, GE
Senior Engineer

3160 Gold Valley Drive, Suite 800 ■ Rancho Cordova, CA 95742-7515 ■ Telephone 916.852.9118 ■ Fax 916.852.9132

ATTACHMENT C



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	Temp. Impact (Ac.)	On-Site Avoid (Ac.)	On-Site Preserve (Ac.)
Wetlands:				
Vernal Pool	0.597	--	0.421	0.090
Seasonal Wetland	1.500	0.002	1.053	1.254
Seasonal Wetland Swale	0.383	--	0.047	0.535
Marsh	0.487	0.008	1.382	2.875
Other Waters:				
Ephemeral Drainage	--	--	--	0.001
Perennial Stream	0.043	0.058	--	5.313
Pond	0.185	--	0.735	--
Ditch	2.178	--	0.052	0.214
TOTAL:	**5.373**	**0.068**	**3.690**	**10.282**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

TEICHERT MATERIALS

LEGEND:
- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Limits of Disturbance
- House to Remain
- Project Site
- Off-Site Area

SOURCE:
- Aspen VIII & IX Wetland Delineation (ECORP, April 2014)
- Aspen V South Verified Wetland Delineation (May 2007)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 450 900 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

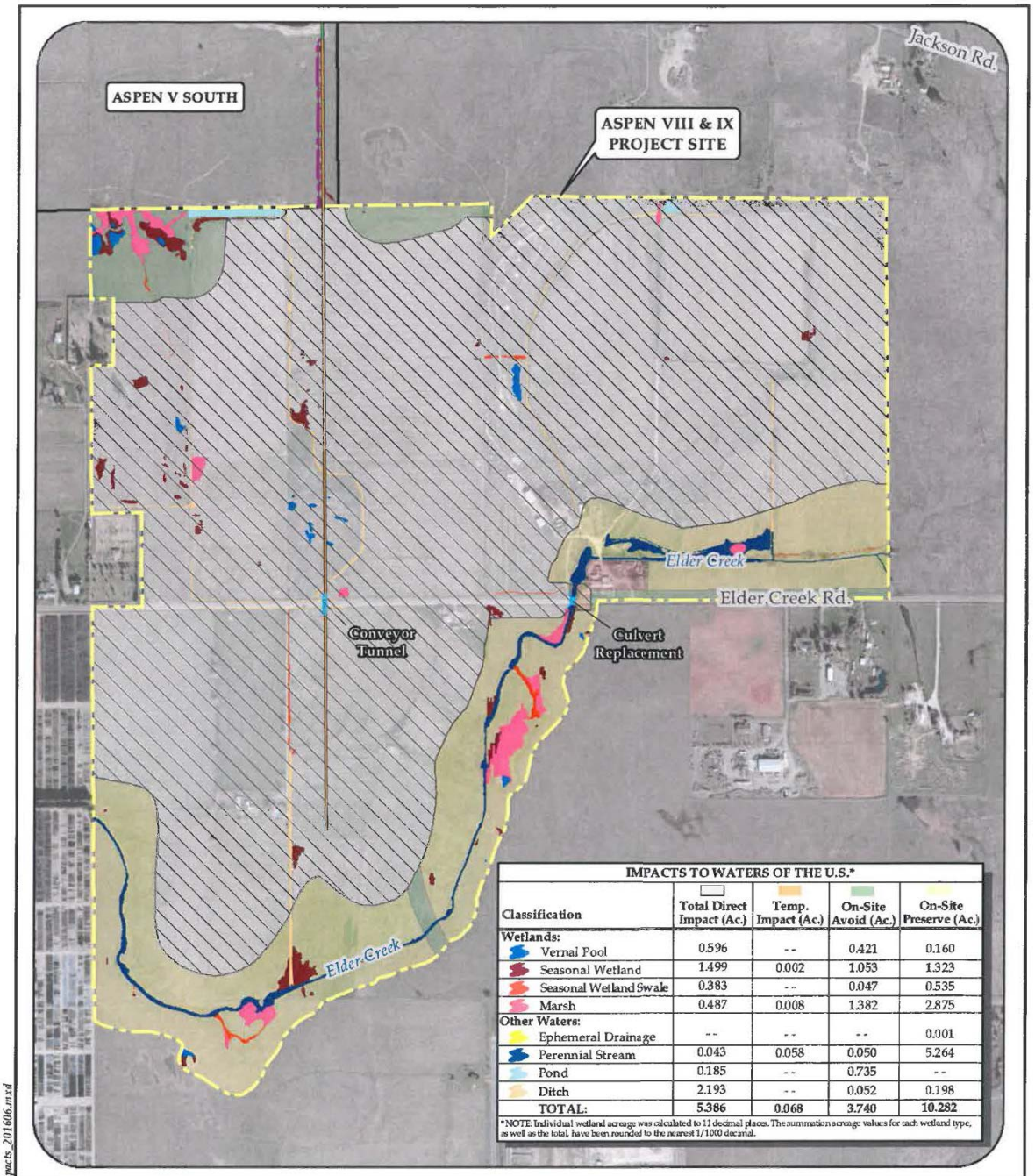
FIGURE 2

APPLICANT'S PROPOSED ALTERNATIVE

ALTERNATIVES ANALYSIS
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 7/29/2015 AS8_AS9_AltAnalysis_Fig2_Impacts_201507.mxd



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	Temp. Impact (Ac.)	On-Site Avoid (Ac.)	On-Site Preserve (Ac.)
Wetlands:				
Vernal Pool	0.596	--	0.421	0.160
Seasonal Wetland	1.499	0.002	1.053	1.323
Seasonal Wetland Swale	0.383	--	0.047	0.535
Marsh	0.487	0.008	1.382	2.875
Other Waters:				
Ephemeral Drainage	--	--	--	0.001
Perennial Stream	0.043	0.058	0.050	5.264
Pond	0.185	--	0.735	--
Ditch	2.193	--	0.052	0.198
TOTAL:	**5.386**	**0.068**	**3.740**	**10.282**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

TEICHERT MATERIALS

LEGEND:
- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Limits of Disturbance
- House to Remain
- Project Site
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0 450 900 Feet

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IMPACTS TO WATERS OF THE U.S.

ASPEN VIII & IX TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/22/2016 A58_A59_Impacts_201606.mxd

SACRAMENTO COUNTY
Department of Community Development
PLANNING AND ENVIRONMENTAL REVIEW DIVISION

827 SEVENTH STREET, ROOM 225 SACRAMENTO, CALIFORNIA 95814
TELEPHONE: (916) 874-6141 FAX: (916) 874-7499
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EIR CHECKLIST

FOR ASPEN VIII AND ASPEN IX

CONTROL NUMBER: PLNP2014-00201

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. The words "significant" and "significance" used throughout the following checklist are related to impacts as defined by the California Environmental Quality Act.

INITIAL STUDY CHECKLIST

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
1. **LAND USE** - Would the project:				
a. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to a general plan, specific plan or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		X		See Land Use Chapter.
b. Physically disrupt or divide an established community?			X	The project will not create physical barriers that substantially limit movement within or through the community because the resulting 10-acre borrow pit occurs in a large farm field and will not create a barrier to any established community.
2. **POPULATION/HOUSING -** Would the project:				
a. Induce substantial unplanned population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of infrastructure)?			X	The project does not propose any new homes or businesses. Furthermore, the project will neither directly nor indirectly induce substantial unplanned population growth.
b. Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?		X		See Land Use Chapter.
3. **AGRICULTURAL RESOURCES** - Would the project:				
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance or areas containing prime soils to uses not conducive to agricultural production?		X		See Agricultural Resources Chapter.
b. Conflict with any existing Williamson Act contract?			X	See Agricultural Resources Chapter

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
c. Introduce incompatible uses in the vicinity of existing agricultural uses?			X	See Agricultural Resources Chapter
4. **AESTHETICS -** Would the project:				
a. Substantially alter existing viewsheds such as scenic highways, corridors or vistas?	X	X		See Aesthetics Chapter.
b. Substantially degrade the existing visual character or quality of the site and its surroundings?			X	See Aesthetics Chapter.
c. Create a new source of substantial light, glare, or shadow that would result in safety hazards or adversely affect day or nighttime views in the area?			X	See Aesthetics Chapter
5. **AIRPORTS -** Would the project:				
a. Result in a safety hazard for people residing or working in the vicinity of an airport/airstrip?			X	See Airports Chapter.
b. Expose people residing or working in the project area to aircraft noise levels in excess of applicable standards?			X	See Airports Chapter.
c. Result in a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft?			X	See Airports Chapter.
d. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	The project does not involve or affect air traffic movement or increase air traffic levels.

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
6. **PUBLIC SERVICES -** Would the project:				
a. Have an adequate water supply for full buildout of the project?			X	The project will not result in increased demand for water supply at build out because the end use of the mine is a return to the same agricultural use that exists today.
b. Have adequate wastewater treatment and disposal facilities for full buildout of the project?			X	The project will not require wastewater services.
c. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	The project does not have solid waste disposal needs.
d. Result in substantial adverse physical impacts associated with the construction of new water supply or wastewater treatment and disposal facilities or expansion of existing facilities?			X	The project will not require construction or expansion of new water supply, wastewater treatment, or wastewater disposal facilities.
e. Result in substantial adverse physical impacts associated with the provision of storm water drainage facilities?			X	Project construction would not require the addition of new stormwater drainage facilities.
f. Result in substantial adverse physical impacts associated with the provision of electric or natural gas service?			X	The project will not require electric or natural gas service.
g. Result in substantial adverse physical impacts associated with the provision of emergency services?			X	The project will not increase demand for emergency services, and would not cause substantial adverse physical impacts as a result of providing adequate service.
h. Result in substantial adverse physical impacts associated with the provision of public school services?			X	The project will not require the use of public school services.
i. Result in substantial adverse physical impacts associated with the provision of park and recreation services?	X			See Public Services Chapter
7. **TRANSPORTATION/TRAFFIC** - Would the project:				

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
a. Result in a substantial increase in vehicle trips that would exceed, either individually or cumulatively, a level of service standard established by the County?			X	.
b. Result in a substantial adverse impact to access and/or circulation?			X	.
c. Result in a substantial adverse impact to public safety on area roadways?			X	.
d. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?			X	The project does not conflict with alternative transportation policies of the Sacramento County General Plan, with the Sacramento Regional Transit Master Plan, or other adopted policies, plans or programs supporting alternative transportation.
8. **AIR QUALITY** - Would the project:				
a. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?		X		
b. Expose sensitive receptors to pollutant concentrations in excess of standards?		X		
c. Create objectionable odors affecting a substantial number of people?			X	The project will not generate objectionable odors.
9. **NOISE -** Would the project:				
a. Result in exposure of persons to, or generation of, noise levels in excess of standards established by the local general plan, noise ordinance or applicable standards of other agencies?			X	.
b. Result in a substantial temporary increase in ambient noise levels in the project vicinity?			X	.

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
10. **HYDROLOGY AND WATER QUALITY** - Would the project:				
a. Substantially deplete groundwater supplies or substantially interfere with groundwater recharge?			X	The proposed project does not anticipate any work in or excavation in groundwater. Furthermore, according to the proposed reclamation plan, groundwater extraction is not proposed. Based on test pits and wells installed on the owner's properties, excavation is not anticipated to intercept the groundwater table. The project will not substantially interfere with ground water recharge in that no impervious materials will interfere with water percolation to the aquifer. The project is simply removing four to eight feet of soil and then returning the project site to an agricultural use.
b. Substantially alter the existing drainage pattern of the project area and/or increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	X			See Hydrology and Water Quality Chapter.
c. Develop within a 100-year floodplain as mapped on a federal Flood Insurance Rate Map or within a local flood hazard area?	X			See Hydrology and Water Quality Chapter.
d. Place structures that would impede or redirect flood flows within a 100-year floodplain?			X	No structures are proposed as a result of this project. The project is within a 100-year floodplain, compliance with the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards will ensure that impacts are less than significant.
e. Expose people or structures to a substantial risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	The project will not expose people or structures to a substantial risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
f. Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems?			X	The project will not utilize a stormwater drainage system as the end use is a self-contained basin used for agriculture.

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
g. Create substantial sources of polluted runoff or otherwise substantially degrade ground or surface water quality?	X			See Hydrology and Water Quality Chapter.
11. **GEOLOGY AND SOILS** - Would the project:				
a. Expose people or structures to substantial risk of loss, injury or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	X			See Geology and Soils Chapter
b. Result in substantial soil erosion, siltation or loss of topsoil?	X			See Geology and Soils Chapter
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, soil expansion, liquefaction or collapse?	X			See Geology and Soils Chapter
d. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available?			X	The project will not use any septic tanks and will not have any wastewater disposal systems.
e. Result in a substantial loss of an important mineral resource?			X	The project is located within an Aggregate Resource Area as identified by the Sacramento County General Plan Land Use Diagram. Additionally, since the proposed project will allow the harvesting of a mineral resource. It does not result in the loss of resources by precluding such extraction with an incompatible land use such as residential development.
f. Directly or indirectly destroy a unique paleontological resource or site?		X		See Geology and Soils Chapter.

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
12. **BIOLOGICAL RESOURCES** - Would the project:				
a. Have a substantial adverse effect on any special status species, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community?			X	.
b. Have a substantial adverse effect on riparian habitat or other sensitive natural communities?			X	There are no riparian habitats or sensitive natural communities located on the project site.
c. Have a substantial adverse effect on streams, wetlands, or other surface waters that are protected by federal, state, or local regulations and policies?			X	Based on a biological site assessment (including field investigation) prepared by Gibson and Skordall LLC and field investigation and review of aerial photos by County Planning and Environmental Review staff, there are no streams or wetlands on the project site.
d. Have a substantial adverse effect on the movement of any native resident or migratory fish or wildlife species?			X	The project site is currently used for agriculture and is actively cultivated. Project implementation would not affect native resident or migratory species.
e. Adversely affect or result in the removal of native or landmark trees?			X	No native and/or landmark trees occur on the project site, nor is it anticipated that any native and/or landmark trees would be affected by off-site hauling as a result of the project.
f. Conflict with any local policies or ordinances protecting biological resources?			X	See Initial Study.
g. Conflict with the provisions of an adopted Habitat Conservation Plan or other approved local, regional, state or federal plan for the conservation of habitat?			X	The proposed project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan because the subject site is not located in any such plan area.
13. **CULTURAL RESOURCES -** Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource?			X	See Cultural Resources Chapter.
b. Have a substantial adverse effect on an archaeological resource?		X		See Cultural Resources Chapter.

	Potentially Significant[i]	Less Than Significant with Mitigation[ii]	Less Than Significant or No Impact[iii]	Comments
c. Disturb any human remains, including those interred outside of formal cemeteries?		X		See Cultural Resources Chapter
14. **HAZARDS AND HAZARDOUS MATERIALS** - Would the project:				
a. Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	X			See Hazards and Hazardous Materials Chapter
b. Expose the public or the environment to a substantial hazard through reasonably foreseeable upset conditions involving the release of hazardous materials?	X			See Hazards and Hazardous Materials Chapter
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?			X	The project site is not located within ¼ mile of an existing /proposed school. Moreover, the project does not involve the use or handling of hazardous material.
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, resulting in a substantial hazard to the public or the environment?			X	The project is not located on a known hazardous materials site.
e. Impair implementation of or physically interfere with an adopted emergency response or emergency evacuation plan?			X	The project would not interfere with any known emergency response or evacuation plan.
15. GREENHOUSE GAS EMISSIONS – Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	Although the project's heavy equipment and truck trips will temporarily emit greenhouse gasses, due to the temporary nature of the project and the fact that there will be no new on-going operational emissions from the project, the greenhouse gas emissions of the project will be less than significant.

SUPPLEMENTAL INFORMATION

LAND USE CONSISTENCY	Current Land Use Designation	Consistent	Not Consistent	Comments
General Plan	General Agricultural 80 and 160	x		Consistent upon issuance of the requested use permit.
Community Plan	N/A			N/A
Land Use Zone	IR, AG-80, AG-80 (F), AG-160, AG-160 (F)	x		Consistent upon issuance of the requested use permit.

[i] **Potentially Significant** indicates there is substantial evidence that an effect MAY be significant. If there are one or more "Potentially Significant" entries an Environmental Impact Report (EIR) is required. Further research of a potentially significant impact may reveal that the impact is actually less than significant or less than significant with mitigation.

[ii] **Less than Significant with Mitigation** applies where an impact could be significant but specific mitigation has been identified that reduces the impact to a less than significant level.

[iii] **Less than Significant or No Impact** indicates that either a project will have an impact but the impact is considered minor or that a project does not impact the particular resource.

FINAL ENVIRONMENTAL IMPACT REPORT
VOLUME 2 OF 2

ASPEN VIII AND IX MINING USE PERMIT

Control Number: PLNP2014-00201
State Clearinghouse Number: 2015022062
Date: August 22, 2016

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
SACRAMENTO, CALIFORNIA 95814

Board Of Supervisors

1st District: Phil Serna

2nd District: Patrick Kennedy

3rd District: Susan Peters

4th District: Roberta MacGlashan

5th District: Don Nottoli

County Executive

Nav Gill

Prepared By

Sacramento County Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento, CA 95814

EVALUATION OF BIRD-AIRCRAFT COLLISION HAZARDS FOR THE ASPEN VIII/IX PROJECT SACRAMENTO COUNTY, CALIFORNIA

December 5, 2014
(Minor corrections July 9 and Sept 22, 2015)

nhc
northwest hydraulic consultants
water resource specialists

EVALUATION OF BIRD-AIRCRAFT COLLISION HAZARDS FOR THE ASPEN VIII/IX PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Prepared by:
Daniel A. Airola
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Prepared for:
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3500 American River Drive
Sacramento, CA 95864
Attn: John Lane
916-484-3237

December 5, 2014
(Minor corrections July 9, 2015)

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EXECUTIVE SUMMARY

This report has been prepared to assess the potential bird-aircraft collision hazards associated with Teichert Aggregates (Teichert) proposal to conduct aggregate removal within the 682-acre Aspen VIII/IX project site along Elder Creek Road in rural Sacramento County. Teichert proposes to remove and store overburden, conduct aggregate mining, and perform site reclamation, including the construction of stormwater retention facilities. The project also will preserve and restore vegetation in the current reconfigured channel of Elder Creek and retain a substantial area of grassland habitat supporting vernal pools and other seasonal wetlands. The main purpose of this report is to assess whether the proposed project would increase the risk of bird collision hazards for aircraft using Mather Airport, compared to existing conditions.

This analysis responds to the Federal Aviation Administration's (FAA's) 2007 guidance regarding land uses that have the potential to attract hazardous wildlife near airports. FAA requires airports that receive Federal grant-in-aid assistance, such as Mather Airport, to utilize these guidelines for projects within their boundaries. It also recommends that land-use planners and project developers use the guidance for privately owned or initiated projects on or near airports.

FAA guidance specifies that in considering proposed land uses "*airport operators, local planners and development must take into account whether the proposed land uses… will increase wildlife hazards*". This evaluation determined whether the net bird-aircraft collision hazard would increase as a result of project actions based on the following factors:

- changes in habitat conditions
- changes in onsite bird populations
- existing and potential offsite habitats and resulting potential for attracting birds to the project sites from offsite lands ("synergistic effects"),
- flight heights of birds species,
- aircraft flight paths in relation to the project site,
- aircraft flight heights above the project site, and
- known information on heights of past bird-aircraft collisions.

Most of the project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains a nearly 2-mile partially channelized segment of Elder Creek, which is now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. Approximately 21 acres of wetlands have been identified onsite, many of which are associated with irrigation,

although most of these areas will be avoided. Tree cover on the Project site is sparse due to historical land clearing.

Under existing conditions, the project site is used by number of species recognized as hazardous by the FAA. Six hazardous species and species groups are expected to occur at greater abundance onsite than on surrounding lands, including the Ring-necked Pheasant, gulls, American Crow, Mourning Dove, Western Meadowlark, and swallows. Ten other hazardous species occur at abundances typical of abundances on surrounding lands). Many of these species are attracted to the irrigated agricultural lands onsite, which presumably support higher populations of invertebrates and small mammal prey than non-irrigated lands.

The proposed mining would significantly modify the current site and its associated habitat conditions. Mining and subsequent site reclamation under the Project would eliminate irrigated agriculture, thereby increasing wetlands from 27.7 acres to 36.6 acres. In addition, the current farmstead buildings and trees would be removed. Existing onsite water impoundments would be eliminated, but several deep and narrow stormwater retention ponds would be constructed to handle all post-project onsite water drainage.

Teichert's proposed mining would reduce the attractiveness of the site to many species of hazardous birds. Under post-project conditions, 84% of the 26 hazard bird species and species groups analyzed are predicted to occur at a moderate or low population level relative to surrounding lands. Occurrence of these species onsite, therefore, would have little or no potential to pose hazards to aircraft. Four species or groups would occur at abundances greater than moderate, relative to surrounding population levels, thereby warranting more site-specific analysis of hazard risk. Only four species are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and nighthawks while seven would remain unchanged and 12 would decline.

The aircraft flight analysis shows that, although a moderate number of the aircraft that depart from Mather airport and a small proportion of arriving aircraft cross the Aspen VIII/IX project site, nearly all flights cross at substantial heights (>1000 feet). Also, four-fifths of previously collisions reported of Mather aircraft have occurred below 200 ft, and only one collision (2% of those for which height was reported) occurred within the typical 1,000-2,500 ft altitudes at which aircraft cross the Aspen VIII/IX site.

The risk of bird-aircraft collisions at the project site under current conditions is low, mainly because aircraft fly almost entirely at higher altitudes (>1000 ft) above the project site than those at which at which most bird species regularly fly. Most of the few bird species that would increase under conditions created by the proposed mining and reclamation typically do not fly at high elevations. In contrast, most of those species that have the greatest potential to fly at higher elevations would decline in abundance

or remain at pre-project abundance. Therefore, the net effect of the proposed Aspen VIII/IX project is to substantially reduce the already-low existing potential for bird-aircraft collisions.

1. INTRODUCTION

Teichert Aggregates (Teichert) has submitted an application to Sacramento County and to the United States Army Corps of Engineers (ACOE) to conduct aggregate mining within the Aspen VIII and Aspen IX (Aspen VIII/IX) project areas (project site) (Cunningham Engineering 2014). Prior to submission of its applications, Teichert was informed by Sacramento County's Department of Environmental Review and Assessment (DERA) that the Sacramento County Airport System raised issues regarding potential for the projects to increase wildlife hazards to aircraft. Teichert contracted with Northwest Hydraulic Consultants (NHC) to provide a summary of project-related issues and analysis of potential effects.

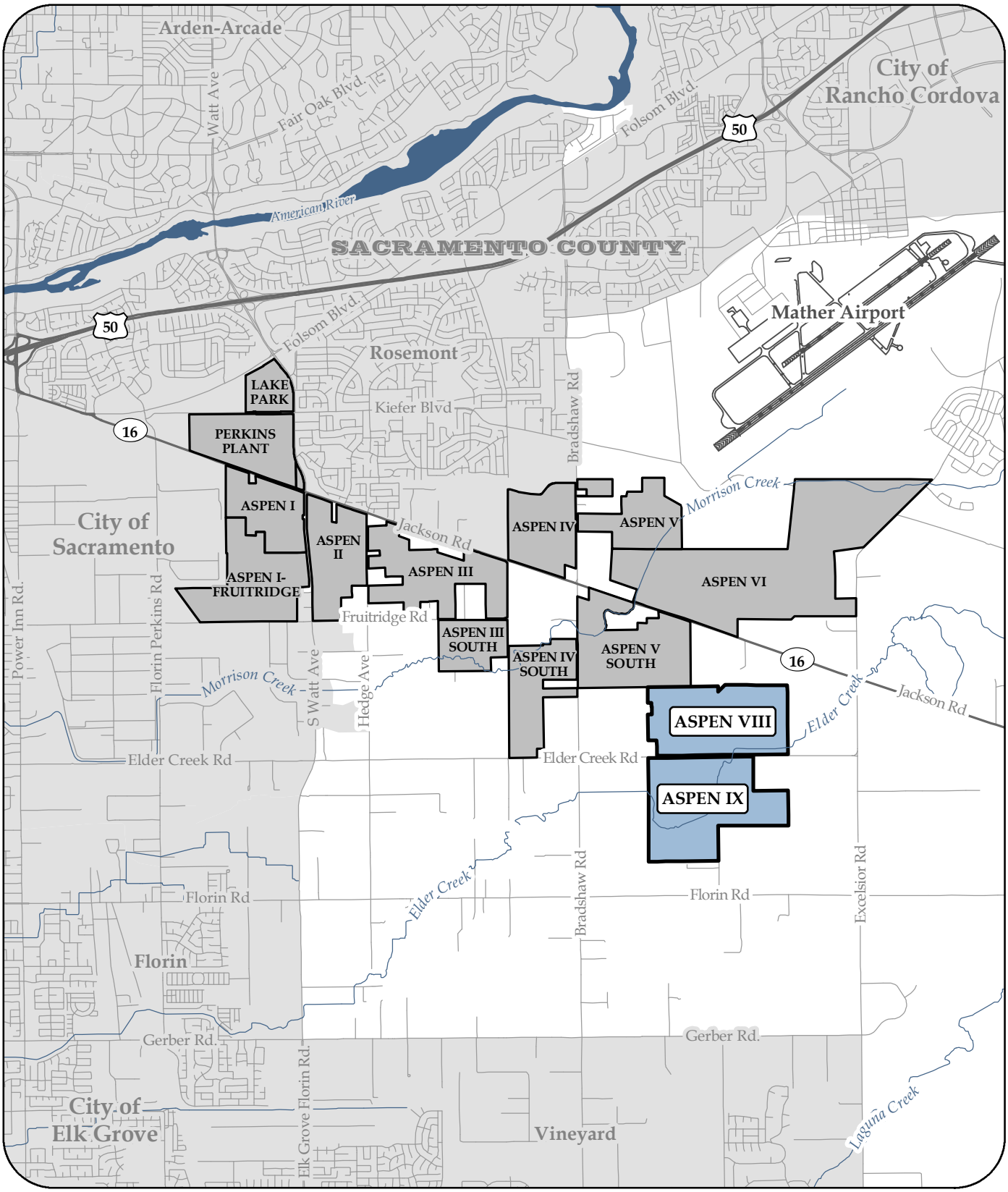
A wildlife hazard analysis was originally conducted by Daniel Airola of Airola Environmental Consulting in 2008, when Teichert contemplated submission of a mining application. The subsequent economic downturn altered Teichert's forecast of demand for materials, and the application was not pursued. As a result, the 2008 hazard analysis therefore was never submitted as a part of any review process. Teichert now wants to proceed with the application, and so contracted with Northwest Hydraulic Consultants, Mr. Airola's current employer, and LSA Associates to update the previous hazard analysis to incorporate recent relevant information on changes to the proposed project and updated biological information.

This report summarizes applicable regulatory guidance, and evaluates existing and post-project habitat conditions and potential for wildlife hazards to aircraft as a result of the Aspen VIII/IX project.

2. PROJECT DESCRIPTION

Teichert proposes to mine Aspen VIII/IX to remove aggregate from two properties located in rural Sacramento County (Figure 1). Aspen VIII is a 319-acre site located north of Elder Creek Road. Aspen IX is a 363-acre site located immediately south of Elder Creek Road and abutted to the Aspen VIII property. A total of approximately 15 million tons (10 million cubic yards) of material would be removed from the two sites at a rate of about 2-3 million tons per year, depending on market conditions.

The project site is located at a distance of 1.8 to 3.1 miles from the Mather Airport Area of Operations (AOA). Only 27 acres (3.7% of the total project area) is within the FAA's (2007) designated 10,000-ft separation area for wildlife hazards (See **FAA's Regulatory Guidance** below), and all remaining lands are within 5 miles of the AOA.



TEICHERT MATERIALS

Legend:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

Disclaimer:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Figure 1.

Site Vicinity Map for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

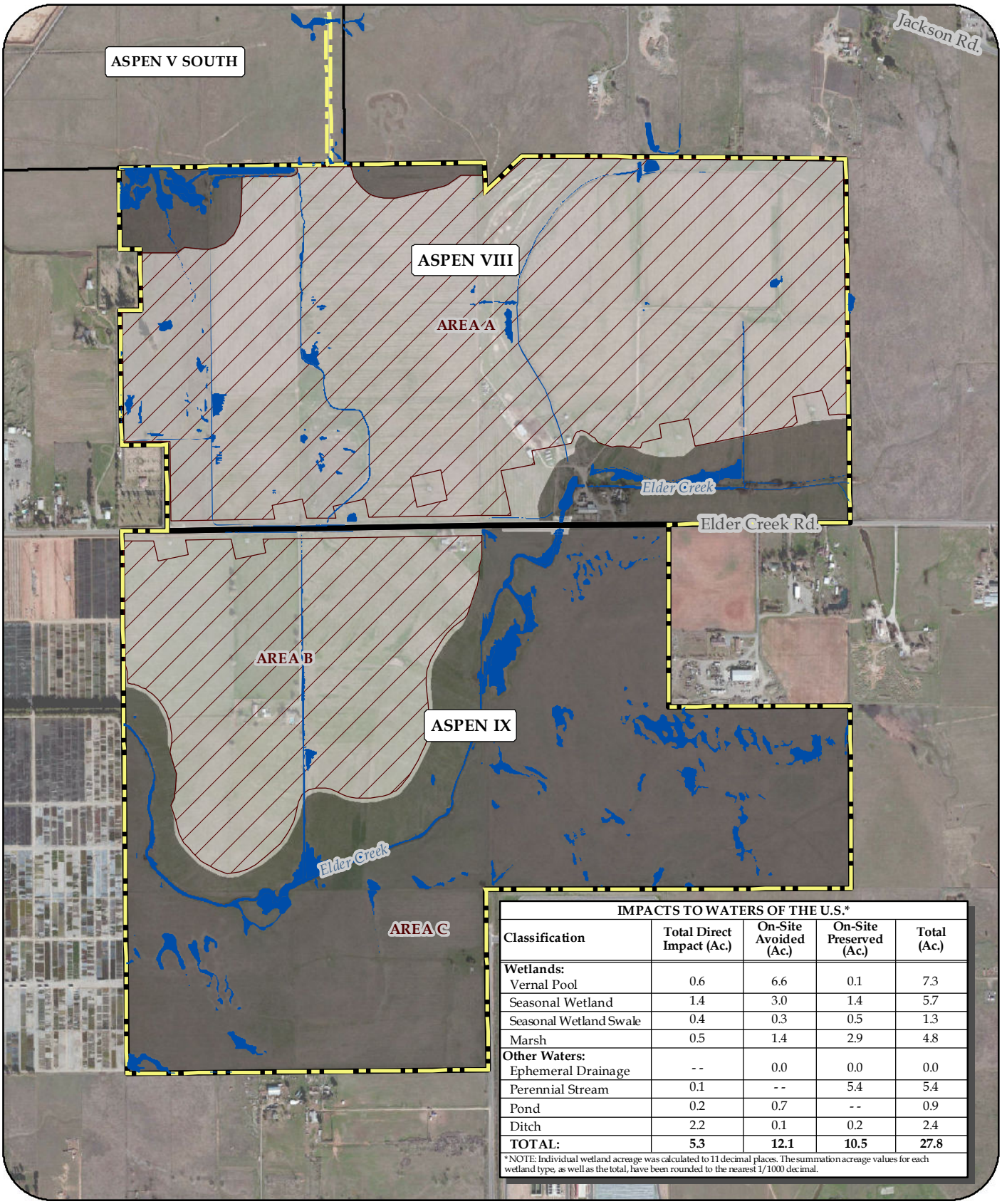
C. Cornejo 10/15/2014 AS8_AS9_BASH_Fig1_201410.mxd

Most of the Project site is now actively farmed as irrigated pasture used for hay production and livestock grazing. Irrigation is accomplished through groundwater and surface water pumping and a series of surface water impoundments, pumps, canals, ditches, and site grading. In addition, the site contains nearly 2-mile, partially channelized segment of Elder Creek, which is now supports perennial flow as a result of runoff from adjacent development and agricultural irrigation. A total of 20.9 acres of wetlands have been identified onsite, many of which were created for or by onsite irrigation. Tree cover on the project site is sparse due to historical land clearing.

Teichert proposes to mine 357 acres of the 683-acre project site, while maintaining 166 acres of grassland-vernal wetland habitat (including a 93-acre preserve area) and the Elder Creek floodway (Figure 2). Mining on the remainder of the property will decrease the final site elevation by approximately 30-50 feet from its current state. Mining would occur in phases to allow for concurrent mining and site reclamation. At completion of mining for a given area, reclamation would start with the creation of gradual side slopes and contouring of the pit bottom using overburden. Stored topsoil would be re-deposited on reclaimed lands, and the site would be graded and tilled for efficient natural drainage. At the completion of mining and reclamation, the site is would be returned to non-irrigated annual grassland for livestock grazing use.

The preservation component of project mitigation for loss of existing jurisdictional wetlands and other habitats would occur within the onsite preserve areas along Elder Creek and possibly in other unmined lands onsite, while other mitigation to achieve the creation requirement for lost wetland acreage would occur offsite at approved mitigation banks.

Following mining, the project site would be depressed below grade as a result of excavation. Therefore, stormwater from precipitation falling within mined areas of the site would no longer flow offsite. As such, three permanent stormwater retention ponds are a required design element of the proposed project (Figure 3). The site would be graded to direct all surface water flows into the retention ponds. These ponds would be constructed as deep, linear ponds with relatively small surface areas, steep banks, and therefore high storage per acre of pond to discourage birds use.



IMPACTS TO WATERS OF THE U.S.*

Classification	Total Direct Impact (Ac.)	On-Site Avoided (Ac.)	On-Site Preserved (Ac.)	Total (Ac.)
Wetlands:				
Vernal Pool	0.6	6.6	0.1	7.3
Seasonal Wetland	1.4	3.0	1.4	5.7
Seasonal Wetland Swale	0.4	0.3	0.5	1.3
Marsh	0.5	1.4	2.9	4.8
Other Waters:				
Ephemeral Drainage	- -	0.0	0.0	0.0
Perennial Stream	0.1	- -	5.4	5.4
Pond	0.2	0.7	- -	0.9
Ditch	2.2	0.1	0.2	2.4
TOTAL:	**5.3**	**12.1**	**10.5**	**27.8**

*NOTE: Individual wetland acreage was calculated to 11 decimal places. The summation acreage values for each wetland type, as well as the total, have been rounded to the nearest 1/1000 decimal.

TEICHERT MATERIALS

LEGEND:
- Limits of Disturbance
- Avoided Lands
- Wetlands
- Proposed Mining Boundary
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:
- Aspen VIII & IX Wetland Delineation (ECORP, April 2014)
- Aspen V South Verified Wetland Delineation (May 2007)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

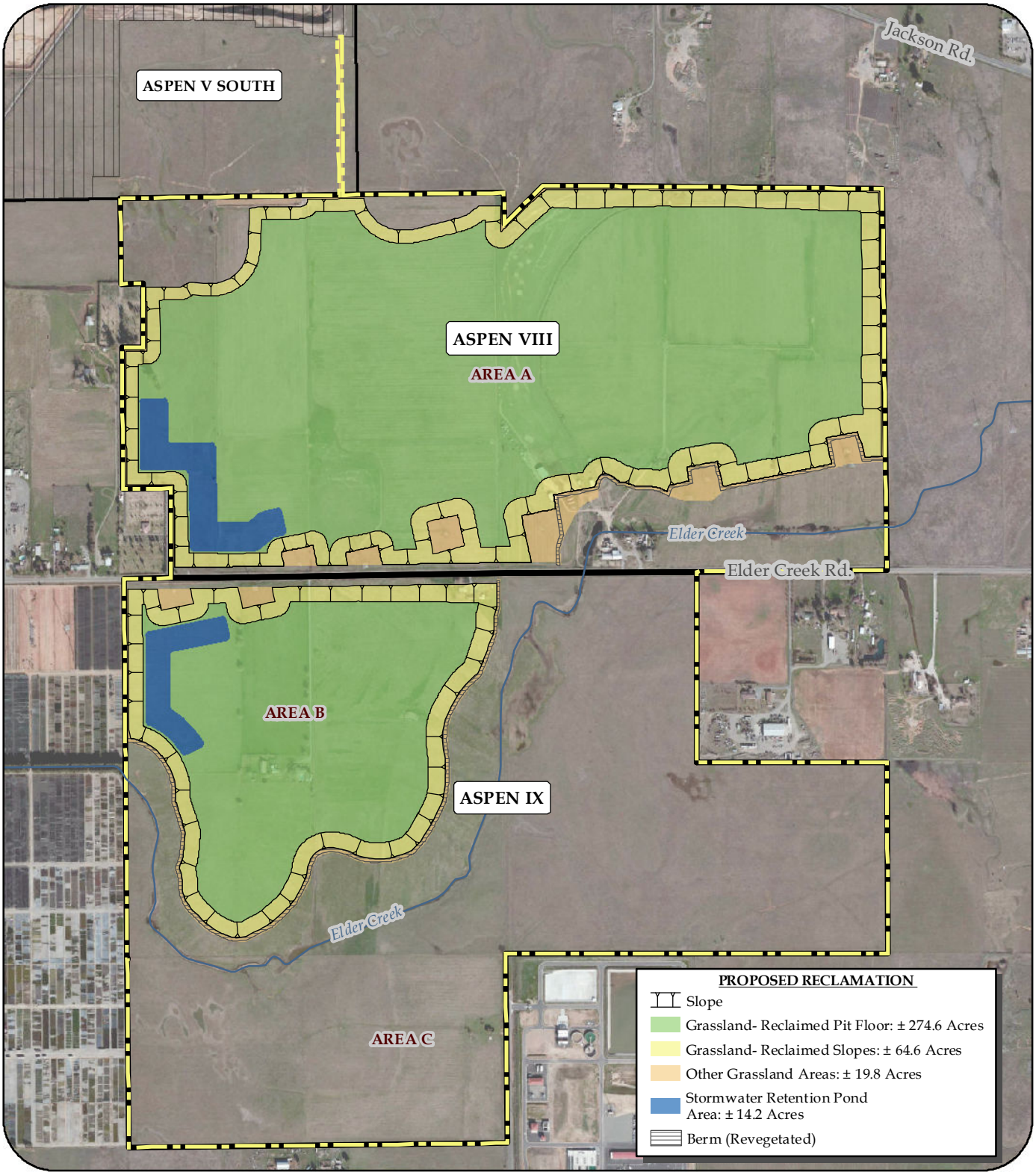
Figure 2.

Mining Areas and Wetland Impacts for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig2_201412.mxd



TEICHERT MATERIALS

LEGEND:

- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Figure 3.

Proposed Reclamation Plan for the Aspen VIII/IX Project

Teichert Materials

Sacramento County, California

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig3_201412.mxd

3. FAA REGULATORY GUIDANCE

This analysis evaluates bird collision hazards with aircraft from Mather Airport consistent with guidance in FAA's (2007) most recent Advisory Circular 150/5200-33B. The FAA prepared the AC to "*provide guidance on certain land uses that have potential to attract hazardous wildlife on or near airports*". The circular was issued soon after Teichert submitted its application to the County in August 2007. This section briefly summarizes several key elements of the guidance that apply to the evaluation of project hazards for Teichert's Aspen VIII/IX project. A more detailed summary of the relevant guidance is provided in Appendix A.

The AC provides guidance for on-airport and adjacent land uses that have potential to attract hazardous wildlife. FAA requires that airports that have received Federal grant-in-aid assistance must use these guidelines for properties under their jurisdiction. It also recommends that land-use planners and project developers use the guidance for projects on or near airports.

A key element of the guidance is, "*When considering proposed land uses airport operators, local planners and development must take into account whether the proposed land uses, including new development projects, will* ***increase*** *wildlife hazards* (emphasis added).

The latest AC reaffirms previous AC guidance that airport operations areas (AOAs) and land use practices that attract hazardous wildlife should be separated by 10,000 ft. The 2007 guidance, however, also added a new recommendation of a 5-mile separation between the AOA and hazardous wildlife attractants, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

The AC recommends that off-airport storm water management systems within the 10,000-ft or 5-mile approach and departure separation areas be designed and operated so as to be capable of being drained within 48-hours after the "design storm", which is undefined. It recommends use of steep-sided riprap lined, narrow ponds, and elimination of vegetation that provides food or cover for hazardous wildlife. It does not specifically recommend use of physical barriers for offsite ponds.

Finally, the AC identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

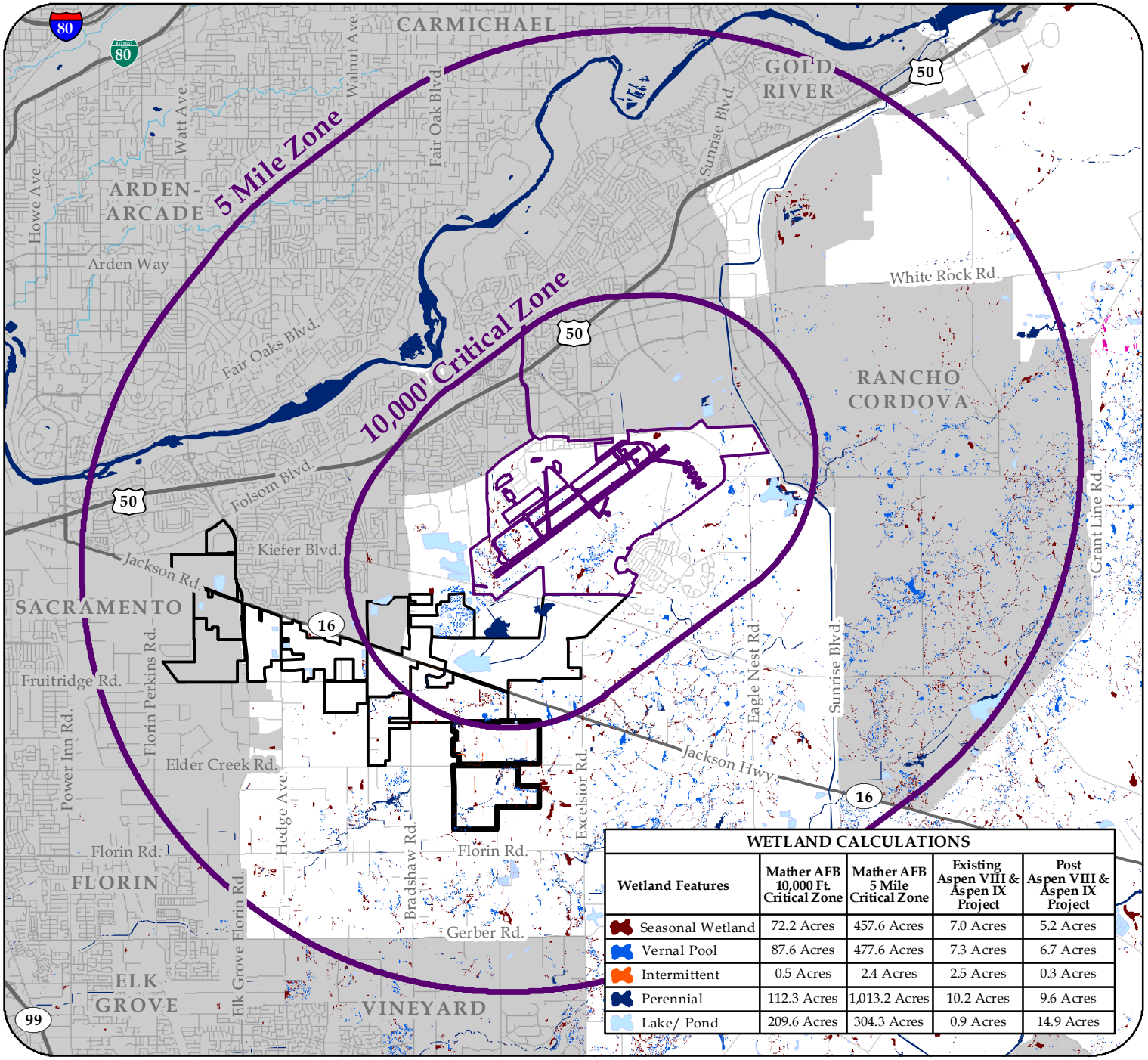
4. EVALUATION METHODS

The purpose of this study is to assess whether the proposed project would significantly increase the potential for bird collisions with aircraft using Mather Airport compared to that which occurs under existing conditions of the project site. In evaluating current and future collision risks, this report evaluates regional habitat conditions, existing and post-project land use conditions, and uses of these habitats by potentially hazardous bird species. It then evaluates the frequency of aircraft flights over the project site, heights of previous bird-aircraft collisions associated with Mather Airport, and typical flight heights of hazardous species. This information is then combined to determine the overall bird-aircraft collision hazard that currently occurs at the project site and that would occur under the proposed project. These pre- and post-project evaluations are then compared to determine if the project would result in a net change in bird aircraft collision hazard.

4.1 EXISTING CONDITIONS

4.1.1 Regional Habitat Conditions

Regional habitat conditions were evaluated qualitatively using aerial images in Google Earth (www.earth.google.com). Teichert's GIS staff also quantified regional abundance of various wetland habitats within the 10,000 ft and 5-mile separation zones around Mather Airport using data from the South Sacramento County HCP (Sacramento County 2007; see Figure 4). This information provided a regional context for comparison with Aspen VIII/IX conditions and for evaluation of potential synergistic effects.



WETLAND CALCULATIONS

Wetland Features	Mather AFB 10,000 Ft. Critical Zone	Mather AFB 5 Mile Critical Zone	Existing Aspen VIII & Aspen IX Project	Post Aspen VIII & Aspen IX Project
Seasonal Wetland	72.2 Acres	457.6 Acres	7.0 Acres	5.2 Acres
Vernal Pool	87.6 Acres	477.6 Acres	7.3 Acres	6.7 Acres
Intermittent	0.5 Acres	2.4 Acres	2.5 Acres	0.3 Acres
Perennial	112.3 Acres	1,013.2 Acres	10.2 Acres	9.6 Acres
Lake/ Pond	209.6 Acres	304.3 Acres	0.9 Acres	14.9 Acres

Figure 4.

Wetland Habitats within Mather Airport Flight Separation Zones and the Aspen VIII/IX Project Area

Teichert Materials

Sacramento County, California

Legend:

- Mather Air Force Base
- 10,000 ft. & 5 mile Critical Zone
- Teichert Aggregates Aspen VIII/ IX Project Boundaries
- Teichert Aggregates Other Aspen Property Boundaries
- City/ Community Boundaries

WETLAND FEATURES

- Seasonal Wetland
- Vernal Pool
- Intermittent
- Perennial
- Lake/ Pond

NOTE:

Wetland data compiled from a combination of the SSHCP, National Wetland Inventory, GDT and Wetland Surveys & Delineations.

0 0.85 1.7 Miles

DISCLAIMER:

The wetland calculations were derived for planning purposes only. No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 12/5/2014 AS8_AS9_BASH_Fig4_201412.mxd

4.1.2 Existing Onsite Habitat Conditions and Potential Bird Use

Onsite habitat conditions and bird use were evaluated at a general level based on several sources. Wetland habitat acres were a focus of the assessment because of their potential to attract water birds that are considered hazardous to aircraft. Wetlands were characterized from the assembled regional wetland database, to ensure consistency for comparison with regional characteristics. Results from regional mapping were cross-checked with a project-specific wetland delineation (ECORP Consulting 2014).

Bird use of existing project lands was characterized at a general level for species and species groups identified as hazardous by FAA (2003). Relative levels of bird population sizes and use (i.e., high, high-moderate, moderate, moderate-low, low-none, none, relative to other regional habitats) were determined based on:

- habitat conditions observed onsite;
- biological surveys of the project site (Burleson 2014) and reconnaissance surveys conducted by Daniel Airola
- other related studies of bird use and bird-aircraft collision risk conducted in the area of Mather Airport (Airola 2007a,b; Airola and Gibson & Skordal 2009, LSA Associates 2008)
- review of the California Natural Diversity Database and California Wildlife Habitat Relationships System (California Department of Fish and Game 2007), and
- Daniel Airola's personal knowledge of local bird species distribution, abundance, habitat relationships and behaviors, based on 30 years conducting biological work and birding in the Sacramento Region, and information from other references (Beedy and Pandolfino 2013 and ebird.org). See Mr. Airola's relevant qualifications in Section 8.
- Eric Lichtwardt's personal knowledge from conducting wildlife hazard assessments at many California airports. See Mr. Lichtwardt's relevant qualifications in Section 8.

4.1.3 Synergistic Effects from Adjacent Lands

Synergistic effects are defined as those created as a result of project conditions, in combination with other offsite conditions (FAA 2007). Effects of existing onsite conditions were evaluated to determine if they could encourage bird flights to and from the site and therefore result in enhanced bird hazards to aircraft. Potential synergistic effects include the presence of nesting or roosting habitat that would attract birds that forage on offsite lands or the presence of foraging habitat onsite that would attract birds that roost or nest offsite.

4.2 POST-PROJECT HABITAT CONDITIONS AND BIRD USE

4.2.1 Onsite Habitats and Bird Use

Existing project lands uses and habitat conditions were evaluated during onsite surveys conducted by the senior author during 2007 and 2014 and from biological and wetlands survey documents prepared for the project Burleson 2014. Post-project habitat conditions were assessed based on information in the mining and reclamation plans and revegetation plan included the project applications (Burleson Consultants 2014, Cunningham Engineering 2014) and information provided by Teichert (J. Lane, pers. comm.). Relative population levels of bird species and species groups identified as most hazardous to aircraft were evaluated based on surveys of other mining sites with habitats similar to those at the proposed project (Airola 2006a,b), extensive field experience in the project region of the senior author, and general references on avian distribution and habitat relationships in the region (Beedy and Pandolfino 2013, ebird.org)

4.2.2 Synergistic Effects from Adjacent Lands

To assess potential post-project synergistic effects, foraging or roosting conditions onsite were evaluated to determine if they would be expected to increase the number of bird flights to and from the site that may cross the flight path closer to the runway, which could result in enhanced bird hazards to aircraft.

4.3 AIRCRAFT FLIGHT CHARACTERISTICS OVER THE PROJECT SITE

Sacramento County Department of Airports (SCDA) keeps extensive records of aircraft flight paths and elevations because of high public concern about aircraft noise and public safety. SCAS originally provided a record of aircraft departure and arrival frequencies, locations, and heights over the project site and other areas during August 2007 (Appendix B), as a representative sample of the pattern of flights using Mather Airport. NHC contacted SCDA to determine whether there was a need to update information on flight paths. SCDA's Noise and Sustainability Programs Coordinator stated, “since the recession the numbers are down but the location of arriving and departing flight tracks are essentially the same. Using 2007 numbers would be appropriate for planning purposes as, at some point, we assume operations will return to pre-recession levels" (B. Taylor, pers. comm.)

4.4 BIRD-AIRCRAFT COLLISION RECORDS

Bird airstrikes are an ongoing phenomenon at Mather AFB. As a result, the County has reported systematic information on individual bird airstrikes at Mather for many years to the FFA's bird airstrike database (http://wildlife.faa.gov/database.aspx). We used data on bird-aircraft collisions collected at Mather Airport during July 2004 to

June 2014 to characterize bird-aircraft collisions. These data were used to identify species and groups that had previously posed hazards to local aircraft and the heights at which incidents occurred. The data were evaluated to determine the frequencies of recorded strikes by various species groups and the proportion of strikes that occurred at various heights. The limited nature of this data (number of records, incompleteness of information on species identities, heights, etc.) precluded quantitative use, but they nonetheless provided information useful in subjectively evaluating hazards.

4.5 ANALYSIS OF BIRD-AIRCRAFT COLLISION HAZARDS

Evaluations of changes in potential risks of bird-aircraft collisions were conducted for hazardous species based on existing and post project habitat conditions and resulting bird populations, in combination with information on aircraft flight heights and past information on bird-aircraft collisions in the area. The evaluations included assessment of the potential for collisions by birds with aircraft above the project site and elsewhere as a result of synergistic effects.

4.5.1 Existing Conditions and Post-project Hazard Evaluation

Existing bird hazard conditions were characterized based on the relative abundance of species at the project site. Relative abundance was scaled (from high to low) relative to the highest abundance of each species' in local habitats and geographic areas. Species relative abundances then became the basis for identifying changes in abundances of hazardous bird species under the proposed project.

For the post-project evaluation, collision potential was examined for species whose relative abundance of post-project populations either increased or occurred at relative abundance levels of moderate and above. These species were examined in greater detail based on general knowledge of the species' flight heights, to determine which may pose collision potential at the altitudes at which aircraft cross the project site.

4.5.2 Net Project Effects

To assess the net effects of the project, relative abundances of potential hazardous bird species were compared under the pre- and post-project conditions and identified those for which population levels were likely to increase. These species were then evaluated for their potential to pose a collision hazard to aircraft flying at known heights above the project site, to determine if the project would pose any net increase in aircraft collision hazard.

5. RESULTS OF BIRD-AIRCRAFT COLLISION HAZARD EVALUATION

Evaluation of wildlife hazards of off-airport projects to aircraft are affected by site habitat conditions, bird populations, and bird and aircraft flight characteristics above the site. This section presents in initial evaluation of the bird airstrike potential hazard posed by the Aspen VIII/IX project. Consistent with FAA guidance, the analysis assesses "*whether the proposed land uses …will increase wildlife hazards*" and whether they will "*attract or sustain hazardous wildlife populations… near airports"* (FAA 2008, Section 1, as summarized above).

The Aspen VIII/IX project is located 1.8-3.1 miles from Mather Airport. Therefore, birds are the only onsite wildlife species that have potential to pose hazards to aircraft.

5.1 EXISTING HABITAT CONDITIONS AND BIRD POPULATIONS

Existing regional and onsite habitat conditions and bird use are relevant to the hazard evaluation and are discussed below.

5.1.1 Existing Regional Habitat Conditions

Regional conditions and history provide a context for assessing the specific hazards that may be posed for an individual project, such as Aspen VIII/IX. Dominant uses of lands surrounding Mather Airport are residential and commercial development, industrial and aviation development, mining, and agriculture (including livestock grazing), and preserved open space. Lands surrounding the Aspen VIII/IX property are used for commercial nursery operations, agriculture, aggregate mining, and rural residential use, and the County's water treatment facility. Wetlands are a relatively common feature within the separation areas, with over 480 wetland acres present within 10,000 ft and 2,253 acres within 5 miles of the airport (Figure 4).

5.1.2 Existing Onsite Habitat Conditions

Under existing conditions, the Aspen VIII/IX project area supports 27.7 acres of wetlands and waters of the U.S. (as defined under the federal Clean Water Act). The wetlands and other waters include (in decreasing order of abundance) vernal pools, seasonal wetlands, perennial stream, marsh, ditches, seasonal wetland swale, ponds, and ephemeral ditches (Figure 2) All of these areas are capable of supporting open water during wet periods. Many of these wetland features have been created or supported by irrigation uses of the sites (i.e., creek impoundments, tailwater ponds, irrigated low spots). Most other land consists of irrigated pasture used for hay production and livestock grazing and grazed annual grassland. Irrigated areas are

managed intensively through periodic cultivation, irrigation, hay harvest, and livestock use. Smaller areas are occupied by several ranch residences, and other active and abandoned farmsteads.

A total of 163 trees are present in the project area (Foothill Associates 2007b), representing a low overall density of 1 tree per 4 acres. Trees are concentrated within a few areas, including current and former farmsteads and to a lesser extents at ponds and along ditches. Most trees (61%) are non-native exotics. Seventy-three trees are larger than 20 inches in diameter at breast height (dbh) and 14 of these are larger than 40 inches dbh.

Existing Bird Use. Estimated levels of use of the existing project site by potentially hazardous bird species is presented in Table 1, along with the rationale for these determinations. A number of hazardous species and species groups are expected to occur at greater than moderate abundance at the project site, relative to their abundance on regional lands, including gulls, American Crow, Mourning Dove, Western Meadowlark (in winter), and swallows. Many of the species onsite are more abundant than on surrounding lands due to their preference for irrigated pasture (e.g, Zeiner 1988, Swolgaard et al. 2008, Beedy and Pandolfino 2013, Airola, personal knowledge), which presumably has higher productivity for insect and small mammal prey than non-irrigated lands. An additional eight species were rated as occurring at moderate abundance (i.e., typical of abundances on surrounding lands). Ten potentially hazardous either are unlikely to occur at all or would occur at low or low-moderate abundance (Table 1)

Synergistic Effects. The only current project feature that may be contributing to synergistic uses of the site (i.e., bird attraction from elsewhere) is irrigation and management of pasture lands. Current irrigation increases production and duration of availability of low green vegetation that likely attracts use by Canada geese. Irrigation and growth of hay also increases production of earthworms, insects, and other invertebrates which may attract crows, blackbirds, starlings, and other species, and seeds that are attractive to blackbirds. Irrigation also enhances productivity of the site for rodents (gophers, ground squirrels, voles), and hay cutting makes these species prey more available and thereby attract raptors (Estep 1989, 2009; Swolgaard et al. 2008).

In contrast, current onsite wetlands are likely too small and scattered to serve as major roosting areas for waterfowl because better sites are available nearby. Similarly, the number of trees is relatively low onsite and their densities and sizes are similar to those on surrounding lands, so that no substantial attraction of tree nesting species would occur.

Table 1. Predicted Relative Use Levels by Hazardous Bird Species of the Aspen VIII/IX Project Area under Existing and Post-Project Conditions

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Turkey Vulture	Moderate	Moderate	No Change	Tree removal may decrease abundance initially by removing roosting habitat (trees), but riparian restoration would at least partly offset this effect over the long-term (>50 years) based on tree age used for roosting (Airola 2011). Foraging habitat likely to remain unchanged due to continued livestock use, although changes in surrounding land uses may reduce populations
Canada Goose	Moderate	Low	Decrease	Irrigated lands are greatly preferred for foraging. Post-project water bodies likely too small for roosting use and too steep-sided and predator prone for nesting use
White Pelican	None	None	N/A	Wetlands under current and post-project conditions are too small for use
Double-crested Cormorant	None-Low	None-Low	No Change	Wetlands under current and post-project conditions are too small for use. Stormwater retention basins would be too small and narrow to support regular use by cormorants.
Sandhill Crane	None	None	N/A	The project site is far from traditional wintering areas where species uses waste grain; habitat not highly suitable for either foraging or roosting
Bald and Golden Eagles	None	None	N/A	Wetlands are too small for Bald Eagle foraging. Too much of surrounding area is converted to development and unsuitable agriculture for Golden Eagle.
Ducks	Moderate	Low-Moderate	Decrease	Irrigated habitat may attract limited numbers of foraging and nesting ducks in wet areas. Seasonal wetlands in annual grasslands likely supports few nesting Mallards. Limited amount of open water in small, linear ponds under post-project condition would maintain use a low levels.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Osprey	None-Low	None-Low	No Change	Water bodies too small to attract nesting or dispersing individuals.
Wild Turkey	Low	Low	No Change	Woodlands are limited under existing and post-project conditions, but irregular use could occur under both.
Ring-necked Pheasant	Low -Moderate	Low	Decrease	Irrigated pasture is not a preferred foraging crop, but hay production likely supports a small population that would nest in weedy areas and annual grassland. Areas of pure annual grassland support few pheasants, due to poor foraging conditions. Increase in post-project annual grassland acreage could slightly reduce populations.
Great Blue Heron and Great Egret	Moderate	Low-Moderate	Decrease	Reduced irrigated pasture would reduce foraging habitat on gophers exposed during irrigation. Wetland acreage decrease also would reduce foraging habitat. Tree removal would reduce potential for nesting, but lack of foraging nearby high quality foraging habitat make nesting use unlikely onsite.
Swainson's Hawk	Moderate-High	Moderate	Decrease	Foraging habitat quality would likely decrease for Swainson's Hawk due to loss of irrigated pasture and hayfields. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area. Long-term population declines are also possible due to land use changes in surrounding lands
Red-tailed Hawk	Moderate-High	Moderate-High	No Change	Foraging habitat quality would likely would increase slightly for Red-tailed Hawk over the long term by reclamation of pasture and hayfields to annual grassland. Tree removal could reduce nesting opportunities, but adequate nest trees likely would remain in the area to support nesting

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Gulls	Moderate-High	Low	Decrease	Foraging habitat quality would decrease substantially with elimination of irrigated agriculture. Roosting habitat is limited or absent on all lands due to low amounts of open water, except after flood events.
Rock Pigeon	Moderate	Low	Decrease	Elimination of some barns and other buildings likely would reduce nesting populations of the Rock Pigeon. Foraging habitat conditions would be reduced through elimination of food sources in hayfields.
Great-horned Owl and Barn Owl	Moderate	Low-Moderate	Decrease	Elimination of irrigated agriculture likely would reduce prey, especially gopher populations, for both species. Loss of buildings would reduce Barn Owl nesting. Tree removal could decrease nesting and roosting use by both species.
Horned Lark	Low-Moderate	Moderate-High	Increase	The species favors short, dry grasslands and disturbed lands. Suitable habitat would increase during mining and subsequent reclamation to grazed annual grassland, but only if grazing occurs at high intensities.
American Crow	Moderate-High	Low-Moderate	Decrease	Forages on earthworms and insects in irrigated agriculture, so use would decrease following elimination of irrigated use.
Common Raven	Low	Low	No Change	Localized and uncommon at low elevations in Sacramento County. Abundance may increase as part of an ongoing population trend, but is unlikely to be affected by changes to the project area.
Mourning Dove	Moderate-High	High	Increase	Hay fields, grazed annual grasslands, and disturbed mining areas all produce seeds and open foraging conditions favored by doves. Tree removal would reduce nesting habitat, but as restored trees mature, nesting habitat would partly recover.

Species/Group	Existing Use	Post-Project Use	Net Project Effect	Rationale for Determination
Blackbirds/ European Starling	High	Moderate	Decrease	Elimination of irrigated pasture would likely reduce foraging habitat for Brewer's and Red-winged Blackbirds and European Starlings, and potential nesting habitat for Tricolored Blackbird. Foraging areas in annual grassland for the Tricolored Blackbird would remain.
American Kestrel	Moderate	Moderate	No Change	Change from irrigated pasture and hayfields to grazed annual grassland would not likely change habitat suitability for kestrel foraging. Tree removal during mining would decrease nesting habitat suitability, which would partly recover with maturation of planted trees.
Western Meadowlark	Low-Moderate (breeding) High (wintering)	Moderate (breeding), Moderate (wintering)	Decrease	Irrigated land is likely better foraging habitat for meadowlarks than annual grassland, but annual grassland is better for nesting. Therefore, summer populations would likely increase, while large wintering populations (a greater risk to aircraft) would decrease.
Swallows	Moderate-High	Low-Moderate	Decrease	Production of insect foods would be substantially reduced under non-irrigated post-project condition. Removal of barns and trees would reduce nesting opportunities for the Barn, Cliff, and Tree Swallows
Sparrows	Moderate	Moderate-High	Increase	In the short term, loss of irrigated land likely would reduce cover for sparrows (Song and Savanna Sparrows, Spotted Towhee
Nighthawks	None	None-Low	Increase	Nighthawks are uncommon species, generally restricted to drier rocky areas. They might increase slightly in mined areas prior to reclamation

5.2 HABITAT CONDITIONS AND BIRD POPULATIONS UNDER THE PROPOSED PROJECT

This section addresses existing habitat conditions and resulting populations of hazardous bird species, as well as potential future conditions on surrounding lands that could affect synergistic bird use patterns in the area.

5.2.1 Post-Project Habitat Conditions

Aggregate extraction would alter habitat conditions over 383 acres of the 683-acre project area. The remaining 320-acre area not slated for mining, which currently consists largely of non-irrigated annual grasslands with scattered seasonal wetlands, will remain in an undisturbed condition, including a 93-acre preserve area. Major changes to habitat on the remainder of the property that would affect bird populations include:

- elimination of irrigated agriculture (including hay farming, and irrigated pasture grazing),
- a minor reduction in wetland and pond acreage,
- elimination of certain farmsteads (including buildings and existing trees),
- onsite creation of permanent, steep-sided stormwater retention basins
- creation of temporarily disturbed areas during mining, and
- creation of additional non-irrigated annual grassland habitat following mining reclamation.

Under the proposed Aspen VIII/IX project, the area of existing wetlands and other waters would decrease by 19% from approximately 27.8 acres to 22.5 acres (ECORP Consulting 2014; Figure 2). A total of 14.2 acres of stormwater ponds, designed to minimize wildlife use, would be constructed to serve onsite storm drainage needs (Figure 3). Therefore, overall, the project would result in a net increase in the area of wetlands and waters by 8.9 acres.

Consistent with requirements of the Sacramento County of Water Resources (2006), Teichert will design and operate two internal stormwater management systems consisting of four retention ponds within the project area (Figure 3). To minimize bird use by hazardous species, Teichert has designed the stormwater detention system to achieve the following characteristics (J. Lane pers. comm.) to minimize waterbird use. Ponds will be:

- located outside the 10,000 ft separation area from Mather Airport
- designed to provide a minimum surface area (see specific features below),
- narrow and linear in shape to reduce bird security for resting, and
- steep-sided at all water elevations to discourage wildlife use and shoreline vegetation growth.

5.2.2 Predicted Post-Project Bird Use

This section describes post-project bird use of the project site and potential for synergistic effects with surrounding lands. Predicted bird use, based on predicted habitat conditions and stormwater management strategies, are shown in Tables 1 and 2. Of the 26 species and species groups analyzed, 17 are predicted to remain at or below a low-moderate population level under post-project conditions (Table 2). Occurrence of these species onsite, therefore, would have little or no potential to pose hazards to aircraft. The remaining 9 species or groups, which have potential to occur at moderate-or-greater relative population levels, warrant more site-specific analysis of hazard risk. These species and groups include the Turkey Vulture, Swainson's and Red-tailed Hawks, Horned Lark, Mourning Dove, blackbirds and starlings, American Kestrel, Western Meadowlark, and sparrows.

Only 4 (15%) of the 26 evaluated hazardous species and groups are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and Nighthawks. The Mourning Dove and sparrows would occur at abundance above moderate (i.e., average background abundance), while the other two would occur at moderate or lower abundance.

Table 2. Summary of Predicted Responses of Hazardous Species to Habitat Changes Proposed for Teichert's Aspen VIII/IX project

2a. Changes in species/group abundances and use levels from existing to post-project condition

Species/Group Responses	Number of Species/Groups	% of Species/Groups
Increase	4	15
Unchanged	7	27
Decrease	12	46
No Use	3	12

2b. Post-project abundance/use levels

Post-Project Relative Abundance	Number of Species/Groups	% of Species/Groups
High	1	4
Moderate-High	3	12
Moderate	5	19
Low-Moderate	5	19
Low	5	19
None-Low	4	15
None	3	12

Only 4 (17%) of the 24 evaluated hazardous species and groups are expected to increase under post-project conditions, including the Horned Lark, Mourning Dove, sparrows, and Nighthawks. The Mourning Dove and sparrows would occur at abundance above moderate (i.e., average background abundance), while the other two would occur at moderate or lower abundance.

5.2.3 Synergistic Effects on Bird Populations

Potential synergistic effects of project-related habitat changes could result from changes in surrounding habitat changes or changes in attractiveness of the project site to birds that use surrounding lands.

Future Regional Habitat Conditions. Several Sacramento County guidance documents can be used to generally predict future land uses in the area surrounding the Aspen VIII/IX project area and synergistic bird use that results from the synergy between onsite and offsite lands. The Sacramento County General Plan was recently updated through the year 2030 (Sacramento County Planning and Community Development Department 2011). The draft General Plan identifies numerous adopted and pending development master plans in the Jackson Highway Planning Area. Under these plans, surrounding lands would consist of a variety of land uses, but overall, the intensity of developed uses can reasonably be expected to increase over existing conditions.

Under projected future uses, it is expected that the amount of grassland and agricultural habitats on adjacent lands will decline, while the amount of developed area will increase. Over time, development will increase the amount of tree cover in residential and commercial areas and in parks. Therefore, hazardous bird species that require woodland and urban forest habitats for nesting (American Crow, Mourning Dove, European Starling) likely will increase regionally especially during the nesting season, while species that favor open annual grasslands and agricultural lands for foraging (Swainson's and Red-tailed Hawk, Great Blue Heron and Great Egret, gulls, Horned Lark, American Kestrel, Western Meadowlark) will decline. Effects on open-country species, however, likely will be partially offset by foraging habitat mitigation for the Swainson's hawk and other species, but proposed mitigation areas under County plans will be farther from Mather Airport than the project lands.

Potential for Synergistic Effects on Bird Populations. The proposed project would eliminate irrigation of pasturelands, thereby reducing potential attraction of many species from adjacent lands to forage there (Table 1). Reduction in wetland and pond acreage would reduce the already limited potential to attract roosting birds during non-flood conditions.

Removal of trees would result in a reduction in nesting habitat for raptors, crows, starlings, and doves. Over the long term, the re-establishment of

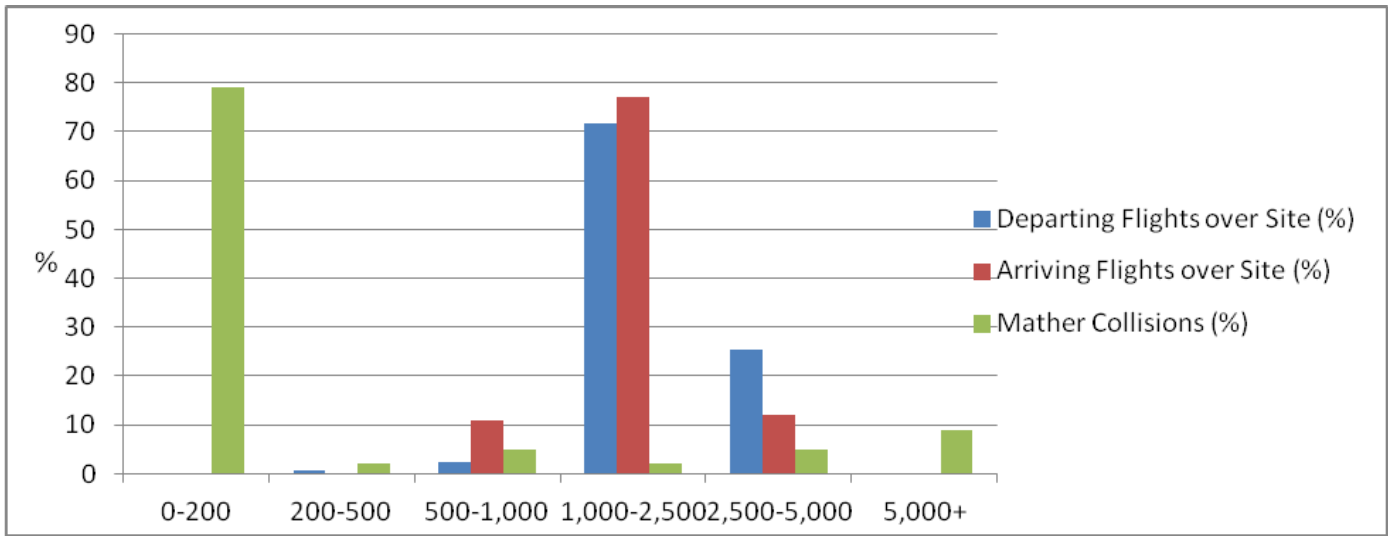
some riparian vegetation and oak woodland along the Elder Creek channel may re-attract some of the existing tree-nesting species to the site. The populations of many of these potential occupants, however, are limited by either territoriality (i.e., raptors) or the low quality of post-project foraging habitat (e.g., herons). For some tree nesting species, such as the Mourning Dove, populations are also likely to increase in response to favorable conditions on adjacent developed lands (e.g., see Airola 2008) as nest sites will be provided on buildings and in ornamental trees as they mature.

5.3 AIRCRAFT ACTIVITY AND BIRD AIRSTRIKE CHARACTERISTICS

5.3.1 Aircraft Flights over the Project Site

A total of 2,250 aircraft departures and 2,154 arrivals occurred from Mather Airport during the August 2007 reference period (Appendix B). Previous information from the Airport System noted that most flights occur at night (Airola 2007b). Nearly one-fourth (23%) of all aircraft departures crossed above the project site (Figure B-3). Of those departing flights that crossed the site, most (72%) occurred at heights of 1,000-2,500 ft above the site (Figures 5 and B-3) and nearly a fourth (24%) occurred above 2,500 ft. Only 3% of departures passed at heights below 1,000 ft and less than 1% of all flights flew below 500 ft.

Figure 5. Comparison of Heights (in ft) of Mather Aircraft Flights above the Aspen VIII/IX Project Site and Heights of Bird-Aircraft Collisions that occurred near Mather Airport



Most arrivals to Mather Airport approach landings from the northeast. As noted by the Sacramento County Airports System, "*the parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, operations arriving from the south or southwest may pass over the parcel as they*

proceed to runway 22." (Figure B-5). Of a total of 2,154 arriving planes recorded at Mather Airport in August 2007, 135 (6.3%) crossed above the project site. Of those arriving flights that crossed the site, most (77%) occurred at heights of 1,000-2,500 ft above the site (Figures 5 and B-6). No flights passed below 500 ft and only 11% of these flights (i.e., < 1 per day) passed at heights below 1,000 ft (Figure 5 and B-6).

In summary, the aircraft arrival and departure data show that a moderate proportion of departing flights and small proportion of arriving flights from Mather Airport crossed the Aspen VIII/IX project site. Over 80% of the departing flights crossed at heights above 1,500 ft, and <1% crossed at below 500 ft height. Arriving planes crossed the site less frequently than departing planes, but at lower heights. No planes flew over the site at heights below 500 ft, and fewer than 1 per day flew between 500-1,000 ft. Flight paths, however, reflect commercially determined flight routes. Future aircraft arrival and departure routes, therefore, could change over time (Taylor, pers. comm.).

5.3.2 Mather Bird Airstrike Characteristics

Characterization of patterns of bird strikes from reported data over 2004-2014 are limited because of small sample sizes and infrequent identification of species involved in the collisions. Collisions were reported at an average rate of 7 per year (78 collisions/11 years) (Table 3a). Sixty-eight percent of birds that collided with aircraft were not identified to species or to any general group to which they belonged. Larger species (coots, hawks) represented 32% of identified species or groups. Medium-sized species (killdeer, starlings, meadowlarks, blackbirds) represented 28% of species. Finally, smaller species (swallows, sparrows, pipits, larks) comprised 40% of reported species groups.

Table 3. Characteristics of Bird-Aircraft Collisions Reported at Mather Airport, 2004-2014

3a. Collisions by species group and location

Species Group	Collision Location				% of Identified Groups
	On Ground	In Air	Unknown	Total	
Coots		1		1	4
Hawks	4		3	7	28
Starlings/blackbirds	1	3		4	16
Killdeer	1		2	3	12
Pipits/larks		1	1	2	8
Swallows	4	2	1	7	28
Sparrow		1		1	4
Unknown birds	16	30	7	53	
Total	**26**	**38**	**14**	**78**	100
% known locations	**41**	**59**			

3b. Bird-aircraft collision heights (ft)

Height	Number of Collisions	%
0	26	41
>0-200	24	38
>200-500	1	2
>500-1,000	3	5
>1,000-2,500	1	2
>2,500- 5,000	4	6
>5,000	5	8

3c. Timing of collisions

Period	Number of Collisions	%
Daytime	34	69
Dusk/Dawn	9	18
Night	6	12

Bird-airstrike information reported at Mather showed that 41% of all airstrikes where height was reported occurred at ground level, and 79% occurred below 200 ft. Only 1 collision (2%) occurred over the 11 year reporting period within the 1,000-2,500 ft height range within which most aircraft cross the project area (Figure 5). Eight percent occurred within 200-2,500 ft, while 14% occurred above 2,500 ft (Table 3b). Nearly 70% of collisions occurred during the daytime (Table 3c).

5.4 NET PROJECT HAZARD EFFECTS

This section evaluates the potential hazards posed by the proposed project by evaluating the net change in hazards from the existing conditions. This evaluation considers hazardous species that occur at greatest abundance (relative to surrounding lands) and those whose populations would increase from existing to post-project conditions. The hazard evaluation considers potential for these species to collide with aircraft, based on known information on previous bird aircraft collisions and on the frequency with which species fly at altitudes at which planes cross the site (mainly at 1,000-2,500 ft). The analysis also considers whether synergistic effects would increase bird aircraft collision hazard.

Under existing conditions, a number of hazardous species make use of the project site as a result of the attractions of irrigated pasture habitat, trees, farmsteads, wetlands, shallow flooding following storm events, and other general habitat conditions (Tables 1 and 2). Nonetheless, the current risk of bird-aircraft collisions is low at the site, mainly because aircraft fly almost entirely at high altitude (>1000 ft) above the project site relative to the heights at which most species regularly fly, as supported by available data on bird-aircraft collisions (Figure 5).

Under post-project conditions, most hazardous species would occur at low to moderate abundances relative to other habitats regionally (See "**Predicted Post-Project Bird Use**" and Tables 1 and 2). It is virtually impossible to eliminate all hazardous species from using a site as large as Aspen VIII/IX because, regardless of land uses or treatments, certain of the hazardous species would continue to find the site suitable. Therefore, it is appropriate to evaluate changes in populations, and associated hazards posed by those species that occur at higher than "typical" regional populations, if these species pose a hazard.

Species of highest post-project relative abundance (i.e., those occurring at greater than "moderate" relative abundance) include: the Horned Lark, Mourning Dove, and various sparrows. Of these species, only the Mourning Dove regularly flies at higher altitudes. If the standard for concern is lowered to populations that would occur at a "moderate" level, the following additional species or groups would be included: Turkey Vulture, Red-tailed Hawk, blackbirds, European Starling, American Kestrel, and Western Meadowlark. All of these species may at least occasionally fly at heights at which aircraft cross the project site. These species are all terrestrial species that are common within surrounding lands with various land uses. Therefore, it does not appear to be practical to significantly reduce their numbers under the post-project conditions.

The elimination of extensive irrigated agricultural lands would reduce the quality and productivity of habitat for many species, and as a result reduce populations of many of the species that pose potential aircraft hazards (Tables 1 and 2). Only

the following species would be expected to increase in abundance as a result of project actions: Horned Lark, Mourning Dove, and various sparrow species, and possibly nighthawks. All of these species characteristically fly at low altitudes (except during infrequent migratory movements).

The project is expected to result in reduced use by a number of hazardous species that are known to frequently fly at high altitudes, including geese Canada Geese, Great Blue Heron, Great Egret, gulls, Rock Pigeons, American Crows, shorebirds, blackbirds, European Starlings, Western Meadowlarks, and swallows.

The potential increase in populations of the Mourning Dove, the hazardous species that most frequently flies at aircraft heights above the project site, is expected to be substantially offset by the decrease in use of the site by many species that could be hazardous to aircraft at the elevations at which planes cross the site.

The preceding analysis conclusively shows that the net effect of Teichert's Aspen VIII/IX project will be to substantially reduce an already-low potential for bird-aircraft collisions.

6. CONCLUSIONS

This analysis shows that, although a moderate number of the aircraft that depart from Mather airport and a small number of arriving aircraft cross the Aspen VIII/IX project site, nearly all flights cross at substantial altitudes (>1,000 feet). Therefore, the existing bird-aircraft collision hazard level is low because most bird flights occur below this height. Teichert's proposed mining would reduce the attractiveness of the site to many species of hazardous birds by eliminating irrigated pastures, eliminating some farmsteads, and removing trees. Comparison of predicted use of the site under existing and post-project conditions indicates that most hazardous bird species would decline or remain at low densities under post-project conditions.

Most of the few bird species that would remain at moderate and higher densities under conditions created by the proposed mining and reclamation typically do not fly at high elevations. Most of those species that have the greatest potential to fly at higher elevations would decline in abundance. Therefore, the net effect of the proposed Aspen VIII/IX project is to substantially reduce the already-low existing potential for bird-aircraft collisions.

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7.2 PERSONAL COMMUNICATIONS

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Taylor, Bree. Noise and Sustainability Programs Coordinator, Sacramento County Department of Airports. Sacramento, CA. Electronic communication to Daniel Airola. 7 July 2014.

8. AUTHORS' QUALIFICATIONS

8.1 Daniel Airola

Daniel Airola is a Certified Wildlife Biologist, ornithologist, and conservation planner with a detailed knowledge of the identification, distribution, abundance, and ecology of birdlife in the Sacramento region. He has 35 years of experience of professional experience, mostly as a biological consultant in the Sacramento region. He has conducted numerous wildlife surveys, analyzed project impacts for environmental documents and permitting, and developed conservation and habitat restoration plans. He has conducted analyses of potential bird aircraft collisions for several properties in Sacramento County.

Dan also has an extensive research program addressing the ecology, habitat relationships, and conservation of birds in the Sacramento region. He has published over 45 scientific papers, mostly on songbirds in the Sacramento region, including studies of the Purple Martin and other swallows, Tricolored Blackbird (in preparation), Turkey Vulture, and corvids (jays, crows) and other species susceptible to West Nile Virus. He serves as the editor of the Central Valley Bird Club Bulletin, which regularly publishes articles on local bird status, distribution, ecology, and conservation. Dan is also an avid field ornithologist, birding regularly throughout the Sacramento region. For example, he has submitted over 1,600 birding checklists to the online electronic repository *ebird* from Sacramento and surrounding counties.

8.2 Eric Lichtwardt

Eric Lichtwardt has over 25 years of experience conducting wildlife studies in California. He has worked on many infrastructure, development, and conservation projects throughout Northern and Southern California, addressing a full array of biological issues including wetlands, wildlife habitats, movement corridors, listed species, wildlife hazards, and avoidance/mitigation measures. He is an avid field ornithologist and has extensive field experience throughout California.

Eric is qualified under FAA Guidelines to conduct and prepare Wildlife Hazard Assessments (WHAs) and Wildlife Habitat Management Plans; he meets all of the requirements in accordance with Section 5 of FAA Advisory Circular 150/5200-36A. To maintain his qualification as an airport biologist, he attended the annual Bird Strike Committee USA meeting in Atlanta, Georgia in 2014.

Eric has conducted a variety of biological studies involving airports and aviation, including WHAs for airports in Sacramento, Solano, Sonoma, Nevada, San Joaquin, Alameda, San Mateo, Santa Clara, Santa Cruz, Monterey, and Merced counties. He also managed WHAs for eight general aviation airports in southern California.

Appendix A
Summary of FAA Guidance in Advisory Circular on Hazardous Wildlife Attractants on or Near Airports
(AC No: 150/5200-33B)

The Federal Aviation Administration (FAA) issued Advisory Circular 150/5200-33B to provide guidance on certain land uses that have potential to attract hazardous wildlife on or near airports. The most recently updated Advisory Circular (AC) (FAA 2007) was issued just after Teichert submitted its application to the County in August 2007. The main section of this report briefly summarizes the guidance in the AC. This appendix provides a more detailed summary of guidance that is relevant for Teichert's Aspen VIII/IX project.

Purpose. The AC provides guidance on land uses that have potential to attract hazardous wildlife on or near airports.

Applicability. Airports that have received Federal grant-in-aid assistance must use these guidelines. FAA also recommends that the guidance be used by land-use planners and project developers on or near airports.

Background. This section includes a previous ranking of the hazards posed by wildlife groups commonly involved in damaging strikes with aircraft in the U.S. (FAA 2003). It also notes that the AC provides guidance needed "*to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land use practices on or near public-use airports*."

Section 1. General Separation Criteria for Hazardous Wildlife Attractant on or Near Airports. The AC notes "*When considering proposed land uses airport operators, local planners and development must take into account whether the proposed land uses, including new development projects, will* ***increase*** *wildlife hazards. Land use practices that* ***attract or sustain*** *hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes*" (emphasis added).

This AC section introduces separation criteria between airports and "*land-use practices that attract hazardous wildlife.*" As support for the separation criteria the guidance notes that 78% of aircraft strikes occur within 1,000 ft of the ground and 90% occur within 3,000 ft of the ground.

1-3. Airports Serving Turbine-Powered Aircraft. For airports serving turbine-powered aircraft (such as Mather Airport), "*FAA recommends a separation of 10,000 feet… for wildlife attractants identified as hazardous".*

1.4. Protection of Approach, Departure, and Circling Airspace. The FAA "*recommends a distance of 5 statute miles between the farthest edge of the airports AOA (Air Operations Area) and the hazardous wildlife attractant, if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace*."

The AOA is defined as: "*any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron*." Approach and departure airspace is defined in the AC as "*the airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff*.

Section 2. Land-Use Practices on or near Airports that Potentially Attract Hazardous Wildlife.

2-1. General. This introduction notes that "*wildlife species and size of populations attracted to the airport environment vary considerably depending on several factors including land-use practices on or near the airport*".

2.3 Water Management Facilities. This section notes that "*storm water facilities…and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife.*" It further states, "*to prevent wildlife hazards, land use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water facilities on or near all public-use airports to ensure a safe airport environment*. "

b. New storm water management facilities. Here, the FAA "*strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4*" (i.e., anywhere within 10,000 ft or within 5 miles of areas within approach and departure airspace) "*be designed and operated so as not to create above-ground standing water. Storm water detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and remain completely dry between storms*."

The guideline also recommends "*the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds* ***away from an airport's AOA*** *(air operations area),* ***airport operators*** *should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water*...". (emphasis added).

Also, this section notes "*All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages the use of underground storm water infiltration*

systems, such as French drains or buried rock fields, because they are less attractive to wildlife."

In summary, section 2.3.b recommends that off-airport storm water facilities located within takeoff and approach zones and less than 5 miles from an airport facility, be capable of being drained within 48-hours, and recommends use of steep-sided riprap lined, narrow ponds. It does not specifically recommend use of physical barriers for offsite ponds.

2-8. Synergistic Effects of Surrounding Land Uses. This section identifies potential synergistic effects of two or more land uses that together may pose additional hazards, such as by creating a flight corridor between bird feeding and resting areas, and encourages evaluation of these effects.

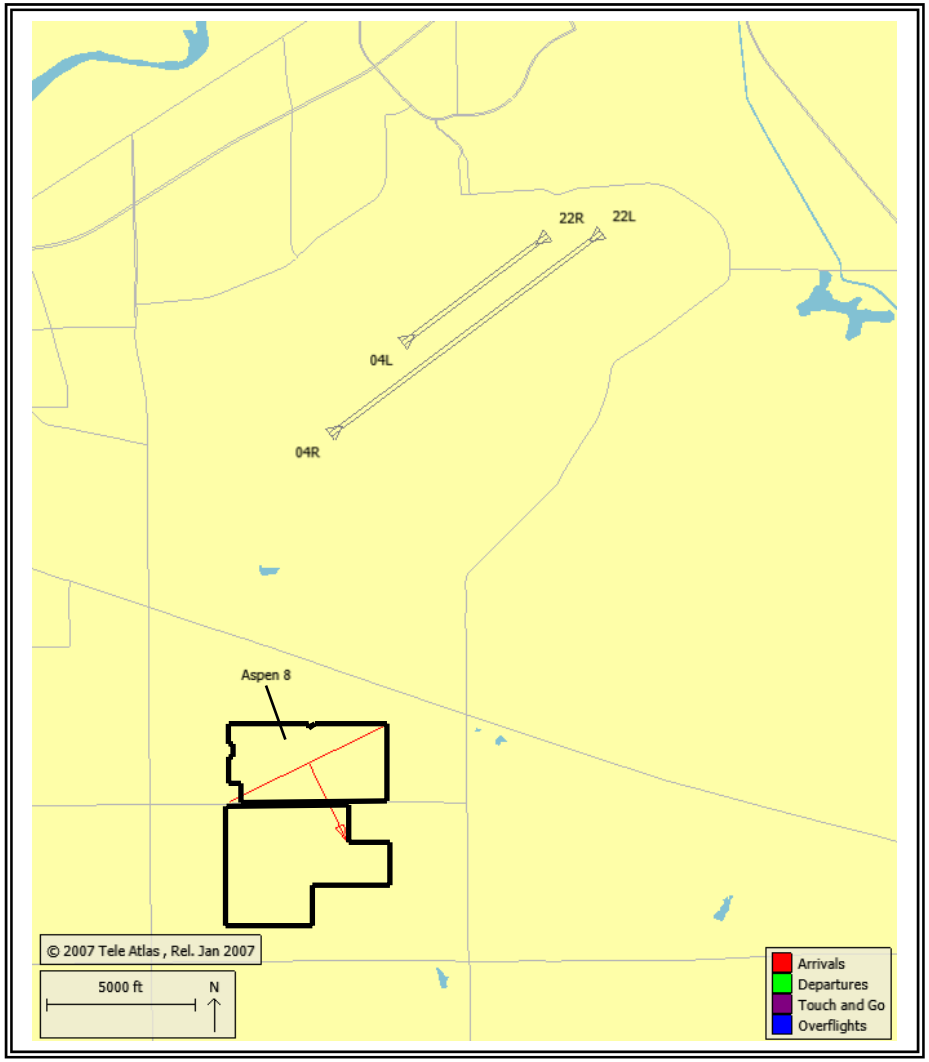
4-3. Other Land-Use Practice Changes

a. Airports that have received Federal grant-in-aid assistance. This section specifies that **"***Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife.*

Appendix B

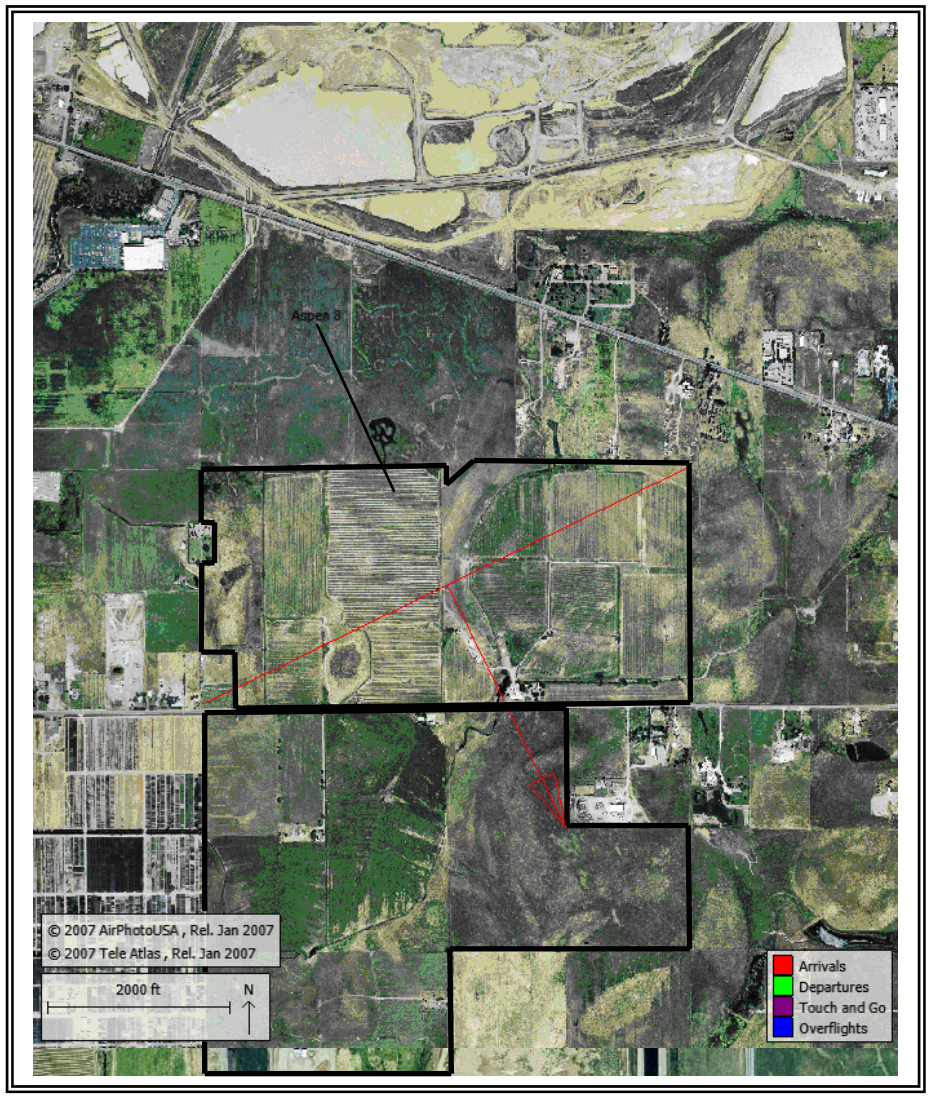
Aircraft Flight Paths and Altitudes Near the Aspen VIII/IX Project Site

Basic Penetration Gate

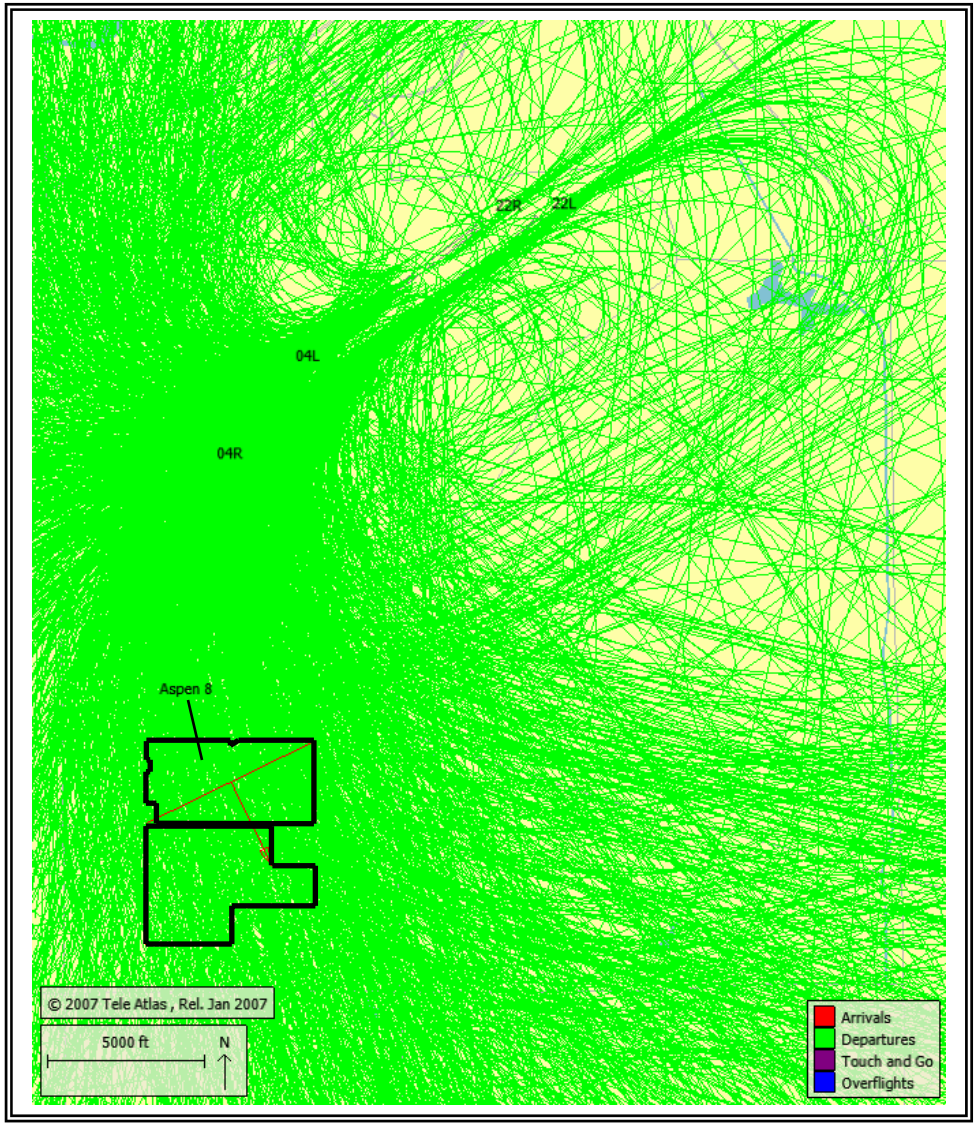


The penetration gate is centered over the parcel, spans it diagonally, and is oriented parallel to Mather Airport's Runway headings. It is designed to capture the majority of the flights that directly overfly the parcel.

Geographic Representation of the Gate

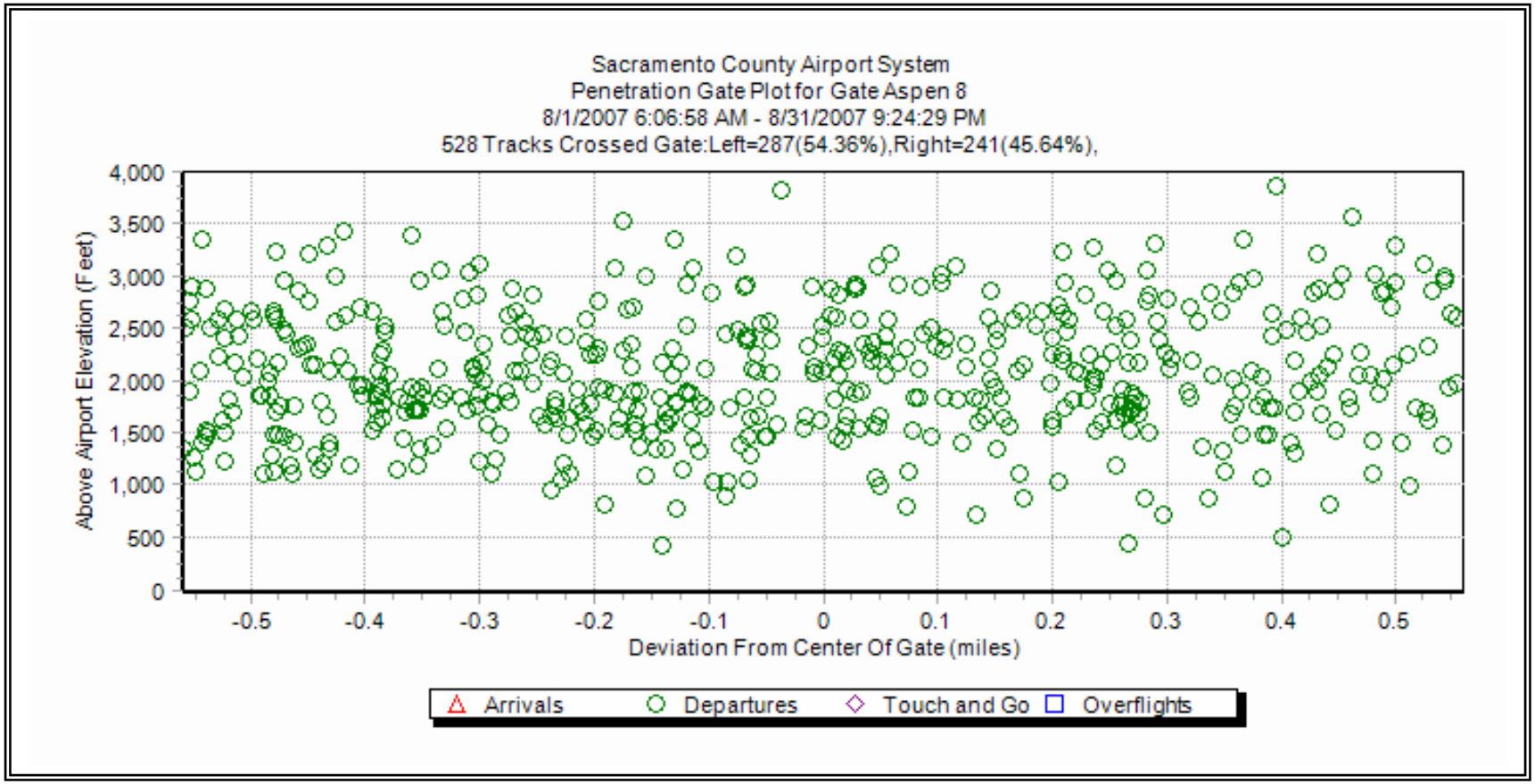


Departure Analysis



Because the prevailing winds at Mather predominately favor operations from runways 22L and 22R, the majority of the overflights of the site are from departing aircraft.

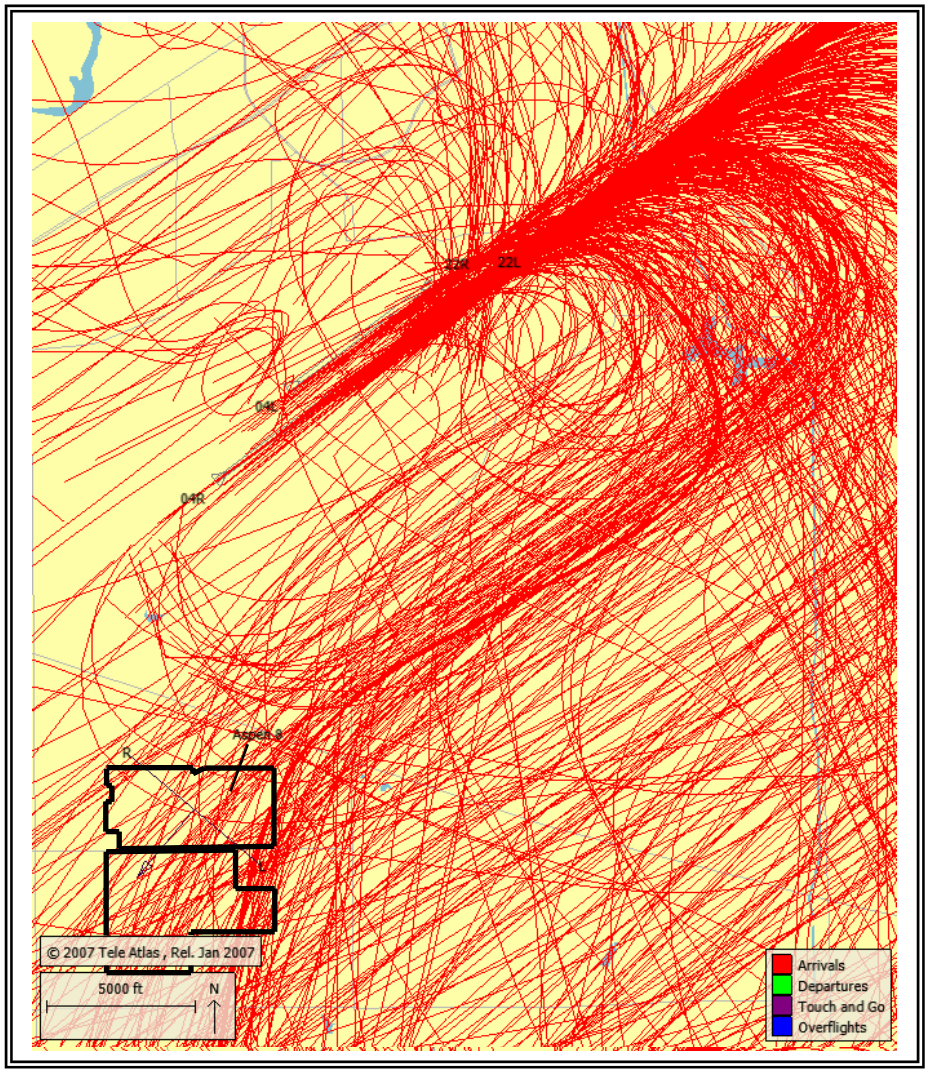
Aircraft Departure Flight Track Proximity to the Parcel



During August of 2007, a total of 2,250 departure flight tracks were recorded at Mather. Of these, 528 penetrated the departure gate centered over the parcel. As indicated by the graphic above, these flights typically passed over the site at altitudes between 500 and 4,000 ft.

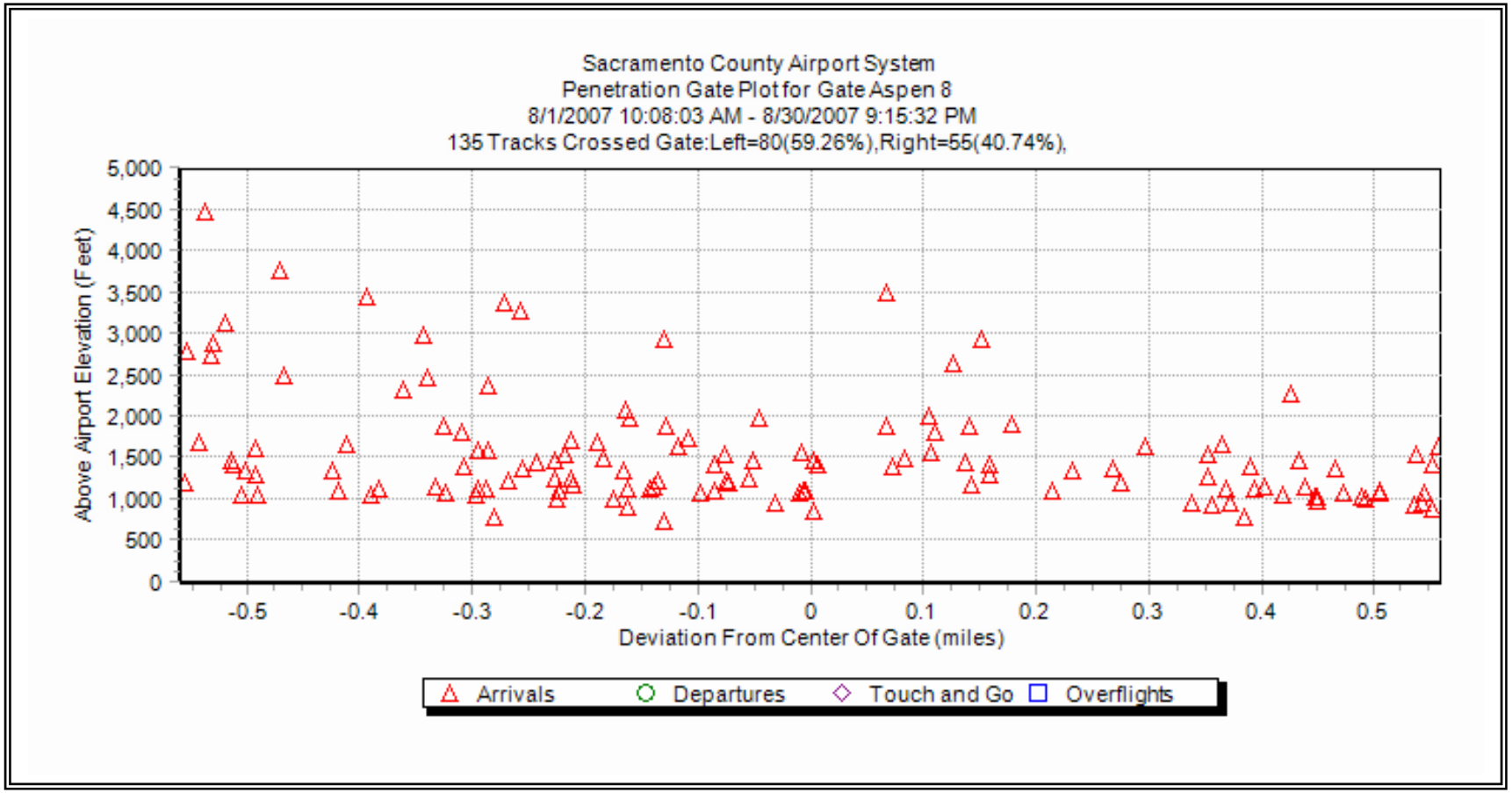
Arrival Analysis

The graphic above illustrates the arrival paths for both of Mather's parallel runways. In order to capture the relative proximity of the flight tracks to the parcel center, the basic penetration turned to a southwesterly orientation.



The parcel is not located in the direct proximity of the straight-in arrival paths for either of Mather's runways. However, operations arriving from the south or southwest may pass over the parcel as they proceed to runway 22L.

Aircraft Arrival Flight Track Proximity to the Parcel



During August of 2007, a total of 2154 arrival flight tracks were recorded at Mather. Of these, 135 penetrated the arrival gate centered over the parcel. As indicated by the graphic above, these flights typically passed over the site at altitudes between 500 and 4,000 ft.

SOUTHGATE
RECREATION & PARK DISTRICT

TRAIL STANDARDS

January 13, 2015

TRAIL STANDARDS
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REVISED 1-13-15

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RESOLUTION 03-150

RESOLUTION OF THE BOARD OF DIRECTORS FOR THE SOUTHGATE RECREATION AND PARK DISTRICT ADOPTING POLICIES FOR BICYCLE, PEDESTRIAN AND EQUESTRIAN TRAILS WITHIN OPEN SPACE AREAS

SOUTHGATE
RECREATION & PARK DISTRICT

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Board of Directors
Rolfe P. Appel
John E. Cockerham
Edwin A. Smith
Christine Thompson
Shirley J. Wirth

General Manager
Rod Cooper

Assistant General Manager
Ward Winchell

WHEREAS, the Southgate Recreation and Park District is committed to being the owner and preserve manager of open space within it's boundaries of South Sacramento County; and

WHEREAS, open space shall be preserved and managed and can also be enjoyed by the public through a variety of recreational uses including a trail system; and

WHEREAS, the District has master planned an extensive trail system throughout the District, primarily along the major creek corridors of Laguna, Florin, Gerber and Elder Creeks and have already constructed portions of these trails; and

WHEREAS, as more and more development in the District continues policies for trails in open space and creek corridors are necessary in order to provide for adequate trail reservations and setback from sensitive areas, future residences, streets and other improvements.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors for the Southgate Recreation and Park District hereby adopt the following Open Space Trail Policies for reservation of adequate open space and placement of bicycle, pedestrian and equestrian trails within the District:

1. Where possible the Sacramento County General Plan of a 600' wide open space area (300' on each side of the creek) shall be provided by the Developer to the District, to preserve open space within a creek corridor. At a minimum the open space area shall be 300' wide (150' on each side of the creek). The District is willing to own and maintain the property, provide necessary public agency easements and be the preserve manager where adequate funds are in place to manage the land under the requirements set forth by the Army Corps of Engineers, the Fish and Wildlife Service and any other jurisdictional agency.

2. The District requires that the trail alignment be placed as far away from homes and streets as possible. Trail alignment shall meander throughout the corridor. Trail design shall be approved by the District. The trail shall not be closer than 20' to the top of bank along the creek and outside of any environmental constraints. Trail setback from the rear or side of residential property lines and streets shall be as far as possible, with a minimum distance of 50'.

3. The District requests to be notified of all environmental constraints affecting the alignment of the trail before approving a final trail alignment. It is important that adequate space be provided in order to provide separation for bicycle, pedestrian and equestrian uses.

4. Typical bicycle/pedestrian trail provides for a 10' wide asphalt path with 2' wide dirt or decomposed granite shoulders on each side of trail. Trail construction specifications are to be provided or approved by the District.

5. Equestrian trail shall be blade graded dirt, 8' wide, with a minimum of a 20' separation from the paved bicycle/pedestrian trail.

PASSED AND ADOPTED this 20th day of April, 2004 by the following vote to wit:

AYES:

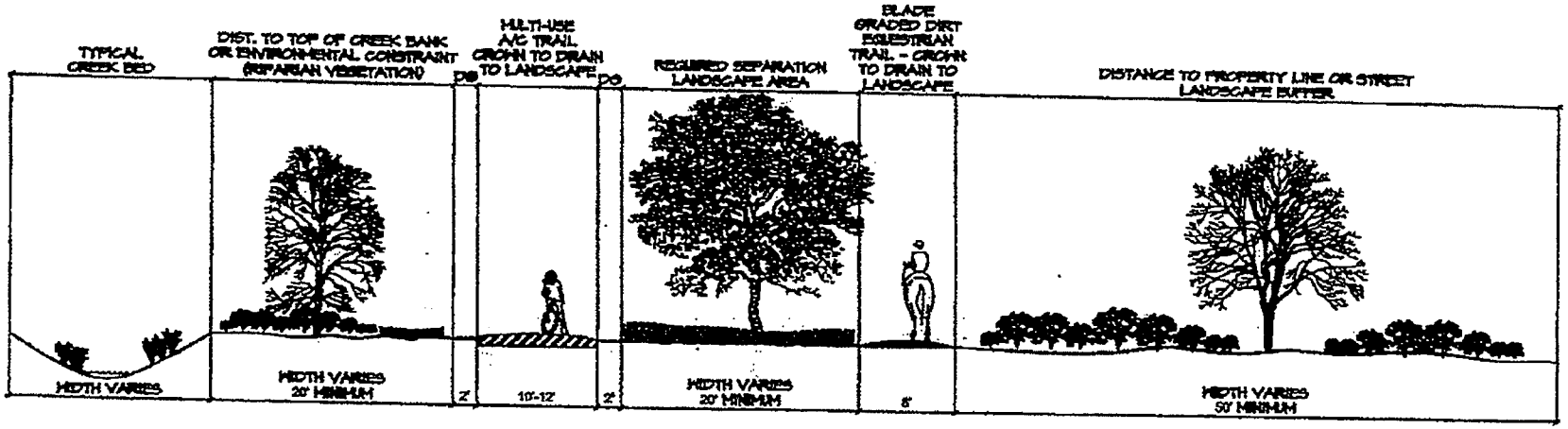
Appel, Cockerham, Smith, Thompson & Wirth

NOES:

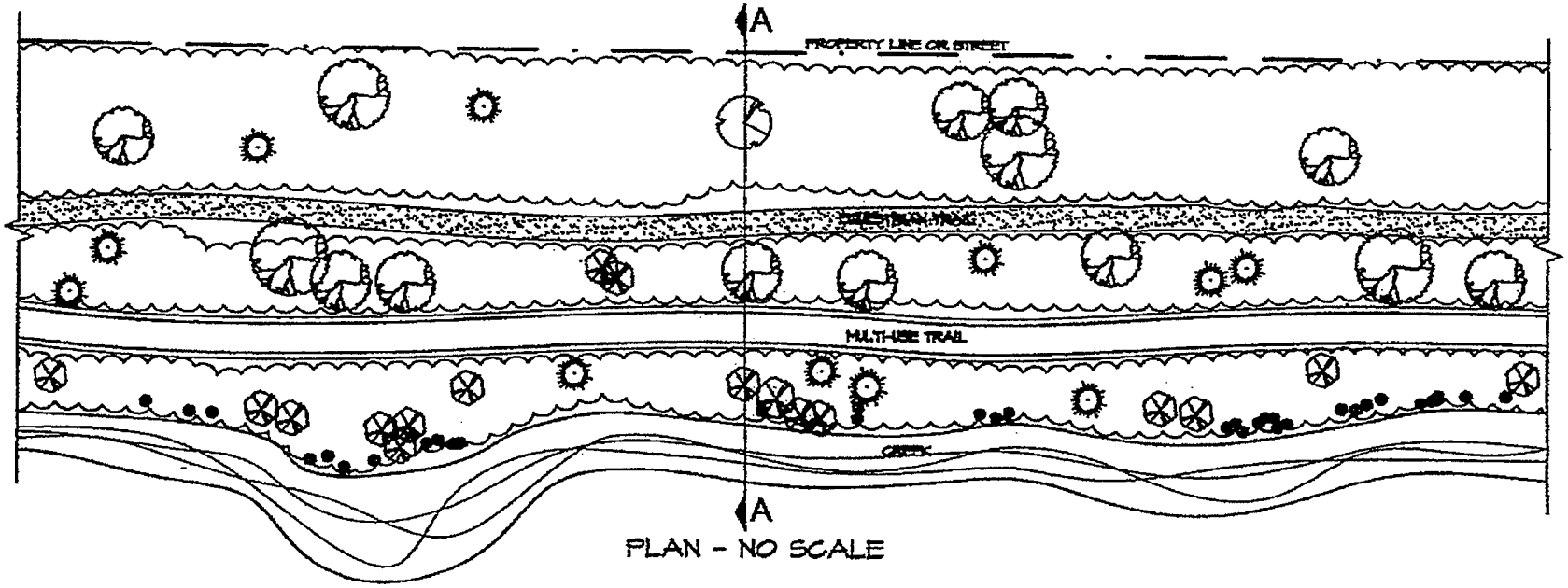
None

Rolfe Appel, Chair

Edwin A. Smith, Clerk



SECTION / ELEVATION A-A



PLAN - NO SCALE

OPEN SPACE TRAIL STANDARDS EXHIBIT

SOUTHGATE RECREATION AND PARK DISTRICT - 4/20/2011

County of Sacramento 2030 General Plan

Public Facilities Element (Amended 11/9/11)

PF-127. Require new residential developments to participate in park O&M financing mechanisms where established by local park districts of the County.

Conservation Element (Amended 11/9/11)

CO-41. Surface Mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.

CO-64. Consistent with overall land use policies, the County shall support and facilitate the creation and biological enhancement of large natural preserves or wildlife refuges by other government entities or by private individuals or organizations.

CO-70. Community Plans, Specific Plans, Master Plans and development projects shall:

- Include the location, extent, proximity and diversity of existing natural habitats and special status species in order to determine potential impacts, necessary mitigation and opportunities for preservation and restoration.
- Be reviewed for the potential to identify nondevelopment areas and establish preserves, mitigation banks and restore natural habitats, including those for special status species, considering effects on vernal pools, groundwater, flooding, and proposed fill or removal of wetland habitat.
- Be reviewed for applicability of protection zones identified in this Element, including the Floodplain Protection Zone, Stream Corridor Ordinance, Cosumnes River Protection Combining Zone and the Laguna Creek Combining Zone.

CO-71. Development design shall help protect natural resources by:

- Projects adjacent to rivers and streams shall integrate amenities, such as trail connectivity, that will serve as benefits to the community and ecological function.

CO-72. If land within river and stream watersheds in existing agricultural areas is developed for non-agricultural purposes, the County should actively pursue easement dedication for recreation trails within such development as a condition of approval.

CO-73. Secure easement or fee title to open space lands within stream corridors as a condition of development approval.

CO-114. Protect stream corridors to enhance water quality, provide public amenities, maintain flood control objectives, preserve and enhance habitat, and offer recreational and educational opportunities.

CO-115. Provide stacks along stream corridors and stream channels to protect riparian habitat functions (Figure 1)

- A functional setback of at least 100 feet and measured from the outside edge of the stream bank should be retained on each side of a stream corridor that prohibits development or agricultural activity. This buffer is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates that are known to degrade water quality. The buffer also provides for the protection of vegetation along the stream bank which provides bank stability, erosion control and flood attenuation.

- A transitional setback of at least 50 feet in width beyond the functional buffer should be retained along all stream corridors. This buffer is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate micro-climate, maintain channel complexity and retain hydrologic flow regimes. This buffer also provides corridors to facilitate the movement of wildlife.

- An extended setback of at least 50 feet in width beyond the transitional setback should be retained along all stream corridors. This setback will allow for recreational uses such as bike, pedestrian and/or equestrian trails and will allow for the placement of infrastructure such as water and sewer lines.

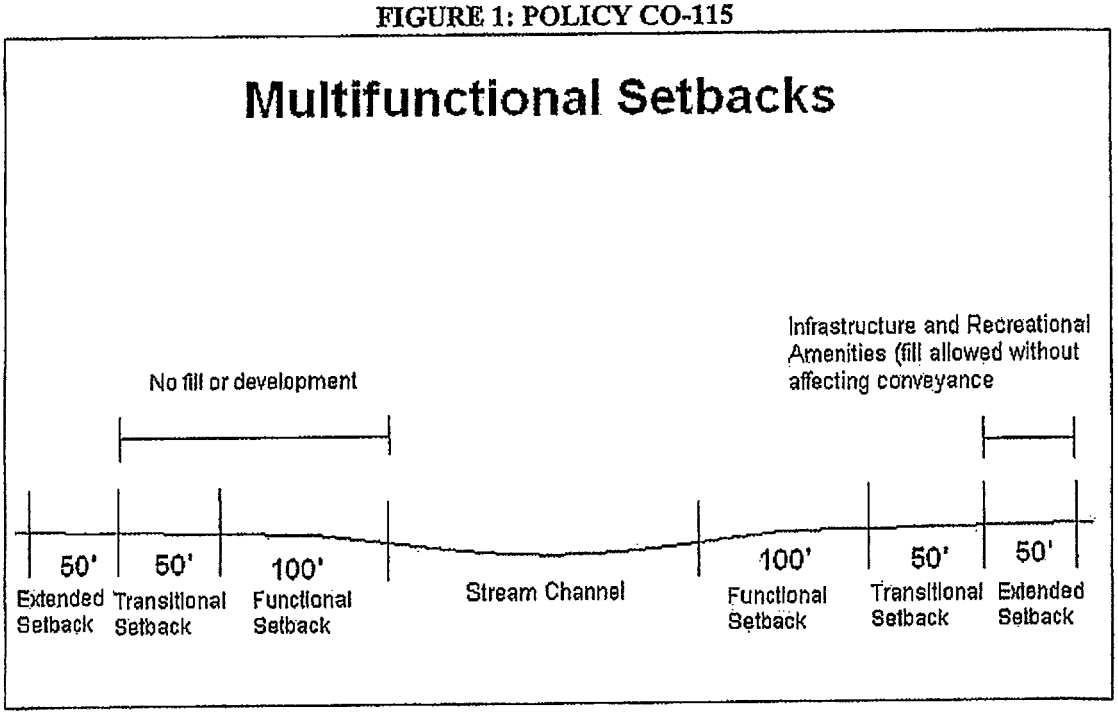
- Stormwater discharge ponds or other features used for improving stormwater quality may be located within the extended or transitional setback area. However, in order to protect stream habitat and floodplain value, the width of the setback shall not be based upon the width of the pollutant discharge pond. The ponds shall be landscaped and maintained with vegetation native to the surrounding area. Detention ponds or other features implementing pollutant discharge requirements, other than approved regional stormwater quality practices that are designed and operated to complement the corridor functionally and aesthetically, are prohibited.

- Setback averaging <u>within individual development projects or as otherwise specified in a County-adopted master plan</u> will be permitted

except when riparian woodland will be lost. The minimum width of setbacks cannot fall below 50 feet.

- Master drainage plans may provide for other standards that meet the intent of this policy.

FIGURE 1: POLICY CO-115



Implementation Measures

A. Require that Community Plans, Specific Plans , Master Plans and development projects:

- Address ownership and maintenance of dedicated/reserved parcels as follows:
  - Dedicated/reserved parcels for schools, fire stations and other community services must have identified ownership, a management plan and a funding mechanism (PLANNING, MSA-LDSIR).

Open Space Element (Amended 5/28/2014)

Types of Open Space

Rural Open Space
Open space areas are largely un-fragmented areas of undeveloped land that are set aside primarily to preserve and/or enhance the County's wildlife habitat, agricultural productivity and recreational opportunities. Recreational use of these areas is generally limited so as to conserve sensitive habitat and protect agricultural activities. Similar to other metropolitan regions with open space resources, recreational access is typically limited to non-motorized trail use that is not disruptive to agricultural activities or harmful to sensitive species. Sacramento County has identified six categories that define valuable open space uses that are important to preserve and protect. All can be effective community separators and most overlap.

- *Recreation:* Natural areas that provide for passive recreation such as wildlife viewing and pedestrian and bicycle travel, as well as wildlife habitat. It may encompass historic sites, scenic vistas, and trails.

- *River and Stream Parkways:* Areas that are typically linear and follow the natural path of a river or stream. They are primarily used as corridors for pedestrians and bicyclists. Recreational uses focus on education and appreciation for natural resources. Parkways may also provide open space linkages, wildlife corridors and/or act as community separators.

Sacramento County Open Space/Rural Principles

Sacramento County has significant high quality natural/rural areas devoted to agriculture, natural resource protection, and recreational uses. As development continues to occur, it is important to protect these areas as they provide valuable habitat for both humans and wildlife as well as help retain the rural character of the County that makes it a desirable place to live. To meet this objective, Sacramento County has identified five open space/rural principles that serve as the basis for the Open Space Vision Diagram.

- Greenbelts/Parkways: Maintaining areas for passive and active recreation contributes to the overall health and well being of County residents. Trails and parkways encourage pedestrian and bicycle travel while providing connectivity between open space areas. Through the incorporation of public use open space within development projects, above state requirements, a valuable sense of place is also created.

Open Space Preservation Strategy

Open space lands in Sacramento permanently protected through coordinated use of regulation, education, acquisition, density transfer and incentive programs. (Open Space Element)

Key Open Space Concepts
Open space linkages in the urban environment are also important because they provide definition and scale to neighborhoods and visual, psychological relief to the pervasiveness of urban sprawl. They also create the opportunity for attractive, safe transportation corridors for non-vehicular travel.

Open Space Implementation Policies

OS-11. Establish trail connections and linkages within the County and across jurisdictional boundaries that are compatible with existing land uses. These trail connections shall have the capability of being Class I trails (off-street, separated facilities) with grade separations wherever feasible.

Circulation Element (Amended 5/28/14)

CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

CI-34. Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.

CI-35. The applicant/developer of land development projects shall be responsible to install bicycle and pedestrian facilities in accordance with Sacramento County Improvement Standards and may be responsible to participate in the fair share funding of regional multi-use trails identified in the Sacramento County Bicycle Master Plan.

CI-36. Collaborate with neighboring jurisdictions and regional agencies to coordinate planning and development of the County's bikeways, pedestrian facilities and multiuse trails with those of neighboring jurisdictions, and to support a regional bicycle and pedestrian network.

CI-37. Pursue all available sources of funding for the development, improvement, and maintenance of bikeways, pedestrian facilities and multi-use trails, and to support bicycle and pedestrian safety, education, encouragement and enforcement programs.

Land Use Element (Amended 11/9/11)

LU-27. Provide safe, interesting and convenient environments for pedestrians and bicyclists, including inviting and adequately-lit streetscapes, networks of trails, paths and parks and open spaces located near residences, to encourage regular exercise and reduce vehicular emissions.

LU-37. Provide and support development of pedestrian and bicycle connections between transit stations and nearby residential, commercial, employment or civic uses by eliminating physical barriers and providing linking facilities, such as pedestrian overcrossings, trails, wide sidewalks and safe street crossings.

2010 Sacramento City/County Bikeway Master Plan

Chapter Four – Bicycling and Section D – Mountain Bicycling Program

Guidelines for Multi-Use Trails

a. Use existing firebreaks and service roads to the maximum extent feasible.
b. Avoid designated horse trails to the maximum extent feasible.
c. Avoid designated Nature study Areas and Open Space Preserve Areas.
d. Avoid levee crowns.
e. Avoid crossing roadways and crossing the designated bicycle trail to the maximum extent feasible.
f. Avoid areas narrower than an 8' tread and with less than a 12' clearance.
g. Avoid steep grades and blind curves to the maximum extent feasible.
h. Avoid the removal of vegetation to the maximum extent feasible.
i. Avoid adverse impacts upon environmentally sensitive areas (wetlands, riparian vegetation, habitat for rare plant and animal species, archaeological sites, etc.).

Multi-Use Trail Corridors

A multi-use trail corridor is a recreational area of sufficient width which may by developed to accommodate touring/commuter bicycling, horseback riding, hiking, jogging, and all-terrain bikes. These activities should be separated sufficiently to minimize user conflicts and constructed with appropriate trail surfacing materials.

When planning multi-use trails, an important feature is the present and future "carrying capacity" of the corridor. The corridor type, i.e., narrow linear right-of-way, levees, or a wide floodplain, and the anticipated demand are features in determining the carrying capacity.

Therefore, it is recommended that the following potential recreational corridors be studied to determine their suitability for multi-use trail systems.

Chapter Five – Planning and Section B – Specific Planning Criteria

The following planning criteria were used in the establishment of recommended bikeways and should be used in all future bikeway planning:

4. Establish, where appropriate, bikeways along existing trails, levees, railroads, streams, rivers, power lines and drainage canals for both recreational and commuter bicycling.

6. Establish whenever feasible recreational bikeways in scenic and open space areas taking into account terrain, human history, and scenic resources.

8. Consider and encourage multiple use (bicycle-equestrian/hiking) trails where feasible.

Chapter Nine – Design Standards and Section C – Class I Bikeways (Bike Path)

1. Widths

The minimum paved width for a two-way bike path shall be 8 feet. The minimum paved width for a one-way bike path shall be 5 feet. A minimum 2-foot wide graded area shall be provided adjacent to the pavement. A 3-foot graded area is recommended. Where the paved width is wider than the minimum required, the graded area may be reduced accordingly; however, the graded area is a desirable feature regardless of the paved width. Development of a one-way bike path should be undertaken only after careful consideration due to the problems of enforcing one-way operation.

Where heavy bicycle volumes are anticipated and/or significant pedestrian traffic is expected, the paved width of a two-way path should be greater than 8 feet, preferably 12 feet or more (Sacramento County Standard is 12 feet wide). Dual use by pedestrians and bicycles is undesirable, and the two should be separated wherever possible. To accommodate joggers, a 4 to 6-foot unpaved shoulder should be provided. Another important factor to consider in determining the appropriate width is that bicyclists will tend to ride side by side on bike paths, necessitating more width for safe use.

Experience has shown that paved paths less than 12 feet wide sometimes break up along the edge as a result of loads from maintenance vehicles.

Where equestrians are expected, a separate facility should be provided.

Cal Trans Highway Design Manual
6th Edition
9/22/14

Chapter 1000 Bicycle Transportation Design

Topic 1002- Bikeway Facility

(2) *Class I Bikeway (Bike Path)*
Generally, bike paths should be used to serve corridors not served by streets and highways or where wide right of way exits, permitting such facilities to be constructed away from the influence of parallel streets. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity, or in some instances, can serve as direct high-speed commute routes if cross flow by motor vehicle and pedestrian conflicts can be minimized. The most common applications are along river, ocean fronts, canals, utility right of way, abandoned railroad right of way, within school campuses, or within and between parks. There may also be situation where such facilities can be provided as part of planned development. Another common application Class I facilities is to close gaps to bicycle travel caused by construction of freeways or because of the existence of natural barriers (rivers, mountains, etc.).

Topic 1003- Bikeway Design Criteria
1003.1 Class I Bikeways (Bike Paths)

Class I bikeways (bike paths) are facilities with exclusive right of way, with cross flow by vehicles minimized. Class I bikeway, unless adjacent to an adequate pedestrian facility, (See Index 1003.3(n)) are for the exclusive use of bicycle and pedestrians, therefore any facility serving pedestrians must meet accessibility requirements, see DIB 82. However, experience has shown that if regular pedestrian use is anticipated, separate facilities for pedestrians may be beneficial to minimize conflicts. Please note, sidewalks are not Class I bikeways because they are primarily intended to serve pedestrians, generally cannot meet the design standards for Class I bikeways, and do not minimize vehicle cross flow. See Index 1003.3 for discussion of the issue associated with sidewalk bikeways.

Motor vehicles are prohibited from bike paths per the CVC, These prohibitions can be reinforced by signing.

(1) Widths and Cross Slopes
The minimum paved width of travel way for a two-way bike path shall be 8 feet, 10-foot preferred. The minimum paved width for a one-way bike path shall be 5 feet. It should be assumed that bicycle paths will be used for two-way travel. Development of a one-way bike path should be undertaken only in rare situations where there is a need for only one-direction of travel. Two-way use of paths designed for one-way travel increases the risk of head-on collisions, as it is difficult to enforce one-way operation. This is not meant to apply to two one-way paths that are parallel and adjacent to each other within a wide right of way. See Index 1003.1(15) Drainage, for cross slope information.

1003.4 Trails

Trails are generally, unpaved multipurpose facilities suitable for recreational use by hikers, pedestrians, equestrians, and off-road bicyclist. While many Class I facilities are named as trails (e.g. Iron Horse Regional Trail, San Gabriel River Trial), trails as defined here do not meet Class I bikeway standards and should not be signed as bicycle paths. Where equestrians are expected, a separate equestrian trail requirements for ADA. See Index 2083.7 for equestrian undercrossing guidance.

- Pavement requirements for bicycle travel are not suitable for horses. Horses require softer surfaces to avoid leg injuries.
- Bicyclist may not be aware if the need to go slow or of the separation need when approaching or passing a horse. Horses reacting to perceived danger from predators may behave unpredictably; thus, if a bicyclist appears suddenly within their visual field, especially from behind they may bolt. To help horses not be surprised by a bicyclist, good visibility should be provided at all points on equestrian paths.
- When a corridor includes equestrian paths and Class I bikeways, the widest possible lateral separation should be provided between the two. A physical obstacle, such as an open rail fence, adjacent to the equestrian trail may be beneficial to introduce horses to shy away from the bikeway, as long as the obstacle does not block visibility between the equestrian trail and bicycle path

Figure 1003.1A

Two-Way Class I Bikeway (Bike Path)

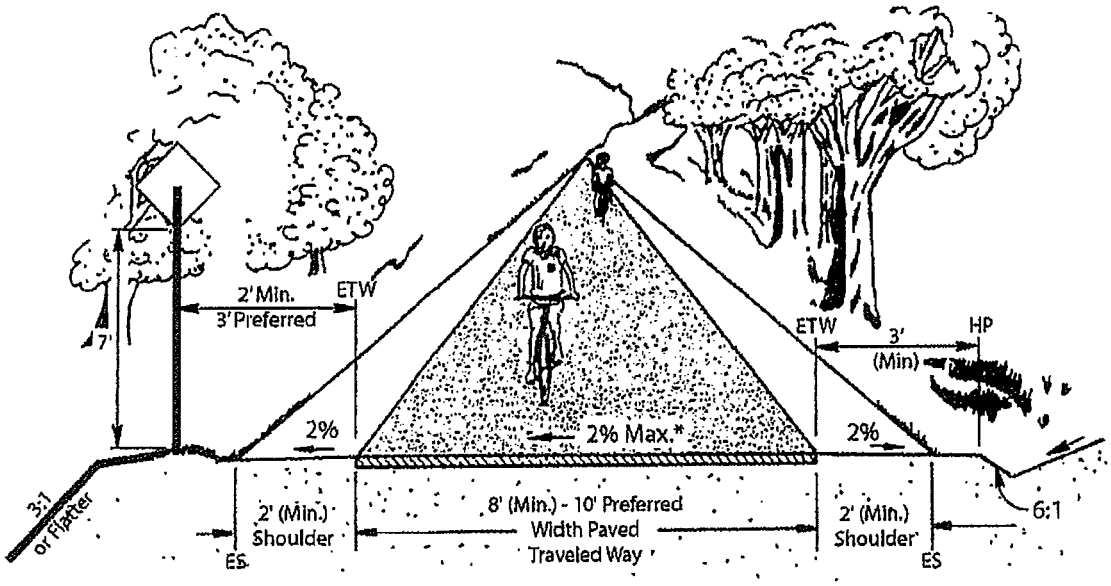


Figure Not To Scale

NOTES:

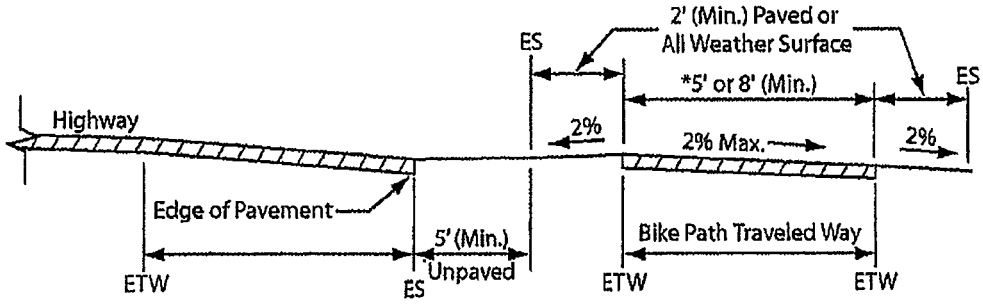
(1) See Index 1003.1(13) for pavement structure guidance of bike path.

(2) For sign clearances, see California MUTCD, Figure 9B-1.

* 1% cross-slope minimum.

Figure 1003.1B

Typical Cross Section of Class I Bikeway (Bike Path) Parallel to Highway



NOTE:

(1) See Index 1003.1(6) for guidance on separation between bike paths and highways.

* One-Way: 5' Minimum Width

Two-Way: 8' Minimum Width

County of Sacramento Improvement Standards
Section 4: Street Design

October 1, 2006

4-3 STREET TYPE AND DESIGN WIDTH

The standard approved street types and design widths for Sacramento County are as follows:

A. 20-Foot Street (Alley) - A street depressed in the center with a right-of-way and surface width of 20 feet. An alley will be accepted by Sacramento County as a public alley only when it is constructed of a minimum of 6-inch thick Portland cement concrete over a minimum of six inches of aggregate base in accordance with Standard Drawing 4-39 of these Improvement Standards.

B. 32-Foot Street (Minor Residential) - A street with a right-of-way width of 32 feet measured between the backs of the curbs.

As a standard, Minor Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Minor Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Minor Residential

streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

32-foot streets are normally used when serving fewer than 400 single-family residential units. Some duplexes may be included when the total number of duplexes represents less than ten percent of the residential units served by the street. Each duplex, for this purpose, shall be counted as two residential units.

Where a 32-foot street provides access onto an Arterial or Thoroughfare street, the street approach shall conform to the standard for a 38-foot street. The 38-foot street approach shall be provided for a distance of 100 feet from the cross street right-of-way line along with a 40-foot taper to transition to the standard 32-foot street.

C. 38-Foot Street (Primary Residential) - A street with a right-of-way width of 38 feet measured between the backs of the curbs.

As a standard Primary Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Primary Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Primary Residential streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

38-foot streets are normally used for serving 400 or more, but less than 700, single family residential units, and for serving duplex developments. A 38-foot street cross-section shall be used as the approach width for 32-foot streets that provide access onto Arterial and Thoroughfare streets.

Where a 38-foot street provides access onto an Arterial or a Thoroughfare street and where left turn movements are allowed for traffic traveling from the smaller street onto the Arterial or Thoroughfare street, the street approach shall conform to the standard for a 48-foot street. The 48-foot street approach shall be provided for a distance of 150 feet from the cross street right-of-way line with an additional 100-foot long taper to transition to the standard 38-foot street.

D. 48-Foot Street (Collector) - A street with a right-of-way width of 48 feet measured between the backs of the curbs. The street shall have five foot

wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Collector streets are typically striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

A 48-foot street approach shall be used as the approach width for 38-foot streets that provide access onto Arterial and Thoroughfare streets. 48-foot streets are used when serving 700 or more residential units, commercial, industrial, and multiple family developments, and are used in the vicinity of parks, schools and other public facilities in residential areas. Where 48-foot streets provide access onto Arterial and Thoroughfare streets, the street approach shall conform to the standard for a 60-foot street. See Standard Drawing 4-9.

E. 60-Foot Street (Major Collector) - A street with a right-of-way width of 60 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Major Collector streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Major Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

60-foot streets may be required in residential or industrial developments when warranted to provide a continuous 12-foot wide center turn lane or a 12-foot wide raised landscaped median. If a raised landscaped median is used on a Major Collector street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

A 60-foot street cross-section shall also be used as the approach width for 48-foot streets that provide access onto Arterial and Thoroughfare streets. See Standard Drawings 4-9.

F. 74-Foot Street (Arterial) - A street with a right-of-way width of 74 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Arterial streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-10 and 4-11.

74-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-6, 4-7, 4-8, 4-10, 4-11 and 4-12 for intersection widening geometry.

If a raised landscaped median is used on an Arterial street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

G. 96-Foot Street (Thoroughfare) - A street with a right-of-way width of 96 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-3. Thoroughfare streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-13 and 4-14.

96-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-8, 4-9, 4-12, 4-13 and 4-14 for intersection widening geometry.

H. Major Street Design

1. Raised Medians:

96-foot streets (Thoroughfares) shall have a solid non-traversable landscaped median between cross street intersections. 74-foot streets (Arterials) shall have a solid non-traversable landscaped median between cross street intersections when a continuous center turning lane is not required by the Director of Transportation or specified by the development's conditions of approval. The standard width for such medians is twelve feet, measured from top front of median curbing, eleven feet between the backs of median curbs. Median areas that are five feet wide or wider for a distance of thirty feet or more shall include landscaping and irrigation facilities. Landscaping and irrigation facilities shall conform to County's water conservation ordinance and meet the approval of the Director of Transportation.

Decorative hardscape treatment shall be installed in median areas less than five feet in width and along the back of curbing in landscaped portions of the median. The design, color, appearance, and associated construction details for decorative median hardscape treatment shall meet the approval of the Director of Transportation.

Raised medians may also be constructed on 60-foot streets (Major Collectors) where specified by a development's conditions of approval,

where desired by a developer, or where required by the Director of Transportation.

2. Median Openings on Major Streets:

   Median openings on Arterial and Thoroughfare streets shall be allowed at locations approved by the Director of Transportation and in conformance with the following:

   - Median breaks that allow for left turn movements from side streets or driveways shall be allowed only at signalized intersections. The minimum spacing between signalized intersections is 1,200 feet.

   - All proposed median breaks shall be analyzed by a traffic study prepared by a qualified Traffic Engineer hired by the Developer. Should the traffic study indicate that traffic signal warrants are met in the cumulative condition, the median break shall be located a minimum of 1,200 feet from the nearest signalized intersection and a minimum of 650 feet from the nearest unsignalized median break.

   - Unsignalized median breaks on Arterial or Thoroughfare streets that allow only left turn movements into side streets or driveways may be allowed if all of the follow criteria are met:

     - The Development generates a minimum of 350 peak hour vehicular trips or 3,500 daily trips.

     - Spacing between median breaks shall provide a minimum of 150 feet of full width landscaped median.

     - Median breaks shall be a minimum of 650 feet apart and a minimum of 650 feet from any existing intersection or median break. The spacing is measured along the roadway centerline from the location of the ends of the continuous median between the existing and proposed median breaks.

     - A traffic study shows that the proposed location for a median break does not meet traffic signal warrants for the fully developed (cumulative) condition.

     - Should the median break provide left turn access that could conflict with through traffic on the street that is approaching a signalized intersection within 1,200 feet of the proposed median break, a traffic study shall include queuing, safety, and operational analysis of the proposed left movement turn in both existing and cumulative conditions. The traffic study

must show that both the existing and cumulative condition peak hour queues at the traffic signal will not extend to the location of the proposed median break such that there will be no conflict of the proposed left turning movement with the traffic queue from the neighboring traffic signal.

- Greater consideration will be given to median breaks that provide for joint access to adjacent parcels. If joint access cannot be accomplished then the County reserves the right to require a dedication of a cross access easement between adjacent properties in order to consolidate future driveways.

3. Emergency Vehicle Crossings of Raised Medians:

Emergency vehicle median crossings shall be constructed on all streets with raised medians that that exceed 1,000 feet in length between median breaks. For the purpose of determining the need for emergency vehicle median crossings, median breaks shall only be those interruptions in median construction at intersections that allow all through and turning movements. Channelized median openings that restrict some traffic movements (such as those shown on drawing 4-17) shall not be considered median breaks for the purpose of locating emergency vehicle median crossings. For medians that exceed one thousand feet in length between median breaks but are less than two thousand feet long, emergency vehicle median crossings shall be located approximately in the middle of the length of the median. For longer medians, multiple emergency median crossings shall be installed such that the maximum spacing between median breaks and emergency crossings, or between adjacent median crossings, does not exceed one thousand feet.

Emergency vehicle median crossings shall be located a minimum of fifty feet clear distance from any existing or planned side street or major driveway. Emergency median crossings shall be twenty-five feet in length and extend across the full width of the median. Mountable curbing (modified type 1A curb shape extending six inches below pavement surface elevation but without the gutter section) shall be placed on both sides of the median for the twenty-five foot length of the emergency median crossing with five foot long curb transitions to match standard median curbing beyond the limits of the emergency median crossing. Expansion joints shall be placed through the curb at each side of the emergency vehicle crossing. Hardscape paving of the median in the area of the emergency vehicle median crossing shall consist of eight inch thick P.C.C. on six inches of aggregate base. The hardscape median paving shall have integral color and a stamped pattern to match

median hardscape appearance at other adjoining median locations along the roadway or as approved by the Director of Transportation.

4. Design of Streets and Driveways Intersecting with Major Streets:

   Where intersecting with 74-foot or wider streets, Minor Residential streets shall have a minimum right-of-way width of 38 feet. Where intersecting with 74-foot or wider streets, Primary Residential streets that only have right turn movements onto the larger street shall have a minimum right-of-way width of 38 feet. Street intersections with right turns only onto 74-foot or wider streets should be no closer than 450 feet from each other or from the nearest cross street intersections. Major driveways which will serve significant traffic volume, as determined by the Director of Transportation, shall be considered as intersecting streets and shall be no closer than 450 feet from each other or from cross street intersections. Driveways should be located as far apart as practical with a minimum of 150 feet between driveways or from driveways to intersections. Major driveways that will be signalized shall be designed in accordance with public street intersection standards and shall not have concrete valley gutters.

   Pavement widening shall be required where private lanes and where Class C or Class D streets (see Section 4-5) intersect with 74-foot and 96-foot streets in accordance with Standard Drawing 4-41. Major driveways serving significant traffic or truck volumes, and as determined by the Director, shall be considered as intersecting streets with regard to pavement widening on Class C streets.

5. Intersection Widening on Major Streets:

   Intersection widening shall be in accordance with Standard Drawings 4-6 through 4-14 and the requirements in these Special Provisions. The transition lengths associated with intersection widening shall be longer than as indicated on the above listed standard drawings on roadways with a curving centerline so as to accommodate the safe travel of vehicles through the transition area at the design speed of the roadway.

6. Roadway Widening for U-Turns on Streets with Raised Medians:

   All Arterial and Thoroughfare streets shall be required to accommodate "U" turns at all traffic signals and at locations of breaks in raised medians that allow for left-turn movements from roadway with raised medians. A minimum outside clear path of 44 feet of pavement shall be required. This requirement also applies to Major Collector streets that have raised medians.

I. Frontage Road - A street located parallel to and abutting a major roadway or freeway which provides service to abutting properties for which direct access to the major roadway or freeway is prohibited or undesirable. Frontage roads adjacent to State freeways shall conform to the full width standards for 50-foot streets, as shown on Standard Drawing 4-3, unless designated as an Arterial or Thoroughfare street on the County's General Plan. All other frontage roads shall have a 28-foot paved surface with a Type 5 vertical curb on the undeveloped side and curb and gutter and a minimum 5-foot sidewalk with an 8 foot landscaped buffer on the developed side (See Standard Drawing 4-3).

J. School Frontage – Along the roadway frontage of any school development on Arterial or Thoroughfare streets an additional eight feet of roadway and right-of-way, beyond that shown for standard Arterial and Thoroughfare streets, shall be provided. The additional area shall allow for six feet of roadway width adjacent to the gutter section for on-street pick up and drop off of students along the school's roadway frontage plus two feet of clear area between the on-street parking area and the adjoining bicycle lane.

K. Other Street Designs – Class C street improvements vary in width and are used as interim improvements for roadways sections not yet improved by adjacent development or in rural areas where Class A or Class D improvements are not required. See Standard Drawing 4-4. Class D street improvements also vary in width and are used in certain portions of rural areas within the County's Urban Services Boundary. Class D streets provide enhanced pedestrian facilities over that of Class C streets. See Standard Drawing 4-5. See Section 4-5 for more information on the use of the various classes of street improvements.

County of Sacramento Standard Construction Specifications
Section 6: Legal Relations and Responsibilities
Revised January 2008

County of Sacramento
Municipal Services Agency

Paul Hahn, Administrator

STANDARD CONSTRUCTION SPECIFICATIONS

September 2001
Revised March 2004
Revised January 2008

employees and the public from ATD exposure in and around facilities owned and operated by the Agency.

6-11.10 Mining and Tunnel Safety

The Contractor must be aware of any Work that may be under the jurisdiction of either the Tunneling Safety Orders (TSO), California Code of Regulations, Title 8, Sections 8400 through 8568 or the Mine Safety Orders (MSO), California Code of Regulations, Title 8, Sections 6950 through 7283. It is the Contractor's responsibility to apply for and obtain any permits and licenses and to comply with all applicable laws and regulations.

6-12 PUBLIC CONVENIENCE AND SAFETY

6-12.01 Public Convenience

All work within public streets and/or roadway rights-of-way shall be done in an expeditious manner and cause as little inconvenience to the traveling public as possible. Vehicles, bicycles, and pedestrians must be allowed to pass at all times except during an emergency closure. See Section 7-8, "Peak Hours, Hours of Darkness, Holidays and Weekends", of these Specifications for time limitations. See Section 7-8, "Emergency Repairs", for the criteria of what constitutes an emergency.

The surface of roadways open to the public shall be kept in a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic at all times as determined by the Agency.

Temporary facilities used by the Contractor to perform the Work or store or stage material or equipment shall not be installed or placed where they will interfere with the free and safe passage of public vehicular, bicycle, or pedestrian traffic.

6-12.02 Pedestrian and Bicyclist Access

The Contractor shall not block the movement of pedestrian or bicycle traffic. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations and/or by providing alternative pedestrian and bicyclist access through or adjacent to construction areas. Proper advance notice signage with reasonable detours shall be installed and maintained through all phases of construction. Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. At no time shall pedestrians be diverted into a portion of the street used for vehicular traffic or on to private property unless proper barriers, delineation, and adequate signage is in place. Pedestrian and bicycle access shall consist of five-foot (5') wide bridges across trenches and five-foot (5') wide passageways through construction areas. Hand railings for pedestrians shall be provided when required by Cal/OSHA Regulations or the Americans with Disabilities Act (ADA) on each side of each bridge or passageway to protect pedestrians from hazards caused by construction operations or adjacent vehicular traffic.

Railings or barriers, which border passageways located in roadway areas, shall be retro-reflectorized on the side facing oncoming traffic.

6-12.02.A Pedestrians (Temporary Alternate Circulation Path)

When crosswalk or other pedestrian facilities are temporarily closed or relocated, temporary alternate circulation paths are required to be provided by the Contractor to achieve the maximum accessibility feasible under existing conditions.

6-12.02.A(1) Components

A Temporary Alternate Circulation Path (hereafter referred to as "path" or "pathway") shall consist of one or more of the following components: walkways, ramps, curb ramps (excluding flared sides) and landings, blended transitions, crosswalks, and pedestrian overpasses and underpasses. Elevators, platform lifts, stairways and escalators shall not be part of a path. All components of a path shall comply with the applicable portions of these Specifications.

6-12.02.A(2) Continuous Width

Unless otherwise approved by the Agency, the minimum continuous and unobstructed clear width of a path shall be five feet (5'), exclusive of the width of the pedestrian barricades and channelizing devices. If the alignment of the temporary path does not allow for a minimum continuous and unobstructed clear width of five feet (5'), the width may be reduced to four feet (4') upon the written approval of the Agency. Where a path turns or changes direction, it shall accommodate the continuous passage of a wheelchair or scooter. As with street or highway design for vehicles, additional maneuvering width or length may be needed along curved or angled routings, particularly where the grade exceeds five percent (5%). Individual segments of paths shall have a minimum straight length of four feet (4').

California Code of Regulations, Title 24, Part 2, Chapter 11B, Section 1133B.8.6, and Americans with Disabilities Act Accessibility Guidelines (ADAAG) 4.4 "Provisions for Protruding Objects" apply across the entire width of the path.

6-12.02.A(3) Width at Passing Spaces

Paths that are less than five feet (5') in clear width shall provide passing spaces at intervals of two hundred feet (200') maximum. Paths at passing spaces shall be five feet (5') wide for a distance of five feet (5').

6-12.02.A(4) Walkway Grade and Cross Slope

Unless otherwise approved by the Agency, the pathway surface shall be level and navigable and shall not have a slope greater than twelve to one (12:1) or a cross slope greater than two percent (2%). Where the walkway of a pedestrian access route is contained within a street or highway border, its grade shall not exceed the general grade established for the adjacent street or highway.

6-12.02.A(5) Surface

Unless otherwise approved by the Agency there shall be no surface discontinuities. Additionally, the installation of gratings in the surface of the pathway is not acceptable. All non-slip surfaces shall have a surface static coefficient of friction of 0.50 per ASTM C 1028.

The surface of the path shall be firm, stable, and slip resistant. The pathway shall be constructed of concrete, asphalt, non-slip plywood or non-slip steel plate. Non-slip plywood used for a walkway surface shall have a minimum thickness of one and one-eighth inch (1-1/8") and shall be thoroughly supported to provide a firm stable surface. Compacted soil or aggregate base material is not considered an acceptable surface.

Surface discontinuities shall not exceed one-half inch (½") maximum. Changes in level up to one-quarter inch (¼") may be vertical and without edge treatment. Vertical discontinuities between one-quarter inch (¼") and one-half inch (½") maximum shall be beveled at one to two (1:2) minimum. The bevel shall be applied across the entire level change. Changes in level greater than one-half inch (½") shall be accomplished by means of a ramp that complies with California Code of Regulations, Title 24, Part 2, Chapter 11B, Section 1127B.5 and ADAAG 4.7.

6-12.02.A(6) Location

Sidewalks at the construction location may be closed with adequate detours. Detours shall not increase the path of travel by more than five hundred feet (500'). Detour routes shall be limited to existing sidewalks, private properties (see above requirements) and crossings at roadway intersections. To the maximum extent feasible, the alternate circulation path shall be provided on the same side of the street as the disrupted route. Where it is feasible to provide a same-side alternate circulation path and pedestrians will be detoured, Section 6D.02 of the current California Manual on Uniform Traffic Control Devices (CA/MUTCD) specifies that the alternate path provide a similar level of accessibility to that of the existing disrupted route. This may require the installation of temporary accessible pedestrian signals (APS), curb ramps, or other accessibility features.

Pedestrians may be detoured onto private property only if written permission from the property owner is obtained along with documentation indicating that the County would not be liable in the event of an accident.

6-12.02.A(7) Protection

Where the temporary alternate circulation path is exposed to adjacent construction, excavation drop-offs, traffic, or other hazards, it shall be protected with a pedestrian barricades, channelizing devices, concrete barriers, or other TTB devices necessary to provide clear guidance for pedestrians.

When it is necessary to block travel at the departure curb to close a crosswalk that is disrupted by excavation, construction, or construction activity, care must be taken to preserve curb ramp access to the perpendicular crosswalk. This may require additional pedestrian channelization if only a single diagonal curb ramp serves the corner.

Figures 6H-28 and 6H-29 of the CA/MUTCD specify notification signage for pedestrian closings and detours. Audible signage triggered by proximity switches should be used whenever possible to provide information to pedestrians who are unable to properly see print signs, such as the blind and visually impaired.

Pedestrians routed into normal bicycle or automobile traffic lanes must be protected from traffic via pedestrian barricades channelizing devices, concrete barriers, or other TTB devices that are continuous, immovable, stable, rigid, and visible and free of splintered, jagged, and sharp surfaces/edges. Caution tapes, cones, drums, sawhorses, and A-frames are not considered effective substitutions for this purpose.

Pedestrians routed onto the roadway shoulder at locations not normally traveled by bicycles or locations where bicycle traffic has been relocated must be protected with a continuous, immovable, stable, rigid, and visible barrier that is free of splintered, jagged, and sharp surfaces/edges. Pedestrian barricades and channelizing devices shall consist of a wall, fence, or enclosures specified in section 6F-58, 6F-63, and 6F-66 of the CA/MUTCD. Caution tape, cones, drums, sawhorses, and A-frames are not allowed for this purpose. Barriers shall have a bottom or lower continuous rail two-inches by six-inches (2"x6") secured in a vertical orientation and a two-inch by six-inch (2"x6") minimum upper rail at least thirty-six inches (36") above the ground or walkway surface. Barrier support members shall not protrude beyond the barricade face into the pedestrian access route or alternate circulation path.

The pathways shall be well marked with retroreflective materials to assist both visually impaired pedestrians and vehicles traveling at times when visibility may be limited. The retroreflective materials shall be color yellow conforming to Federal Color No. 33538, as shown in Table IV of Federal Standard No. 595B, "Colors Used in Government Procurement".

During working hours, at least one worker shall be assigned the responsibility to escort elderly, disabled or any other pedestrians in need of assistance through and/or around the construction site. The worker assigned this responsibility may also participate in other construction activities; however, the assigned worker shall be aware of his or her primary responsibilities for providing this assistance.

6-12.02.A(8) Lighting

The pathway is to be continuously and uniformly illuminated at all times. When existing artificial lighting does not continuously and uniformly illuminate the path or there is no artificial lighting, there shall be temporary lights installed. Minimum illumination shall be ten (10) foot candles. The Contractor shall employ means to distinguish the path from its surroundings. Factors such as shadows cast by lighting sources, surface reflectance, and the uniformity of the color and texture of the materials making up the walking surface must be considered.

6-12.02.A(9) Holes in the Permanent Path of Travel

When there is a hole or opening, e.g. manhole cover, within the permanent pathway of travel, there shall be a continuous, immovable, stable, rigid, and visible pedestrian barrier surrounding the boundary of the opening that is free of splintered, jagged, and sharp

surfaces/edges. Unless otherwise approved by the Agency, there shall be a five-foot (5') clear pathway around the pedestrian barrier. The pedestrian barrier/pathway must also meet all requirements as listed above.

6-12.03 Written Notification To Residences and Businesses

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least ten (10) Working Days prior to road closures and at least three (3) Working Days prior to disruption of ingress and egress. The notice provided to the residences or businesses shall include, at a minimum, schedule of closures with estimated closure times, closure location, alternate route or detour, and name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least three (3) Working Days prior to placing parking restrictions within the County right-of-way. The notice provided to the residences or businesses shall include, at a minimum, schedule of parking restrictions with estimated times, location, and a name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

6-12.04 Access To Driveways, Houses and Buildings

Access and passable grades shall be maintained at all times for business establishments during construction. Safe and passable pedestrian, bicyclist, and vehicular access shall be provided and maintained to fire hydrants, homes, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals, and establishments of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved. Ramps and driveways shall not have "lips" or elevation differences greater than three-eighths of an inch (3/8") or one (1) cm.

When abutting property owner's access across the right-of-way line is to be eliminated, repaired, or replaced under the Contract, the existing access shall not be closed until the replacement access facilities are completed and functional.

6-12.05 Property Damage

Any property damage caused by the Contractor shall be repaired at the Contractor's expense to the satisfaction of the Agency.

6-12.06 Erection of Signs To Facilitate Passage of Vehicles

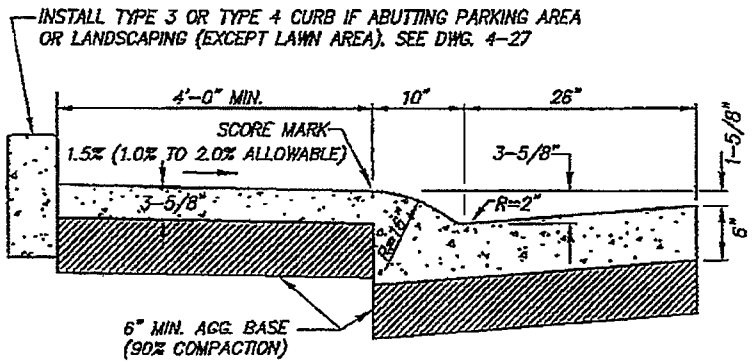
The Contractor shall erect such warning and directional signs as necessary or as directed by the Agency for facilitating the passage of public traffic through or around the Work and the approaches. All warning and directional signs shall comply with Section 6-13, "Public Safety and Traffic Control", in this Section of these Specifications; Section 12, "Construction Area Traffic Control", of these Specifications; and the California Manual of Uniform Traffic Control Devices (CA/MUTCD).

6-12.07 Traffic Obstructions, Delays and Inconveniences

All public traffic shall be permitted to pass through the Work and the Contractor shall conduct operations that offer the least possible obstruction, delay, and inconvenience to the public, except where authorized by the Agency or in an emergency situation where access may endanger the public. See Section 7-8 Emergency Repairs for criteria on what constitutes an emergency.

6-12.08 Work On Private Property

The Contractor must obtain written permission from the owner of any privately owned property prior to beginning any work, storing materials or otherwise conducting any operations on said property. The written approval from the property owner must be on file with the Agency before any operations will be permitted on said property.



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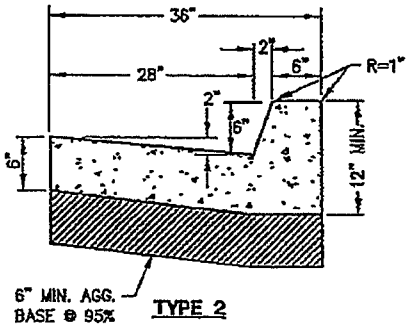

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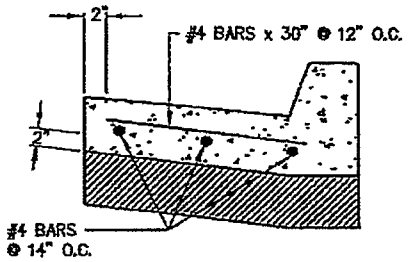

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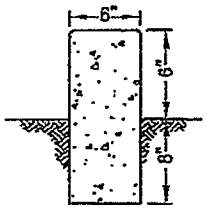

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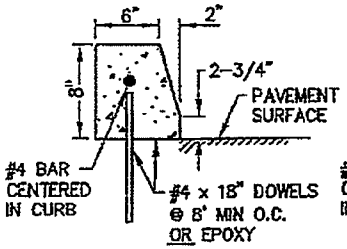

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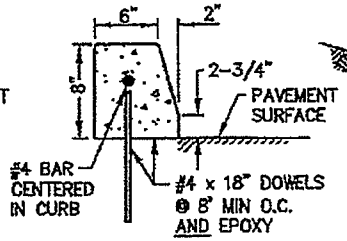

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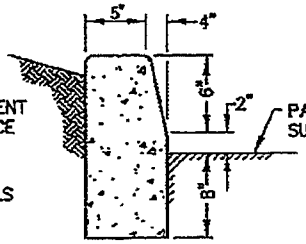

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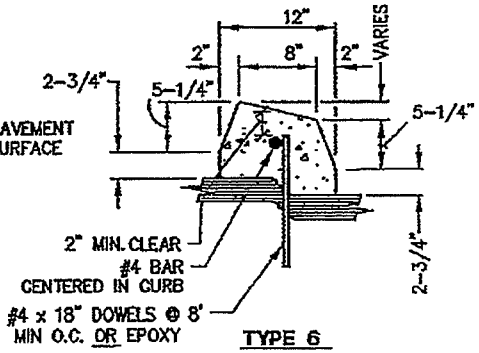
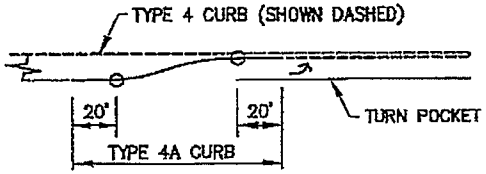


TYPE 6

NOTES:

SEE SECTION 27-3.01 OF STANDARD CONSTRUCTION SPECIFICATIONS FOR REQUIREMENT FOR EXPANSION JOINTS, WEAKENED PLANE JOINTS AND SCORE MARKS. 1/2" RADIUS ON EXPOSED EDGES UNLESS NOTED OTHERWISE.



PLAN FOR TYPICAL PLACEMENT OF TYPE 4A CURB

CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY

TYPICAL CURB & GUTTER SECTIONS

SCALE: NONE
DATE: 11/06/2007
DRAWN BY: TRU P.

4-25

Aspen VIII and Aspen IX Mining Project

Air Quality and Greenhouse Gas Study

PREPARED FOR:

Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864

April 8, 2016

Aspen VIII and Aspen IX Mining Project

Air Quality and Greenhouse Gas Study

PREPARED FOR

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April 8, 2016

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ACRONYMS/ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
ARB	California Air Resources Board
BACT	Best Available Control Technology
BMPs	Best Management Practices
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CCAA	California Clean Air Act
CEC	California Energy Commission
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Delta	Sacramento River–San Joaquin River Delta
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
HAP	hazardous air pollutants
IPCC	Intergovernmental Panel on Climate Change
km	kilometers
lb/day	pounds per day
MMT	million metric tons
MT	metric tons
NAAQS	national ambient air quality standards
NESHAP	national emissions standards for HAPs
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen

OEHHA	Office of Environmental Health Hazard Assessment
ozone	photochemical smog
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
ppb	parts per billion
ppm	parts per million
PSD	New Source Review Prevention of Significant Deterioration
ROG	reactive organic gases
SIP	State Implementation Plan
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SVAB	Sacramento Valley Air Basin
TAC	toxic air contaminant
Teichert	Teichert Aggregates
WRCC	Western Regional Climate Center

1 INTRODUCTION

Teichert Aggregates (Teichert) is seeking approval from Sacramento County to commence aggregate mining on 363 acres within its Aspen VIII and Aspen IX properties, located in the unincorporated portion of Sacramento County. Teichert is requesting that the County approve conditional use permits and reclamation plans for both Aspen VIII and Aspen IX, amend the General Plan designation (aggregate resource overlay) for both properties to allow mining followed by future development, and rezone both properties to include a Surface Mining overlay zone.

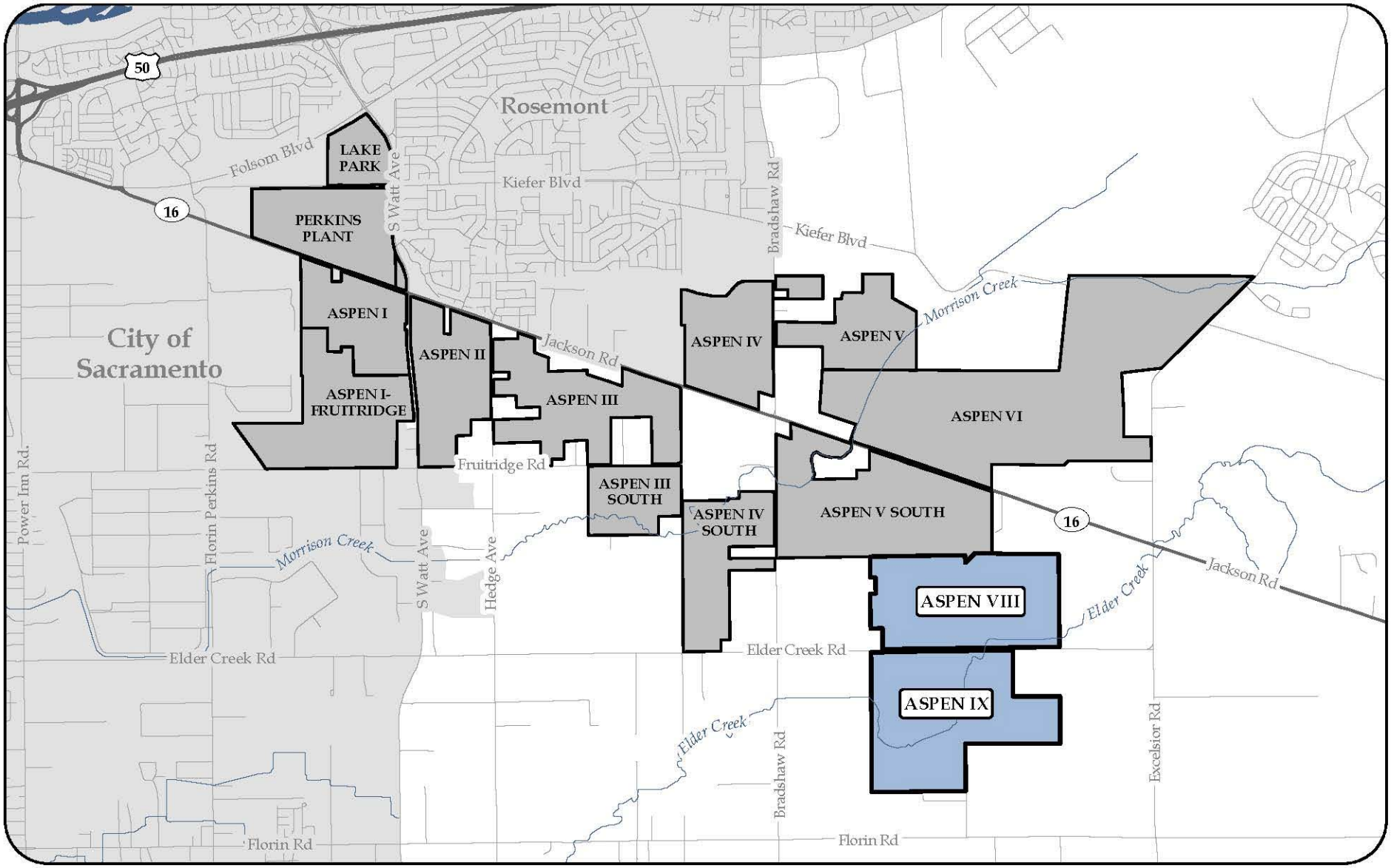
The proposed project is a continuation of mining on Teichert "Aspen" properties that began in the 1950s and has continued uninterrupted since that time. During most economic conditions, the Sacramento region experiences a high demand for aggregate products due to extensive housing needs and local infrastructure needs. Aspen VIII and Aspen IX are two local sources of construction aggregate to support the regional need. The sites contain a large quantity of aggregate base, construction aggregate (used in concrete) and mineral aggregate (used in asphalt).

This Study includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential air quality impacts caused by the project. Mitigation measures are recommended as necessary to reduce significant air quality impacts to the extent feasible.

The Study also includes an estimate and analysis of greenhouse gases (GHGs) associated with the project. Emissions of GHGs adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The proper context for addressing this issue in CEQA documents is as a discussion of cumulative impacts, because although the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world have a cumulative impact with respect to global climate change. In turn, there is scientific consensus that global climate change will result in rising sea levels, which can inundate low-lying areas; affect rainfall and snowfall, leading to changes in water supply; affect habitat, leading to adverse effects on biological resources; and result in other adverse environmental and economic effects.

2 PROJECT DESCRIPTION

The proposed project is located within Sacramento County, east of the City of Sacramento limits and immediately south of Jackson Highway and approximately one half mile east of Bradshaw Road. Elder Creek Road transects the center of the project site, with Aspen VIII (APNs 063-0180-005, -006 and 063-0160-001) to the north and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) to the south. The site, including both Aspen VIII and Aspen IX properties, encompasses a total of 683 acres. Aspen VIII is located immediately north of Elder Creek Road, south of Teichert's Aspen V South property and approximately one-half mile east of Bradshaw Road. Aspen IX is located south of Elder Creek Road and the Aspen VIII property. The sites are located in close proximity to Teichert's Perkins aggregate processing facility (Plant), enabling the mined aggregate material to be transported via a conveyor belt system to Teichert's Perkins Plant, which is located on Jackson Road between Florins Perkins Road and Watt Avenue. Exhibit 1 shows the location for the Aspen VIII and Aspen IX proposed project. Exhibit 2 shows the proposed mining boundary and buffers. Access to each site will be from Elder Creek Road.



TEICHERT AGGREGATES

LEGEND:

- Teichert Aggregates Aspen VIII & IX Property Boundaries
- Teichert Aggregates Aspen Property Boundaries

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

0 2,000 4,000 Feet

Exhibit 1
Location for the Aspen VIII and Aspen IX Proposed Project

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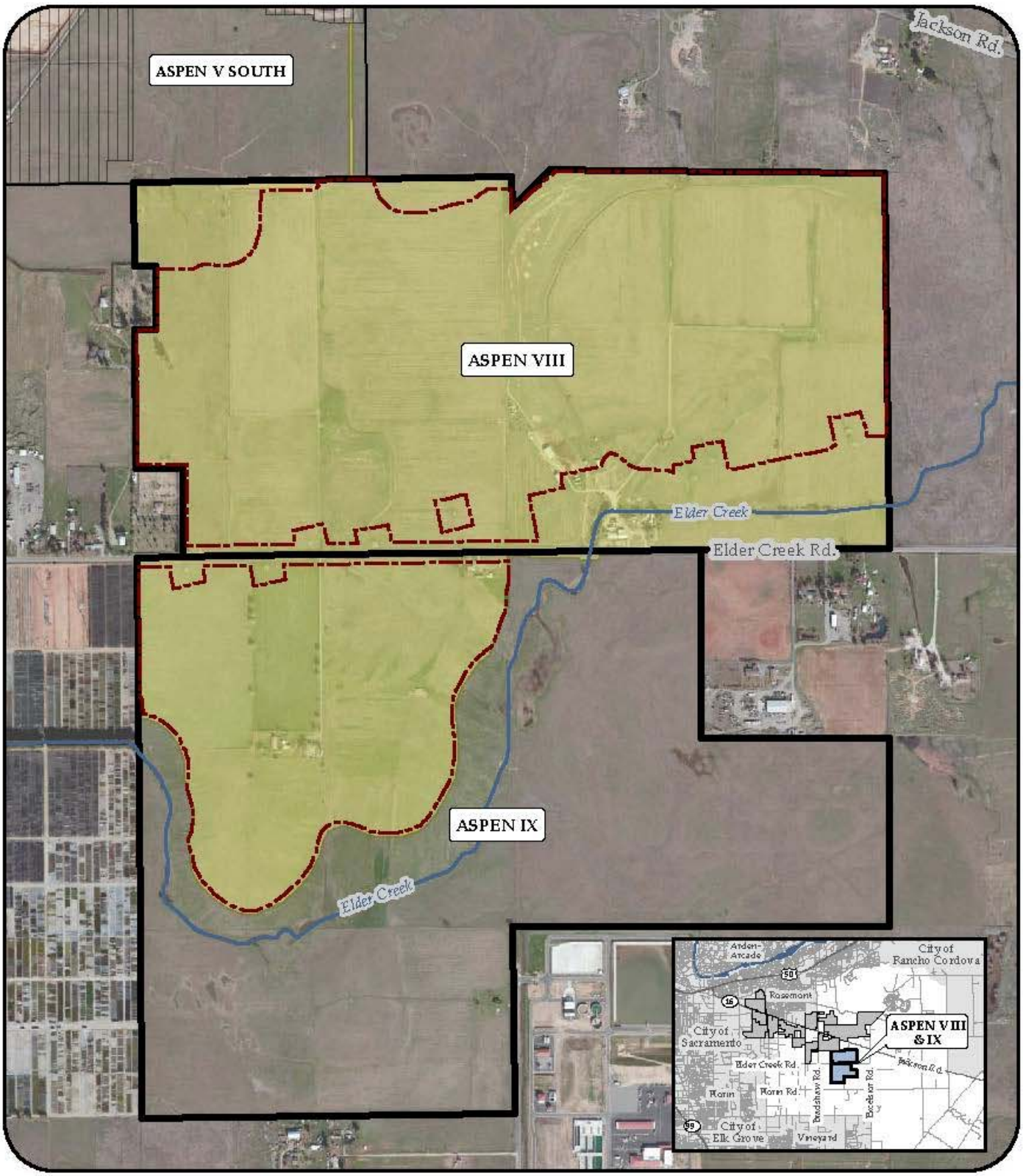

TEICHERT AGGREGATES

LEGEND:

- Elder Creek
- Proposed Mining Boundary
- Project Boundary
- Aspen VIII & IX Property Boundaries
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

Exhibit 2
Proposed Mining Boundary and Buffers

C. Cornerio 09/09/2014 8:58 AS99 BasicSitMap 2014 09 m.mxd

2.1 PROJECT SITE

The Aspen VIII and Aspen IX properties consist of 683 acres of land, including the Elder Creek right of way, which has been utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Neither site contains prime agricultural land. There are also ranch houses and associated outbuildings on the sites. Land uses surrounding the sites include rural residential, agricultural cropland, rangeland, annual grassland, a nursery facility, Arlington Memorial Cemetery, and Bellevue Cemetery. Additionally, the Sacramento County Vineyard Surface Water Treatment Plant is located on the south side of Aspen IX, bound by Knox Road to the west and Florin Road to the south.

Moderate rolling hills and extensive flatlands characterize the topography of the site and the surrounding area. Slopes are dominantly convex and incised by many shallow drainage ways and depressions. Elevation ranges from 60 to 85 feet above mean sea level. The hydrologic regime onsite is dominated by seasonal precipitation and storm water runoff, primarily between November and March.

2.2 DESCRIPTION OF PROPOSED PROJECT

The proposed project will consist of aggregate removal and conveyance, as well as reclaiming the sites for agricultural grazing. Each of these elements is discussed in greater detail below.

2.2.1 Proposed Mining Operations

Aggregate mining operations will commence with the removal of approximately 5-10 feet of topsoil/clay/silt overburden that overlies the sand and gravel comprising the aggregate deposit. The topsoil and other overburden will be used to phase reclamation as soon as can be accommodated by the mining schedule, as discussed below. Topsoil that can be utilized immediately for reclamation will be stockpiled in an area where it will not be disturbed until needed for reclamation. In the event excess topsoil or other overburden is available, Teichert is proposing the potential transfer of a maximum of 500,000 cubic yards of this overburden material using off-road trucks to the adjacent Aspen V site where it would be used for mine reclamation.

When the topsoil and overburden are removed, and the sand and gravel is exposed, extraction of the aggregate resource begins. The deposit, which may vary in thickness from 20 to 35 feet, will then be mined with a variety of heavy equipment (loaders, bulldozer, scrapers, excavator) and transported to Teichert's Perkins processing plant via an electric conveyor system. The main conveyor system presently extends from Teichert's Aspen V South site to Perkins Plant, located on the south side of Jackson Highway east of Bradshaw Road, a distance of about 6 miles. The existing conveyor will be extended from the Aspen V South main line onto Aspen VIII. The conveyor system will connect to Aspen IX by an undercrossing at Elder Creek Road. No processing of materials would occur onsite and no new stationary sources are proposed.

Teichert intends to begin mining operations on Aspen VIII and generally proceed south onto Aspen IX. Teichert proposes to mine between 1 million – 3 million tons of material per year depending on market conditions at the time of mining.

At Teichert's Perkins processing facility, the aggregate is sorted, crushed and washed before being sold or used at the processing facility. The silt-like material from washing the aggregate may be transported in a slurry using existing PVC pipelines located under and alongside the conveyor, and placed in accumulation areas, called drying beds. This will eventually help raise the pit floor after mining. Utilizing drying beds will be included in the use permit and as a component of the reclamation process, and the location will be depicted on the site's approved reclamation plan.

2.2.2 Reclamation

Teichert will reclaim mined out areas in compliance with the State Surface Mining and Reclamation Act. The term "reclamation" refers to the restoration of a mined site to a usable condition that is readily adaptable for other subsequent land uses. The majority of the mined areas on Aspen VIII and Aspen IX will be reclaimed for agricultural uses. To accomplish this, topsoil and overburden will be placed and graded in specified areas to provide a suitable growing medium for the establishment of protective vegetative cover and viable agricultural crops. All salvageable topsoil suitable for revegetation will be removed as a separate layer from areas to be disturbed by mining. Topsoil and vegetation removal will not precede surface mining activities by more than one year; the topsoil and other overburden will be used to phase reclamation as soon as can be accommodated by the mining schedule. Topsoil that cannot be utilized immediately for reclamation will be stockpiled in an area where it will not be disturbed until needed for reclamation. If storage is necessary, stockpiles will be seeded to control erosion and the loss of biological components. Topsoil will be redistributed in such a manner that places it on top of the reclaimed surface in a stable form and uniform thickness.

In order to help achieve the reclamation objectives set forth above, Teichert seeks the ability to use "drying beds" as part of the reclamation process for those properties. The "drying beds" method involves the accumulation of a silt-like material obtained from washing aggregate at its processing facilities (located offsite) and the subsequent placement of this material on mined out areas in order to raise the mined floor closer to original adjacent grade.

3 REGULATORY BACKGROUND

Air quality within the project area is regulated through the efforts of various federal, State, regional and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of other programs. The agencies responsible for improving the air quality within the air basin are discussed below.

3.1 FEDERAL

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

3.1.1 Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 1, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area.

If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 1 Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California [a,b]	National [c]	
			Primary [b,d]	Secondary [b,e]
Ozone	1-hour	0.09 ppm (180 µg/m³)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m³)	0.070 ppm (147 µg/m³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m³)	9 ppm (10 mg/m³)	
Nitrogen dioxide (NO_2) [g]	Annual arithmetic mean	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)	–
	3-hour	–	–	0.5 ppm (1300 µg/m³)
	1-hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m³	–	Same as primary standard
	24-hour	50 µg/m³	150 µg/m³	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
	24-hour	–	35 µg/m³	Same as primary standard
Lead [g]	Calendar quarter	–	1.5 µg/m³ (for certain areas)	Same as primary standard
	30-Day average	1.5 µg/m³	–	–
	Rolling 3-Month Average	–	0.15 µg/m³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m³)	No national standards	
Sulfates	24-hour	25 µg/m³		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

[a] California standards for ozone, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was issued. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board 2015

3.1.2 Toxic Air Contaminants/Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs), or in federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established (Table 1) Instead, EPA and, in California, the California Air Resources Board (ARB) regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. (See the discussion of TACs in Section 3.2.2 under the "State" section below for a description of ARB's efforts.) These in conjunction with additional rules set forth by the Sacramento Metropolitan Air Quality Management District (SMAQMD), the primary agency in charge of air quality in the project area, described below under "Sacramento Metropolitan Air Quality Management District," in Section 3.3 establish the regulatory framework for TACs.

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP for major sources may differ from that for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year of any HAP or more than 25 tons per year of any combination of HAPs; all other sources are considered area sources. The emissions standards were to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA was required to promulgate health risk–based emissions standards when deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

3.1.3 Greenhouse Gases

SUPREME COURT RULING

EPA is the federal agency responsible for implementing the CAA. The Supreme Court of the United States ruled on April 2, 2007 (*Massachusetts, et al., Petitioners v. Environmental Protection Agency, et al.)*, that carbon dioxide (CO_2) is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in that case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

EPA ACTIONS

In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Greenhouse Gas Permitting Requirements

New major stationary emissions sources and major modifications at existing stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. On May 13, 2010, EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailor Rule (EPA 2011). This final rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

PSD permitting requirements now cover new construction projects that emit GHG emissions of at least 100,000 tons carbon dioxide equivalent (CO_2e) (90,718 metric tons [MT]) per year even if they do not

exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that increase GHG emissions by at least 75,000 tons (68,039 MT) per year will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant. Title V Operating Permit requirements apply to sources based on their GHG emissions even if they would not apply based on emissions of any other pollutant. Facilities that emit at least 100,000 tons (90,718 MT) per year of CO_2e will be subject to Title V permitting requirements.

EPA issued a final rule on June 29, 2012 that continues to focus permitting on the largest emitters. The EPA did not revise the GHG permitting thresholds that were established by the GHG Tailoring Rule. Therefore, at this time, PSD and Title V permitting requirements are not applicable to additional, smaller sources of GHG emissions (EPA 2012a)

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 MT or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

3.2 STATE

ARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California ambient air quality standards (CAAQS) (Table 1).

3.2.1 Criteria Air Pollutants

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides air districts with the authority to regulate indirect sources.

3.2.2 Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, PM exhaust from diesel engines (diesel PM) was added to ARB's list of TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

3.2.3 Greenhouse Gases

EXECUTIVE ORDER S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

ASSEMBLY BILL 32, THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that is being phased in (starting in 2012). To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

ASSEMBLY BILL 32 CLIMATE CHANGE SCOPING PLAN

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan, reapproved by ARB in August 2011, includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The first update to the Scoping Plan was approved by the ARB Board in May 2014 (ARB 2014a). The updated Scoping Plan revised the 2020

projection to 509 MMT CO_2e and the 2020 emission limit to 431 MMT CO_2e. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the following reductions in GHG emissions from sector-based measures:

- Energy (25 MMT CO_2e),
- Transportation (23 MMT CO_2e),
- High global warming potential (5 MMT CO_2e),
- Waste (2 MMT CO_2e), and
- Cap-and-Trade Regulations (23 MMT CO_2e)

SENATE BILL X7-7

Global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada (Intergovernmental Panel on Climate Change [IPCC] 2007). These conditions can have major implications on the agriculture industry in California. SB x7-7, enacted in November 2009, requires all water suppliers in California to increase water use efficiency. Specifically, the legislation sets an overall goal for the State of California to reduce per capita urban water use by 20 percent by December 31, 2020. An interim goal of a 10 percent per capita reduction was set for December 31, 2015.

3.3 LOCAL

3.3.1 Sacramento Metropolitan Air Quality Management District

CRITERIA AIR POLLUTANTS

SMAQMD is the primary agency responsible for planning to meet federal and State ambient air quality standards in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the federal Clean Air Act requirements to attain and maintain the federal ozone standard. Ozone plans in the Sacramento Metro region include the 1994 Sacramento Area Regional Ozone Attainment Plan and the 2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan. These plans were produced to develop a strategy to attain the federal one-hour and 8-hour ozone standards. The Sacramento Region has been designated as a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019.

SMAQMD also enforces air quality regulations, educates the public about air quality, and implements a number of programs to provide incentives for the replacement or retrofit of older diesel engines and to influence land use development in Sacramento County.

SMAQMD's Sacramento Area Regional Ozone Attainment Plan also commits to obtaining one ton per year of reactive organic gases (ROG) reductions and one ton per year of oxides of nitrogen (NO_X) reductions from Land Use and Transportation Control Measures. The plan lists land use mitigation and transit-oriented development as examples of the types of programs that SMAQMD will use to reach their one ton goal. SMAQMD does not develop specific rules to implement these programs, but instead does so mostly through the CEQA process. SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria pollutants and TACs, and also make recommendations for conducting air quality analyses. Once SMAQMD guidelines have been

consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include but are not limited to the following:

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or ARB portable equipment registration.

- Rule 402: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

- Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.

- Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

In addition, effective as of October 10, 2005, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day [lb/day]) after the standard construction mitigation is applied, then an offsite construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase offsite emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

TOXIC AIR CONTAMINANTS

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source-review standards and air-toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

ODORS

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 (Nuisance) regulates odorous emissions.

GREENHOUSE GASES

SMAQMD has adopted GHG thresholds, to provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and AB 32 in 2013. SMAQMD's goals in developing GHG thresholds include ease of implementation; use of standard analysis tools; and emissions mitigation consistent with AB 32.

SMAQMD utilized guidance from the California Air Pollution Control Officers Association to develop threshold concepts. The goal was to develop a threshold screening level that would capture 90 percent of emissions from new stationary source and land development projects.

The adopted threshold for stationary source projects subject to CEQA is 10,000 direct MT CO_2e per year. The land development threshold was created to ensure small projects would not be economically disadvantaged. The adopted land development threshold is 1,100 MT CO_2e per year.

3.3.2 Sacramento County

SACRAMENTO COUNTY GENERAL PLAN

The project site lies within the jurisdictional boundaries of Sacramento County; therefore, the County's policies with respect to air quality and climate change would be germane. Relevant policies and standards related to air quality and GHG emissions are described below.

- **Policy AQ-3.** Buffers and/or other appropriate mitigation shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective," and the AQMD's approved Protocol (Protocol for Evaluating the Location of Sensitive Land uses Adjacent to Major Roadways) shall be utilized when establishing these buffers.
- **Policy AQ-16.** Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.
- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.
- **Policy LU-115**. It is the goal of the County to reduce greenhouse gas emissions to 1990 levels by the year 2020. This shall be achieved through a mix of state and local action.

SACRAMENTO COUNTY CLIMATE ACTION PLAN

The Sacramento County Climate Action Plan was adopted on November 9, 2011 by the Sacramento County Board of Supervisors. The plan includes a GHG inventory for the unincorporated county of Sacramento (as well as for the City of Elk Grove), GHG emissions target, and goals and implementation measures developed to help the county and associated cities reach these targets. The plan includes goals and strategies for reducing GHG emissions associated with transportation and land use, energy, water, waste management and recycling, and agriculture and open space.

SACRAMENTO COUNTY ZONING CODE

The Sacramento County Zoning Code contains the following regulations relevant to the project

- 235-51 (e): Air Pollution Control Measures.
  - The application shall include dust control measures designed to comply with any relevant rules of SMAQMD, including Rules 402 and 403. The air pollution control measures shall include signage and other notification that provides neighbors with information needed for reporting nuisance dust concerns to the operator and to SMAQMD. Such signage shall be placed at intervals of not more than 500 feet.
- 235-54 (h): Guidelines for Suppressing Dust.
  - Goal: Minimize impacts of dust to surrounding residential and agricultural uses.
  - Overburden Stockpiles.
    - Should be treated with appropriate dust suppressants, watered regularly, or otherwise treated to minimize wind erosion.
    - Every effort should be made to remove overburden during the period of the year when surface soils are moist. If overburden is removed when surface soils are dry, water-spraying equipment should be used to cut dust emission. Water-spraying equipment should likewise be used, as needed, when removing aggregate.
    - Seeding of stockpiled overburden and exposed soils is required at the next appropriate planting time unless the site is excavated within 6 months of overburden removal, or if site has been partially excavated, but is to remain dormant for a period of more than 1 year. Saleable aggregate products produced by the processing plant are exempt from this provision.
  - Unpaved Haul Roads
    - Unpaved haul roads should be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliatives). The frequency of application should vary according to the weather and moisture level of the soils on the site, but should be frequent enough to avoid visible dust plumes.

SACRAMENTO COUNTY GREENHOUSE GAS THRESHOLDS

Sacramento County published GHG thresholds of significance as part of the General Plan EIR, in May of 2009. In April 2011 the thresholds were updated via a memorandum to the Environmental Coordinator, and attached to this memorandum was a document titled “Sacramento County Greenhouse Gas Thresholds: Guidance on Application.” The guidance document was subsequently updated in July 2012, to reflect new analysis information (such as the availability of the California Emissions Estimator Model). The thresholds were further revised in April 2014 to reflect minor changes to the Countywide GHG inventory. The thresholds are based on per capita metrics for residential projects and per 1,000 square feet for commercial/industrial projects. The County acknowledges that for some specialized types of industrial projects where emissions are primarily from exterior operations (such as mining operations), expressing the threshold as a function of building square footage is not most appropriate. Because industrial facilities are so diverse, it is likely a tailored analysis specific to the project will be required.

4 EXISTING ENVIRONMENTAL SETTING

The project site is located east of the City of Sacramento limits, within Sacramento County, California, which is within the Sacramento Valley Air Basin (SVAB). The SVAB also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; the western portion of Placer County; and the eastern portion of Solano County. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

4.1 TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50°F to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between ROG and NO_X, which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient-air quality standards.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Sacramento WSO station. The normal annual precipitation is approximately 18 inches. January temperatures range from a normal minimum of 40°F to a normal maximum of 54°F. July temperatures range from a normal minimum of 59°F to a normal maximum of 92°F (Western Regional Climate Center [WRCC] 2012a). The predominant wind direction is from the south (WRCC 2012b).

4.2 EXISTING AIR QUALITY

4.2.1 Criteria Air Pollutants

Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Emission source types, health effects are summarized in Table 2. Sacramento County's attainment status for the CAAQS and the NAAQS are shown in Table 3. Monitoring data applicable to the project site is provided in Table 4 on the following page.

Table 2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of ROG and NO_X in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	headache, dizziness, fatigue, nausea, vomiting, death	permanent heart and brain damage
Nitrogen dioxide (NO_2)	combustion devices; e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines	coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	alterations to the immune system, carcinogenesis
Lead	metal processing	reproductive/ developmental effects (fetuses and children)	numerous effects including neurological, endocrine, and cardiovascular effects

Notes: NO_X = oxides of nitrogen; ROG = reactive organic gases.

[1] "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

[2] "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2012b

Table 3 Attainment Status Designations for Sacramento County

Pollutant	Federal Standard	State Standard
Ozone	Nonattainment (1-hour)[1] Classification= Severe	Nonattainment (1-hour) Classification-Serious[2]
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Severe	
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Unclassified/Attainment (Annual)	Nonattainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling avg.)	Attainment (30 day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)

Notes:
1 Air Quality meets Federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.
2 Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.
3 1997 Standard.
4 2008 Standard.
5 Cannot be classified.
Source: SMAQMD 2013

Table 4 Summary of Annual Data on Ambient Air Quality (2011-2013)[1]

	2011	2012	2013
Ozone			
Maximum concentration (1-hr/8-hr avg, ppm)	0.123/0.094	0.125/0.107	0.105/0.084
Number of days state standard exceeded (1-hr/8-hr)	9/27	10/25	2/5
Number of days national standard exceeded (8-hr)	19	18	2
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour $\mu g/m^3$)	50.7	29.0	40.0
Number of days national standard exceeded (24-hour measured[2])	4	0	3
Respirable Particulate Matter (PM_{10})			
Maximum concentration ($\mu g/m^3$)	73.0	60.0	63.0
Number of days state standard exceeded (measured/calculated[2])	2/12.2	3/17.8	1/6.1
Number of days national standard exceeded (measured/calculated[2])	0/0	0/0	0/0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million
1 Measurements from the Sloughhouse station for Ozone. Measurements of respirable particulate matter (PM_{10}) obtained from the Sacramento-Branch Center Road #2 air monitoring station. Measurements of and fine particulate matter ($PM_{2.5}$) obtained from the Sacramento – Health Dept. Stockton Blvd. station.
2 Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
Source: ARB 2014b

OZONE

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NOx decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (ARB 2013).

NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012b).

PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (ARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are dominated by the same sources as emissions of PM_{10} (ARB 2013).

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Sloughhouse station is the closest station to the project site with recent data for ozone. The closest station to the project site with data for PM_{10} is the Sacramento-Branch Center Road #2 air monitoring station while $PM_{2.5}$ is monitored at the Sacramento – Health Department monitoring station. In general, the ambient air quality measurements from these stations are representative of the air quality near the project site. Table 4 summarizes the air quality data from the last three years (2011—2013).

Both ARB and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants (attainment designations are summarized above in Table 2).

4.2.2 Toxic Air Contaminants

Concentrations of TACs are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a

hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the *California Almanac of Emissions and Air Quality* (ARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, ARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (ARB 2009).

The project area consists of multiple mining operations. Sources of TACs near the project could include off-road diesel equipment and stationary sources such as material processing plants.

4.2.3 Odors

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

4.2.4 Sensitive Receptors

Sensitive receptors are generally considered to include those uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants.

For the proposed project, the nearest sensitive receptor is the Slavic Missionary Church located on the south side of Jackson Road, approximately ¼ mile east of Bradshaw Road. A few rural residential properties are located northeast and west of the project site.

4.2.5 Greenhouse Gases

ATTRIBUTING CLIMATE CHANGE—THE PHYSICAL SCIENTIFIC BASIS

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are realized globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

ATTRIBUTING CLIMATE CHANGE—GREENHOUSE GAS EMISSION SOURCES

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural emissions sectors (ARB 2014c). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2014c). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills,

and wastewater treatment plants. N_2O, an even more potent GHG, is also largely attributable to agricultural practices and soil management. Carbon sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

ADAPTATION TO CLIMATE CHANGE

According to the IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature is expected to increase by three to seven degrees Fahrenheit by the end of the century, depending on future GHG emission scenarios (IPCC 2007). According to the CNRA temperatures in California are projected to increase two to five degrees Fahrenheit by 2050 and by four to nine degrees Fahrenheit by 2100 (California Natural Resources Agency [CNRA] 2009).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and resulting rise in global average temperature. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. According to the California Energy Commission (CEC) (2012), the snowpack portion of the state's water supply could potentially decline 30 to 90 percent by the end of the 21st century. An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the snowpack of the Sierra Nevada until spring would flow into the Central Valley concurrently with winter storm events. This scenario would place more pressure on California's levee/flood control system.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available (CNRA 2014).

Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. An increase in frequency of extreme heat events and drought are also expected. These changes are expected to lead to increased frequency and intensity of wildfires (CNRA 2014).

Another outcome of global climate change is sea level rise. Sea level rose approximately seven inches during the last century and it is predicted to rise an additional seven to 22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2007). CNRA projects that sea levels along California will rise 5 to 24 inches by 2050 and 17 to 66 inches by 2100 (CNRA 2014).

5 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

This section describes the project's effects on air quality and climate change. The discussion includes the criteria for determining the level of significance of the effects and a description of the methods and assumptions used to conduct the analysis.

5.1 SIGNIFICANCE CRITERIA

Per Appendix G of the CEQA Guidelines and SMAQMD recommendations, air quality impacts are considered significant if the project would do any of the following:

- cause construction-generated criteria air pollutant or precursor emissions to exceed the SMAQMD-recommended threshold of 85 lb/day for NO_X, or exceed 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$ if all feasible best available control technology (BACT) or best management practices (BMPs) are applied;
- result in a net increase in long-term regional criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, or exceed 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$ if all feasible best available control technology (BACT) or best management practices (BMPs) are applied;
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the California 1-hour ambient air-quality standard of 20 ppm or the 8-hour standard of nine ppm;
- expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in 1 million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of one or greater; or
- create objectionable odors affecting a substantial number of people.

SMAQMD thresholds identify both short-term construction and long-term operational air quality emissions standards of significance. The types of emissions generated by the project are similar to construction emissions due to the operation of off-road equipment and soil disturbance; however they will occur over a long-term duration. Therefore, the project's emissions are compared to the operational thresholds recommended by SMAQMD.

Based on Appendix G of the State CEQA Guidelines, the project could have a significant adverse effect related to climate change if it would:

- generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

SMAQMD has adopted a CEQA significance threshold of 10,000 direct MT CO_2e/year for stationary source-type projects and a threshold of 1,100 MT CO_2e/year for other land use development projects. In addition, a threshold of 1,100 MT CO_2e/year is adopted for short-term construction projects.

The incremental increase in GHG emissions associated with the project, both direct and indirect, is evaluated using the 10,000 MT CO_2e/year screening level proposed by SMAQMD staff. This threshold, while

applicable to stationary sources, is the most appropriate for a project such as the proposed one. The mining operation represents an industrial use with emissions from mobile sources, off-road equipment, electricity use, and water consumption. The proposed mining operation would occur over a limited 15-year period. Therefore, SMAQMD's adopted threshold for land use development projects with a longer lifetime would not apply to this project. This level is notable for additional reasons as well. Unlike some environmental resources that are more aptly considered in the context of local or regional conditions, GHG emissions contribute to a global problem regardless of where they are emitted, and control policies have been developed on a state-wide basis. Thus, it is informative, absent a locally-adopted threshold, to review thresholds adopted by other agencies expert on the subject. This threshold level has been formally adopted by the Bay Area Air Quality Management District and the South Coast Air Quality Management District as the CEQA significance threshold for industrial projects where the air district is the lead agency. These are the two largest (in terms of population served) air districts in California. The level of 10,000 MT CO_2e/year is also notable because it's the level at which most stationary sources are required to inventory and report their emissions to ARB's cap-and-trade program.

5.2 METHODS AND ASSUMPTIONS

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, odors, and GHGs were assessed in accordance with SMAQMD-recommended methodologies. As described in Section 5.1, the project's emissions are compared to SMAQMD's operational thresholds because of the long-term operational nature of activities onsite.

The project would not involve the construction of any new land uses onsite. There would be some site preparation activities that would occur for a limited duration before mining can begin. These include demolition of the ranch houses and associated outbuildings onsite, installation of perimeter landscaping and fencing, and assembly of the electric conveyors. These activities would require limited use of off-road equipment and emissions generated during this time-period would be minimal. The analysis presents emissions for a worst-case day when maximum onsite equipment use and off-site overburden transfer would occur simultaneously, along with an average operational day. Therefore, separate quantification of emissions from site preparation activities is not included because they would be captured in the worst-case and average emissions analysis.

Teichert intends to begin mining operations on Aspen VIII and generally proceed south onto Aspen IX. Teichert proposes to mine between 1 million – 3 million tons of material per year depending on market conditions at the time of mining. Mining would begin in 2017 and proceed over a 15-year period. Aggregate mining operations will commence with the removal of approximately 5-10 feet of topsoil/clay/silt overburden that overlies the sand and gravel comprising the aggregate deposit. The overburden removal of approximately 500,000 cubic yards would occur over the first five years of the project. A portion of the overburden removed would potentially be transferred to the adjacent Aspen V site. Teichert estimates that the overburden would be transferred using off-road diesel trucks with 20 cubic yards of capacity.

Aggregate mining would occur over an area of 363 acres. It is estimated that a total of approximately 15 million tons of material will be mined over the life of the project. A maximum of 4.5 million cubic yards of material could be mined in a single year depending upon market conditions. Teichert estimates that average mining rates would be 2.2 million cubic yards per year which is equivalent to approximately 7,500 cubic yards per day.

Maximum daily hours of operation could vary from 8 to 14 hours of mining per day. It should be noted that the maximum amounts noted above for mining and hours of operation would only occur under extremely favorable market conditions. Based on current market conditions, it is reasonable to assume that the project would typically operate at closer to the typical levels of excavation over an 8-hour workday. In order to characterize the worst-case scenario, emissions were estimated based on the maximum levels of activity in

addition to the average levels. Given the relatively short lifetime of the mine, it is not anticipated that market conditions would improve to the extent that allows the project to achieve the maximum levels.

Teichert has determined that the maximum daily off-road equipment operation would consist of six scrapers, two loaders and one dozer along with a water truck. Equipment would be refueled onsite using a fuel truck from Teichert's maintenance yard located at Watt Avenue/Kiefer Blvd. A single fuel truck services multiple Teichert mining sites in the area.

Quantification of air pollutant emissions were based on a combination of methods, including the use of emission factors from the EPA published AP-42 and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in the California Emissions Estimator Model (CalEEMod) Version 2013.2.2. Project-generated emissions were modeled based on this information and information provided in the project description to estimate reasonable worst-case conditions. Teichert's current fleet in use at other facilities is Tier 1 compliant or better; therefore, emission factors reduced from ARB's default fleet mix were used in the analysis.

In accordance with SMAQMD-recommended methodologies, ROG, NO_X, PM_{10} and $PM_{2.5}$ emissions generated by the project were modeled using the methodology described above. It should be noted that NO_X emissions are the focus of SMAQMD's efforts to bring the SVAB in attainment of the CAAQS and NAAQS for ozone because, as a secondary pollutant, ozone in the SVAB is NO_X –limited. Emissions of PM_{10} and $PM_{2.5}$ were estimated based on the detailed construction parameters explained above.

As described above, the project involves a long-term mining operation using heavy-duty off-road equipment and does not represent a construction project. Teichert anticipates that up to one acre of the site area would be disturbed daily. The project would also implement all Basic Construction Emission Control Practices recommended by SMAQMD which constitute BACT/BMPs for the proposed project. Therefore, in accordance with SMAQMD guidance, the applicable thresholds of significance for PM_{10} and $PM_{2.5}$ are 80 lb/day and 82 lb/day, respectively.

Project-generated TAC emissions and odors were also assessed in accordance with methodologies recommended by ARB and/or SMAQMD.

California Code of Regulations (CCR) Section 15064.4 and other guidance by the Governor's Office of Planning and Research (2008) recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a project, including the emissions associated with construction activities, stationary sources, vehicular traffic, and energy consumption, and to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impacts where feasible mitigation is available.

GHG emission levels associated with the project would be generated by off-road equipment use associated with mining, vehicle trips associated with workers and overburden export, and indirect emissions from electricity and water consumption. The project does not propose any new stationary sources onsite. In addition, no processing of materials would occur onsite. Mined materials would be transported to a permitted use, i.e. Teichert's Perkins Plant, via an electric conveyor for processing. Operation of the Perkins Plant and associated truck trips are considered baseline by the County and SMAQMD.

Project-specific data, including detailed mining information (equipment use, employee trips, etc.), was used in the analysis. Quantification of GHG emissions were based on a combination of methods, including the use of emission factors from EPA-published AP-42 emission factors, and emission rates from OFFROAD 2011 and EMFAC 2011 as contained in CalEEMod Version 2013.2.2. Reasonable worst-case project-generated emissions were estimated based on information provided in the project description.

Indirect emissions from electricity consumption were calculated based on utility emission factors for the Sacramento Municipal Utility District (SMUD) for CO_2, N_2O, and CH_4 as provided by SMUD, and estimates of project-specific electricity consumption. Water for dust control would be provided by a groundwater well

onsite. Emissions associated with pumping the groundwater were estimated using SMUD emission factors. See Appendix A for detailed calculations.

5.3 IMPACT ANALYSIS AND MITIGATION MEASURES

Impact 1: Mining-related emissions of criteria air pollutants and precursors (NO_X, ROG, PM_{10}, and $PM_{2.5}$).

Mining activities would result in project-generated emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ (a subset of PM_{10}) from excavation, off-road equipment, overburden export trips, and worker commute trips. Both potential scenarios, the maximum and average daily activities, would result in mass emissions of NO_X that exceed SMAQMD's threshold of 65 lb/day for project operation. The project would not generate PM_{10} and $PM_{2.5}$ emissions that exceed SMAQMD's threshold of 80 lb/day and 82 lb/day, respectively. Therefore, project-generated emissions of NO_X would contribute to existing nonattainment status of the SVAB with respect to the respective ambient air quality standards. This impact would be **significant**.

The project consists of an aggregate mining operation that would involve the use of diesel-powered off-road equipment for excavation and materials movement. Mining activities would result in project-generated emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ (a subset of PM_{10}) from excavation, off-road equipment, overburden export, and worker commute trips. Fugitive dust (e.g., PM_{10} and $PM_{2.5}$) emissions are associated primarily with soil and aggregate excavation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled on and off the site. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment and on-road mobile exhaust. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Both maximum daily and average daily emissions were modeled based on the methodology and assumptions outlined in Section 5.2. As noted above, the project is expected to operate at the average levels on a typical day. Project emissions account for Teichert's cleaner fleet which achieves reductions in exhaust emissions above ARB's default construction fleet. Daily construction emissions of NO_X, ROG, PM_{10}, and $PM_{2.5}$ for both scenarios are summarized in Table 5 below. Detailed input parameters and modeling results are provided in Appendix A. The project would implement all Basic Construction Emission Control Practices.

As shown in Table 5, mining activities under the worst-case scenario and the average scenario would result in emissions of NO_X that exceed the SMAQMD-recommended threshold of 65 lb/day. Mining activities under the worst-case scenario would also result in emissions of ROG that exceed the SMAQMD-recommended threshold of 65 lb/day. This assumption is consistent with SMAQMD guidance (SMAQMD 2014). Therefore, this impact would be **significant**.

Table 5 Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_X	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Maximum Daily Emissions						
Off-road Equipment	19.8	270.6	6.7	–	6.3	–
Off-road Trucks (Overburden Transfer)	52.3	590.1	21.9	41.6	20.2	4.2
On-road Travel (Worker and Vendor Trips)	0.2	0.6	0.6	<0.1	0.2	<0.1
Onsite Fugitive Dust	–	–	–	8.8	–	1.4
Total Emissions (lb/day)	***72.3***	***861.3***	*79.6*		*32.3*	
SMAQMD Thresholds of Significance (lb/day)	65	65	80		82	

Table 5 Summary of Modeled Maximum and Average Daily Emissions of Criteria Air Pollutants and Precursors (lb/day)

	ROG	NO_X	PM_{10} (exhaust)	PM_{10} (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (dust)
Average Daily Emissions						
Off-road Equipment	5.2	70.9	1.8	–	1.7	–
Off-road Trucks (Overburden Transfer)	21.8	245.9	9.1	34.7	8.4	3.5
On-road Travel	0.2	0.6	0.6	<0.1	0.2	<0.1
Onsite Fugitive Dust	–	–	–	4.8	–	0.9
Total Emissions (lb/day)	*27.2*	***317.1***	*51.0*		*14.7*	
SMAQMD Thresholds of Significance (lb/day)	65	65	80		82	

Notes: Maximum daily emissions were calculated based on 14 hours of mining operations. Maximum daily emissions for PM_{10} and $PM_{2.5}$ are shown for disclosure purposes. Fugitive dust emissions from equipment use onsite (dozers, scrapers) are estimated using CalEEMod. Emissions from conveyor loading/unloading and off-road truck use (loading/unloading and travel on unpaved roads) are estimated using AP-42 emission factors. Emissions of PM shown account for application of best available control technology and best management practices.

Teichert's construction fleet is Tier 1 compliant. Reduction percentages for each pollutant are based on compliance reports approved by SMAQMD. Detailed calculations are shown in Appendix A.

ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
lb/day = pounds per day
SMAQMD = Sacramento Metropolitan Air Quality Management District
NA = not applicable
$\mu g/m^3$ = micrograms per cubic meter
CAAQS = California Ambient Air Quality Standards

See Appendix A for detail on model inputs, assumptions, and project specific modeling parameters.

Source: Modeling Conducted by Ascent Environmental in 2014

SMAQMD also recommends reporting annual PM_{10} and $PM_{2.5}$ emissions and comparing them to annual thresholds of 14.6 tons/year and 15 tons/year, respectively. The maximum annual PM_{10} emissions would be 10 tons/year while maximum annual $PM_{2.5}$ emissions would be 4 tons/year. Annual emissions would be below the SMAQMD's applicable thresholds and would decline once overburden transfer is complete. Moreover, the maximum daily emissions would only occur under extremely favorable market conditions. Based on current market conditions, it is reasonable to assume that the project would typically operate at closer to the typical intensity over an 8-hour workday.

Mitigation Measure 1: Reduce mining-related ROG, NO_X and exhaust PM emissions.

Teichert will comply with the following measures during all phases of mining to reduce emissions of NO_X:

- The Applicant shall prepare an Air Quality Mitigation Plan (AQMP) and submit the Plan to the SMAQMD for approval prior to issuance of the Work Authorization Permit by the Planning and Community Development Department for ground disturbing activities. The AQMP should provide narrative, descriptions, and exhibits that illustrate and justify the measures chosen to reduce the project's operational emissions of ROG and NO_X. At a minimum the AQMP shall include:
  - A plan for approval by SMAQMD demonstrating that the heavy-duty (50 horsepower or more) off-road vehicles to be used in the mining portion of the project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction, 20 percent ROG reduction, and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. SMAQMD's Construction

Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction. It should be noted that 92% of Teichert's fleet is Tier I complaint. Teichert also participates in the both the Carl Moyer Program and the Sacramento Emergency Clean Air and Transportation (SECAT) program.

It should be noted that while Teichert's owned fleet is Tier I compliant or better, Teichert will be using a contractor to provide off-road trucks for overburden transfer to the Aspen V site. Every effort will be made to acquire trucks that meet the above-mentioned criteria, with the constraint that availability of such vehicles may be limited in the region.

- Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after treatment products, and/or other options as they become available.

- The applicant shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory will include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory will be updated and submitted annually throughout the duration of the project. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative will provide SMAQMD with the anticipated start date, and name and phone number of the project manager and onsite foreman.

- Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliance equipment. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.

- The applicant shall ensure that all construction and grading equipment is properly maintained.

- The applicant shall ensure that all vehicles and compressors utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.

- The applicant shall limit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

Project Design Measure 2: Reduce mining-related fugitive exhaust PM emissions.

Control of fugitive dust is required by SMAQMD Rule 403. Implement Best Available Control Technology to control emissions on and off site, including:

- All exposed surfaces shall be watered as necessary to control fugitive dust emissions. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- All trucks transferring soil, sand, or other loose material off-site shall be covered or shall maintain at least two feet of free board space.

- Material handling and storage units shall be watered periodically as needed, or kept moist through the use of water spray units to effectively control dust.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill activities shall be effectively controlled for fugitive dust emissions, as necessary, utilizing application of water or by presoaking.
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
- Trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Traffic speeds on unpaved roads shall be limited to 15 miles per hour.
- Unpaved roads used for overburden transfer shall be regularly treated with appropriate dust suppressants (e.g. water or chemical dust palliatives such as magnesium chloride). The frequency of application shall vary according to the weather and moisture level of the soils on the site, but shall be frequent enough to avoid visible dust plumes.
- Equipment idling time shall be minimized by either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Clear signage that posts this requirement shall be posted for workers at the entrances to the site.
- All construction equipment shall be maintained in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Significance after Mitigation

Implementation of exhaust control measures outlined in Mitigation Measure 1 would reduce ROG and NO_X emissions from off-road equipment by 20 percent; however, maximum and average daily emissions of NO_X would still exceed SMAQMD's recommended threshold during overburden transfer. Therefore, this impact would be significant and unavoidable.

It is worth providing some additional context for daily NO_X emissions from the project. NO_X emissions would be highest during overburden transfer due to use of off-road trucks; however, daily NO_X emissions would decline once overburden transfer is complete. Off-road trucks would only be used if/when overburden is transferred to the Aspen V South site. Overburden volumes of up to 500,000 cubic yards could be transferred only during the early phases of the project. Secondly, overburden would not be hauled to large distances from the site using on-road trucks, therefore, emissions would be limited to the general vicinity of the project and would occur temporarily. Therefore, the analysis presented herein represents a conservative, worst-case scenario. Nevertheless, daily NO_X would be significant and unavoidable.

Impact 2: Exposure of sensitive receptors to TACs.

Mining activities would result in emissions of diesel PM. However, mining activities would vary over the entire life of the mine, with peak emissions expected to occur very rarely. Further, most of the mining activities would take place relatively far away from offsite sensitive receptors and, therefore, given the dispersive properties of diesel PM, concentrations would be minimal at this distance. Therefore, levels of TACs from

project operation would not result in an increase in health risk exposure at offsite sensitive receptors. This impact would be **less than significant**.

Mining activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for excavation and other miscellaneous activities.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by the ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003), so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Table 5 above, maximum daily exhaust emissions of $PM_{2.5}$, considered a surrogate for diesel PM, would be 26.7 lb/day.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2012:11-3). Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to a period of 15 years, with peak daily activity occurring very rarely under extremely favorable market conditions. Use of off-road trucks onsite would also cease once overburden transfer is complete and off-road haul trucks being used at the site would reduce substantially at that point. Also, studies show that diesel PM is highly dispersive (e.g., decrease of 70 percent at 500 feet from the source) (Zhu et al. 2002). The nearest existing offsite sensitive receptors are scattered residential units in the vicinity of the project site with the closest one located 250 feet from the site. A church located to the north of the project site, is located over 5,000 feet away.

Therefore, considering the highly dispersive properties of diesel PM and the distance to the nearest offsite sensitive receptor, it is not anticipated that mining-related TAC emissions would expose any sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than one. Project-related activities would not expose nearby, offsite sensitive receptors to incremental increases in cancer, chronic, and acute risk that exceed applicable thresholds. Therefore, the levels of health risk exposure to nearby sensitive receptors would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3: Mobile source CO concentrations.

Operation of the project would not result in a substantial increase in vehicle trips on the local roadway network. SMAQMD provides screening levels to determine project-level significance with regards to CO concentrations. Operation of the project would not exceed the recommended level of 31,600 vehicles per hour at any affected intersection. Therefore, project-generated traffic would not result in excessive levels of CO concentrations. This impact would be **less than significant**.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect.

CO concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. As a result, it is recommended that CO not be analyzed at the regional level, but at the local level.

Operation of the project would result in approximately seven additional full-time employees which would result in up to 14 daily worker commute trips (Fehr and Peers 2014). No offsite overburden hauling would occur.

SMAQMD provides a screening methodology to determine project impacts from localized CO emissions. This screening methodology was utilized to analyze local CO emissions from the construction and operation of this project. The screening methodology has two tiers of screening criteria. If the first set is not met, than the second tier may be applied. It states that the following criteria must be met:

First-Tier
The project will result in a less-than-significant impact to air quality for local CO if:

- Traffic generated by the project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F

Second-Tier
If all the following criteria are met, the project will result in a less-than-significant impact to air quality for local CO.

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project will not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway; or other locations where horizontal or vertical mixing of air will be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or CalEEMod models).

Based on the traffic study conducted, project-related trips would not result in LOS E or F at any study intersection. Moreover, considering the second-tier of screening criteria, no single hour of operation would exceed the 31,600 vehicle per hour limit with the addition of project-related trips. Therefore, concentrations of CO from project traffic would not exceed the ambient standards. As a result, this impact would be would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4: Odorous emissions.

Odorous emissions from the project would be temporary and would dissipate rapidly with an increase in distance from the source. This impact would be **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; atmospheric conditions, and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to distress among the public and sometimes generating citizen complaints to local governments or in some cases regulatory agencies.

Mining activities could result in odorous diesel exhaust emissions from off-road equipment and trucks. These types of odorous emissions, however, would be temporary and not be generated at any one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Therefore, these activities would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a less than significant impact.

Mitigation Measures

No mitigation is required.

Impact 5: Generation of greenhouse gas emissions.

The project would result in GHG emissions from mining activities including exhaust from worker commute trips, overburden transfer, electricity consumption by the conveyor, water consumption onsite, and the use of heavy-duty off-road equipment. Project-generated GHG emissions would result in a net increase of 6,321 MT CO_2e/year, which would be below the 10,000 MT CO_2e/year, the threshold used in this analysis to determine impact significance. Therefore, the project's GHG emissions would be a **less than significant** impact.

Project-related mining activities would result in increased generation of GHG emissions. Heavy-duty off-road equipment, materials transport, and worker commutes would result in exhaust emissions of GHGs.

The total net increase in operational GHG emissions was estimated using the methods described above. The net increase in project-related operational emissions is presented in Table 6. See Appendix A for all inputs and calculations.

Table 6 Summary of Net Increase in GHG Emissions Associated with the Project[1]

Source	CO_2e (MT/year)
Onsite Equipment Use	1,467
Off-road Trucks (Overburden Transfer to Aspen V South)	3,989
Mobile Sources (Worker commute, fuel truck)	73
Electricity Consumption	750
Water Consumption	42
Operational Total	6,321

Notes: CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; MT = metric tons

[1] Detailed assumptions and modeling output files are included in Appendix A.

Source: Modeled by Ascent Environmental in 2014

As shown in Table 6 operation of the project would result in an increase of approximately 6,321 MT CO_2e/year. This level of emissions would occur when mining and overburden transfer to Aspen V South are occurring simultaneously. Overburden transfer would cease after five years, therefore, annual GHG emissions would be expected to decline at that time. Reclamation activities would contribute minor levels of GHG emissions; however, these activities would utilize the same equipment as the mining operation and would not be expected to cause an incremental increase in annual emissions. Therefore, annual GHG emissions would be below the 10,000 MT CO_2e/year threshold and, therefore, would have a less than significant impact.

It is also useful to provide additional context for emissions from an aggregate mining operation. Aggregate demand arises from the need for construction materials for the new construction or maintenance of buildings, roads and structures. Such demand is typically driven by population growth. Therefore, an

increasing demand for aggregate is the underlying trigger to any GHG emissions associated with a proposed aggregate mining facility. In most cases, aggregate has inelastic demand—that is, an increase or decrease in the price of aggregate has little or no effect on the quantity of aggregate demanded by consumers. As local sources of aggregate are depleted and aggregate is hauled longer distances to the consumer, prices will increase and so will the GHG emissions associated with the longer haul routes. The proposed project would meet the local need for aggregate driven by growth in the region and could potentially reduce the need to import aggregate from outside the Sacramento area.

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APPENDIX A

AIR QUALITY AND GREENHOUSE GAS MODELING DATA

Average Daily Exhaust Emissions

Equipment Type	Make and Model	Number	Horsepower	Daily hours of operation	Load Factor	NO_X EF (g/bhp-hr)	ROG EF (g/bhp-hr)	PM_{10} EF (g/bhp-hr)	$PM_{2.5}$ EF (g/bhp-hr)	NO_X (lb/day)	ROG (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Scraper	Caterpillar 637G	2	773	8	0.4824	3.16	0.23	0.078	0.07	41.6	3.0	1.0	1.0
Rubber Tired Loader	Komatsu WA900	2	853	8	0.3618	2.43	0.18	0.062	0.06	26.5	2.0	0.7	0.7
Dozer	Caterpillar D10R	1	570	2	0.4154	2.74	0.20	0.068	0.06	2.9	0.2	0.1	0.1
										70.9	**5.2**	**1.8**	**1.7**

Conversion Factors

1 lb	453.6	g

Notes:
Equipment list, make and model and horsepower provided by applicant. The equipment is based on the fleet used on other Teichert sites and is assumed to be representative of the fleet at project site.
Emission factors are estimated from SMAQMD's construction mitigation calculator and Teichert's reported fleet emissions based on the Tier I compliant fleet at the Aspen V site.
g = grams; bhp = brake horsepower; hr = hour; lb = pounds

Maximum Daily Exhaust Emissions

Equipment Type	Make and Model	Number	Horsepower	Daily hours of operation	Load Factor	NO_X EF (g/bhp-hr)	ROG EF (g/bhp-hr)	PM_{10} EF (g/bhp-hr)	$PM_{2.5}$ EF (g/bhp-hr)	NO_X (lb/day)	ROG (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Scraper	Caterpillar 637G	6	773	14	0.4824	3.16	0.23	0.078	0.07	218.5	15.9	5.4	5.0
Rubber Tired Loader	Komatsu WA900	2	853	14	0.3618	2.43	0.18	0.062	0.06	46.3	3.4	1.2	1.1
Dozer	Caterpillar D10R	1	570	4	0.4154	2.74	0.20	0.068	0.06	5.7	0.4	0.1	0.1
										270.6	**19.8**	**6.7**	**6.3**

Conversion Factors

1 lb	453.6	g

Notes:
Equipment list, make and model and horsepower provided by applicant. The equipment is based on the fleet used on other Teichert sites and is assumed to be representative of the fleet at project site.
Emission factors are estimated from SMAQMD's construction mitigation calculator and Teichert's reported fleet emissions based on the Tier I compliant fleet at the Aspen V site.
g = grams; bhp = brake horsepower; hr = hour; lb = pounds

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9980	246.0889	120.2344	0.3359	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,176.8585	34,176.8585	10.3226	0.0000	34,393.6331
2018	19.4135	207.2975	107.3160	0.3360	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,623.8045	33,623.8045	10.3203	0.0000	33,840.5310
2019	17.8209	179.0353	102.0091	0.3359	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	33,057.1707	33,057.1707	10.3143	0.0000	33,273.7716
2020	16.6458	157.4583	97.1911	0.3357	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,312.2299	32,312.2299	10.3077	0.0000	32,528.6910
2021	15.2140	131.0946	91.9298	0.3357	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,301.2359	32,301.2359	10.3059	0.0000	32,517.6598
Total	**91.0920**	**920.9745**	**518.6804**	**1.6792**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,471.2995**	**165,471.2995**	**51.5708**	**0.0000**	**166,554.2865**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9980	246.0889	120.2344	0.3359	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,176.8585	34,176.8585	10.3226	0.0000	34,393.6330
2018	19.4135	207.2975	107.3160	0.3360	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,623.8045	33,623.8045	10.3203	0.0000	33,840.5310
2019	17.8209	179.0353	102.0091	0.3359	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	33,057.1707	33,057.1707	10.3143	0.0000	33,273.7716
2020	16.6458	157.4583	97.1911	0.3357	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,312.2298	32,312.2298	10.3077	0.0000	32,528.6910
2021	15.2140	131.0946	91.9298	0.3357	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,301.2359	32,301.2359	10.3059	0.0000	32,517.6598
Total	**91.0920**	**920.9745**	**518.6804**	**1.6792**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,471.2994**	**165,471.2994**	**51.5708**	**0.0000**	**166,554.2864**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967		33,606.5613	33,606.5613	10.2970		33,822.7981
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**		**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.1983**	**0.2303**	**3.1005**	**7.2200e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**570.2972**	**570.2972**	**0.0256**		**570.8350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967	0.0000	33,606.5613	33,606.5613	10.2970		33,822.7980
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**	**0.0000**	**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.1983**	**0.2303**	**3.1005**	**7.2200e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**570.2972**	**570.2972**	**0.0256**		**570.8350**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540		33,075.0272	33,075.0272	10.2967		33,291.2581
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**		**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.1766**	**0.2076**	**2.7973**	**7.2200e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**548.7773**	**548.7773**	**0.0236**		**549.2729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540	0.0000	33,075.0272	33,075.0272	10.2967		33,291.2580
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**	**0.0000**	**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2580**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.1766**	**0.2076**	**2.7973**	**7.2200e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**548.7773**	**548.7773**	**0.0236**		**549.2729**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834		32,530.6350	32,530.6350	10.2924		32,746.7743

Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**		**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7743**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1616**	**0.1901**	**2.5867**	**7.1800e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**526.5358**	**526.5358**	**0.0220**		**526.9974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834	0.0000	32,530.6350	32,530.6350	10.2924		32,746.7742
Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**	**0.0000**	**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7742**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1616**	**0.1901**	**2.5867**	**7.1800e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**526.5358**	**526.5358**	**0.0220**		**526.9974**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719		31,806.5173	31,806.5173	10.2869		32,022.5416
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**		**31,806.5173**	**31,806.5173**	**10.2869**		**32,022.5416**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1506**	**0.1764**	**2.4125**	**7.1800e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**505.7126**	**505.7126**	**0.0208**		**506.1495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719	0.0000	31,806.5172	31,806.5172	10.2869		32,022.5415
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**	**0.0000**	**31,806.5172**	**31,806.5172**	**10.2869**		**32,022.5415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1506**	**0.1764**	**2.4125**	**7.1800e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**505.7126**	**505.7126**	**0.0208**		**506.1495**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183		31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**		**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1418**	**0.1650**	**2.2693**	**7.1800e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**497.1813**	**497.1813**	**0.0198**		**497.5976**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183	0.0000	31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**	**0.0000**	**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1418**	**0.1650**	**2.2693**	**7.1800e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**497.1813**	**497.1813**	**0.0198**		**497.5976**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9710	246.1443	119.7917	0.3350	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,106.7398	34,106.7398	10.3226	0.0000	34,323.5144
2018	19.3876	207.3471	106.8949	0.3351	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,556.2854	33,556.2854	10.3203	0.0000	33,773.0119
2019	17.7963	179.0806	101.6044	0.3350	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	32,992.3882	32,992.3882	10.3143	0.0000	33,208.9891
2020	16.6227	157.5001	96.8040	0.3348	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,249.9861	32,249.9861	10.3077	0.0000	32,466.4473
2021	15.1922	131.1335	91.5582	0.3348	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,240.0103	32,240.0103	10.3059	0.0000	32,456.4342
Total	**90.9698**	**921.2055**	**516.6531**	**1.6747**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,145.4097**	**165,145.4097**	**51.5708**	**0.0000**	**166,228.3968**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	21.9710	246.1443	119.7917	0.3350	0.5703	9.1306	9.7009	0.1512	8.4002	8.5514	0.0000	34,106.7398	34,106.7398	10.3226	0.0000	34,323.5144
2018	19.3876	207.3471	106.8949	0.3351	0.5703	7.5625	8.1327	0.1512	6.9575	7.1087	0.0000	33,556.2854	33,556.2854	10.3203	0.0000	33,773.0118
2019	17.7963	179.0806	101.6044	0.3350	0.5703	6.5074	7.0776	0.1512	5.9868	6.1380	0.0000	32,992.3881	32,992.3881	10.3143	0.0000	33,208.9891
2020	16.6227	157.5001	96.8040	0.3348	0.5703	5.7341	6.3043	0.1512	5.2754	5.4266	0.0000	32,249.9861	32,249.9861	10.3077	0.0000	32,466.4472
2021	15.1922	131.1335	91.5582	0.3348	0.5703	4.8062	5.3764	0.1512	4.4217	4.5729	0.0000	32,240.0102	32,240.0102	10.3059	0.0000	32,456.4341
Total	**90.9698**	**921.2055**	**516.6531**	**1.6747**	**2.8514**	**33.7407**	**36.5920**	**0.7562**	**31.0415**	**31.7977**	**0.0000**	**165,145.4096**	**165,145.4096**	**51.5708**	**0.0000**	**166,228.3966**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967		33,606.5613	33,606.5613	10.2970		33,822.7981
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**		**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.1714**	**0.2856**	**2.6578**	**6.3300e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**500.1785**	**500.1785**	**0.0256**		**500.7163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	21.7996	245.8587	117.1339	0.3287		9.1268	9.1268		8.3967	8.3967	0.0000	33,606.5613	33,606.5613	10.2970		33,822.7980
Total	**21.7996**	**245.8587**	**117.1339**	**0.3287**		**9.1268**	**9.1268**		**8.3967**	**8.3967**	**0.0000**	**33,606.5613**	**33,606.5613**	**10.2970**		**33,822.7980**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.1714**	**0.2856**	**2.6578**	**6.3300e-003**	**0.5703**	**3.8500e-003**	**0.5741**	**0.1512**	**3.5500e-003**	**0.1548**		**500.1785**	**500.1785**	**0.0256**		**500.7163**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540		33,075.0272	33,075.0272	10.2967		33,291.2581
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**		**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1508**	**0.2572**	**2.3762**	**6.3300e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**481.2582**	**481.2582**	**0.0236**		**481.7538**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.2368	207.0899	104.5187	0.3288		7.5587	7.5587		6.9540	6.9540	0.0000	33,075.0272	33,075.0272	10.2967		33,291.2580
Total	**19.2368**	**207.0899**	**104.5187**	**0.3288**		**7.5587**	**7.5587**		**6.9540**	**6.9540**	**0.0000**	**33,075.0272**	**33,075.0272**	**10.2967**		**33,291.2580**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1508**	**0.2572**	**2.3762**	**6.3300e-003**	**0.5703**	**3.7600e-003**	**0.5740**	**0.1512**	**3.4800e-003**	**0.1547**		**481.2582**	**481.2582**	**0.0236**		**481.7538**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834		32,530.6350	32,530.6350	10.2924		32,746.7743

Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**		**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7743**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1371**	**0.2354**	**2.1819**	**6.2900e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**461.7532**	**461.7532**	**0.0220**		**462.2148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	17.6593	178.8452	99.4225	0.3287		6.5036	6.5036		5.9834	5.9834	0.0000	32,530.6350	32,530.6350	10.2924		32,746.7742
Total	**17.6593**	**178.8452**	**99.4225**	**0.3287**		**6.5036**	**6.5036**		**5.9834**	**5.9834**	**0.0000**	**32,530.6350**	**32,530.6350**	**10.2924**		**32,746.7742**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1371**	**0.2354**	**2.1819**	**6.2900e-003**	**0.5703**	**3.7100e-003**	**0.5740**	**0.1512**	**3.4400e-003**	**0.1547**		**461.7532**	**461.7532**	**0.0220**		**462.2148**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719		31,806.5173	31,806.5173	10.2869		32,022.5416
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**		**31,806.5173**	**31,806.5173**	**10.2869**		**32,022.5416**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1275**	**0.2182**	**2.0254**	**6.2900e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**443.4689**	**443.4689**	**0.0208**		**443.9057**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	16.4952	157.2819	94.7786	0.3285		5.7303	5.7303		5.2719	5.2719	0.0000	31,806.5172	31,806.5172	10.2869		32,022.5415
Total	**16.4952**	**157.2819**	**94.7786**	**0.3285**		**5.7303**	**5.7303**		**5.2719**	**5.2719**	**0.0000**	**31,806.5172**	**31,806.5172**	**10.2869**		**32,022.5415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1275**	**0.2182**	**2.0254**	**6.2900e-003**	**0.5703**	**3.7000e-003**	**0.5740**	**0.1512**	**3.4300e-003**	**0.1547**		**443.4689**	**443.4689**	**0.0208**		**443.9057**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183		31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**		**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1200**	**0.2039**	**1.8977**	**6.2900e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**435.9556**	**435.9556**	**0.0198**		**436.3720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	15.0721	130.9295	89.6605	0.3285		4.8024	4.8024		4.4183	4.4183	0.0000	31,804.0546	31,804.0546	10.2861		32,020.0622
Total	**15.0721**	**130.9295**	**89.6605**	**0.3285**		**4.8024**	**4.8024**		**4.4183**	**4.4183**	**0.0000**	**31,804.0546**	**31,804.0546**	**10.2861**		**32,020.0622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1200**	**0.2039**	**1.8977**	**6.2900e-003**	**0.5703**	**3.7200e-003**	**0.5740**	**0.1512**	**3.4500e-003**	**0.1547**		**435.9556**	**435.9556**	**0.0198**		**436.3720**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7724	7.7900	6.4239	0.0132	8.4837	0.2711	8.7548	1.6796	0.2494	1.9290	0.0000	1,177.4973	1,177.4973	0.1802	0.0000	1,181.2811
2018	0.7239	7.2837	6.0453	0.0132	8.4837	0.2584	8.7421	1.6796	0.2377	1.9173	0.0000	1,146.1091	1,146.1091	0.1782	0.0000	1,149.8503

2019	0.6535	6.6299	5.6408	0.0132	8.4837	0.2278	8.7116	1.6796	0.2096	1.8892	0.0000	1,114.2633	1,114.2633	0.1765	0.0000	1,117.9699
2020	0.6394	6.5769	5.4233	0.0132	8.4837	0.2274	8.7111	1.6796	0.2092	1.8888	0.0000	1,080.5473	1,080.5473	0.1753	0.0000	1,084.2285
2021	0.6302	6.5242	5.2597	0.0132	8.4837	0.2270	8.7107	1.6796	0.2089	1.8884	0.0000	1,071.9526	1,071.9526	0.1743	0.0000	1,075.6131
Total	**3.4194**	**34.8048**	**28.7930**	**0.0658**	**42.4187**	**1.2116**	**43.6303**	**8.3979**	**1.1148**	**9.5127**	**0.0000**	**5,590.3695**	**5,590.3695**	**0.8845**	**0.0000**	**5,608.9430**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7724	7.7900	6.4239	0.0132	3.6753	0.2711	3.9463	0.7526	0.2494	1.0020	0.0000	1,177.4973	1,177.4973	0.1802	0.0000	1,181.2811
2018	0.7239	7.2837	6.0453	0.0132	3.6753	0.2584	3.9336	0.7526	0.2377	0.9903	0.0000	1,146.1091	1,146.1091	0.1782	0.0000	1,149.8503
2019	0.6535	6.6299	5.6408	0.0132	3.6753	0.2278	3.9031	0.7526	0.2096	0.9623	0.0000	1,114.2633	1,114.2633	0.1765	0.0000	1,117.9699
2020	0.6394	6.5769	5.4233	0.0132	3.6753	0.2274	3.9026	0.7526	0.2092	0.9618	0.0000	1,080.5473	1,080.5473	0.1753	0.0000	1,084.2285
2021	0.6302	6.5242	5.2597	0.0132	3.6753	0.2270	3.9022	0.7526	0.2089	0.9615	0.0000	1,071.9526	1,071.9526	0.1743	0.0000	1,075.6131
Total	**3.4194**	**34.8048**	**28.7930**	**0.0658**	**18.3763**	**1.2116**	**19.5879**	**3.7631**	**1.1148**	**4.8779**	**0.0000**	**5,590.3695**	**5,590.3695**	**0.8845**	**0.0000**	**5,608.9430**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.68**	**0.00**	**55.10**	**55.19**	**0.00**	**48.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406		502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**7.8828**	**0.2615**	**8.1443**	**1.5196**	**0.2406**	**1.7602**		**502.0171**	**502.0171**	**0.1538**		**505.2472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406	0.0000	502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**3.0743**	**0.2615**	**3.3358**	**0.5926**	**0.2406**	**0.8332**	**0.0000**	**502.0171**	**502.0171**	**0.1538**		**505.2472**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294		494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**7.8828**	**0.2494**	**8.1321**	**1.5196**	**0.2294**	**1.7490**		**494.0813**	**494.0813**	**0.1538**		**497.3114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294	0.0000	494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**3.0743**	**0.2494**	**3.3236**	**0.5926**	**0.2294**	**0.8220**	**0.0000**	**494.0813**	**494.0813**	**0.1538**		**497.3114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017		486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1020**	**1.5196**	**0.2017**	**1.7213**		**486.1454**	**486.1454**	**0.1538**		**489.3754**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017	0.0000	486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2935**	**0.5926**	**0.2017**	**0.7944**	**0.0000**	**486.1454**	**486.1454**	**0.1538**		**489.3754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5672**	**475.5672**	**0.1538**		**478.7971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5672**	**475.5672**	**0.1538**		**478.7971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000

Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5568**	**475.5568**	**0.1538**		**478.7867**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5568**	**475.5568**	**0.1538**		**478.7867**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7581	7.8719	6.2387	0.0123	8.4837	0.2711	8.7549	1.6796	0.2495	1.9290	0.0000	1,106.6604	1,106.6604	0.1802	0.0000	1,110.4447
2018	0.7077	7.3570	5.8855	0.0123	8.4837	0.2584	8.7422	1.6796	0.2378	1.9173	0.0000	1,077.8822	1,077.8822	0.1782	0.0000	1,081.6238

2019	0.6373	6.6965	5.4947	0.0123	8.4837	0.2279	8.7116	1.6796	0.2097	1.8893	0.0000	1,048.7834	1,048.7834	0.1765	0.0000	1,052.4905
2020	0.6226	6.6370	5.2977	0.0123	8.4837	0.2274	8.7111	1.6796	0.2092	1.8888	0.0000	1,017.6200	1,017.6200	0.1753	0.0000	1,021.3016
2021	0.6138	6.5784	5.1455	0.0123	8.4837	0.2270	8.7108	1.6796	0.2089	1.8885	0.0000	1,010.0430	1,010.0430	0.1743	0.0000	1,013.7039
Total	**3.3394**	**35.1408**	**28.0621**	**0.0614**	**42.4187**	**1.2119**	**43.6306**	**8.3979**	**1.1150**	**9.5129**	**0.0000**	**5,260.9889**	**5,260.9889**	**0.8846**	**0.0000**	**5,279.5645**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	0.7581	7.8719	6.2387	0.0123	3.6753	0.2711	3.9464	0.7526	0.2495	1.0021	0.0000	1,106.6604	1,106.6604	0.1802	0.0000	1,110.4447
2018	0.7077	7.3570	5.8855	0.0123	3.6753	0.2584	3.9337	0.7526	0.2378	0.9904	0.0000	1,077.8822	1,077.8822	0.1782	0.0000	1,081.6238
2019	0.6373	6.6965	5.4947	0.0123	3.6753	0.2279	3.9032	0.7526	0.2097	0.9623	0.0000	1,048.7834	1,048.7834	0.1765	0.0000	1,052.4905
2020	0.6226	6.6370	5.2977	0.0123	3.6753	0.2274	3.9027	0.7526	0.2092	0.9619	0.0000	1,017.6200	1,017.6200	0.1753	0.0000	1,021.3016
2021	0.6138	6.5784	5.1455	0.0123	3.6753	0.2270	3.9023	0.7526	0.2089	0.9615	0.0000	1,010.0430	1,010.0430	0.1743	0.0000	1,013.7039
Total	**3.3394**	**35.1408**	**28.0621**	**0.0614**	**18.3763**	**1.2119**	**19.5882**	**3.7631**	**1.1150**	**4.8781**	**0.0000**	**5,260.9889**	**5,260.9889**	**0.8846**	**0.0000**	**5,279.5645**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.68**	**0.00**	**55.10**	**55.19**	**0.00**	**48.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406		502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**7.8828**	**0.2615**	**8.1443**	**1.5196**	**0.2406**	**1.7602**		**502.0171**	**502.0171**	**0.1538**		**505.2472**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5286	7.2103	2.7822	4.9100e-003		0.2615	0.2615		0.2406	0.2406	0.0000	502.0171	502.0171	0.1538		505.2472
Total	**0.5286**	**7.2103**	**2.7822**	**4.9100e-003**	**3.0743**	**0.2615**	**3.3358**	**0.5926**	**0.2406**	**0.8332**	**0.0000**	**502.0171**	**502.0171**	**0.1538**		**505.2472**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294		494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**7.8828**	**0.2494**	**8.1321**	**1.5196**	**0.2294**	**1.7490**		**494.0813**	**494.0813**	**0.1538**		**497.3114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.5091	6.7622	2.7737	4.9100e-003		0.2494	0.2494		0.2294	0.2294	0.0000	494.0813	494.0813	0.1538		497.3114
Total	**0.5091**	**6.7622**	**2.7737**	**4.9100e-003**	**3.0743**	**0.2494**	**3.3236**	**0.5926**	**0.2294**	**0.8220**	**0.0000**	**494.0813**	**494.0813**	**0.1538**		**497.3114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017		486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1020**	**1.5196**	**0.2017**	**1.7213**		**486.1454**	**486.1454**	**0.1538**		**489.3754**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4571	6.1550	2.6119	4.9100e-003		0.2193	0.2193		0.2017	0.2017	0.0000	486.1454	486.1454	0.1538		489.3754
Total	**0.4571**	**6.1550**	**2.6119**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2935**	**0.5926**	**0.2017**	**0.7944**	**0.0000**	**486.1454**	**486.1454**	**0.1538**		**489.3754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5672**	**475.5672**	**0.1538**		**478.7971**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4589	6.1551	2.6149	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5672	475.5672	0.1538		478.7971
Total	**0.4589**	**6.1551**	**2.6149**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5672**	**475.5672**	**0.1538**		**478.7971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8828	0.0000	7.8828	1.5196	0.0000	1.5196			0.0000			0.0000

Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018		475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**7.8828**	**0.2193**	**8.1021**	**1.5196**	**0.2018**	**1.7214**		**475.5568**	**475.5568**	**0.1538**		**478.7867**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0743	0.0000	3.0743	0.5926	0.0000	0.5926			0.0000			0.0000
Off-Road	0.4607	6.1550	2.6178	4.9100e-003		0.2193	0.2193		0.2018	0.2018	0.0000	475.5568	475.5568	0.1538		478.7867
Total	**0.4607**	**6.1550**	**2.6178**	**4.9100e-003**	**3.0743**	**0.2193**	**3.2936**	**0.5926**	**0.2018**	**0.7944**	**0.0000**	**475.5568**	**475.5568**	**0.1538**		**478.7867**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		

Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Max

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	40.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.7158	590.5213	287.3224	0.8034	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,796.3415	81,796.3415	24.7640	0.0000	82,316.3853
2018	46.5217	497.4309	256.4394	0.8035	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,477.6200	80,477.6200	24.7593	0.0000	80,997.5652
2019	42.7054	429.6087	243.7872	0.8032	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	79,126.5954	79,126.5954	24.7456	0.0000	79,646.2530
2020	39.8897	377.8294	232.2936	0.8028	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,347.0666	77,347.0666	24.7301	0.0000	77,866.3987
2021	36.4568	314.5609	219.7238	0.8029	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,324.0937	77,324.0937	24.7262	0.0000	77,843.3446
Total	**218.2893**	**2,209.9511**	**1,239.5663**	**4.0157**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**396,071.7172**	**396,071.7172**	**123.7252**	**0.0000**	**398,669.9468**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.7158	590.5213	287.3224	0.8034	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,796.3414	81,796.3414	24.7640	0.0000	82,316.3853
2018	46.5217	497.4309	256.4394	0.8035	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,477.6199	80,477.6199	24.7593	0.0000	80,997.5652
2019	42.7054	429.6087	243.7872	0.8032	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	79,126.5954	79,126.5954	24.7456	0.0000	79,646.2529
2020	39.8897	377.8294	232.2936	0.8028	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,347.0666	77,347.0666	24.7301	0.0000	77,866.3986
2021	36.4568	314.5609	219.7238	0.8029	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,324.0936	77,324.0936	24.7262	0.0000	77,843.3445
Total	**218.2893**	**2,209.9511**	**1,239.5663**	**4.0157**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**396,071.7169**	**396,071.7169**	**123.7252**	**0.0000**	**398,669.9464**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	40	12.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	40	100.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520		80,655.7472	80,655.7472	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**		**80,655.7472**	**80,655.7472**	**24.7128**		**81,174.7153**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3966	0.4605	6.2010	0.0145	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,140.5943	1,140.5943	0.0512		1,141.6700
Total	**0.3966**	**0.4605**	**6.2010**	**0.0145**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,140.5943**	**1,140.5943**	**0.0512**		**1,141.6700**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520	0.0000	80,655.7471	80,655.7471	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**	**0.0000**	**80,655.7471**	**80,655.7471**	**24.7128**		**81,174.7153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3966	0.4605	6.2010	0.0145	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,140.5943	1,140.5943	0.0512		1,141.6700
Total	**0.3966**	**0.4605**	**6.2010**	**0.0145**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,140.5943**	**1,140.5943**	**0.0512**		**1,141.6700**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896		79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**		**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3533	0.4152	5.5945	0.0144	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		1,097.5546	1,097.5546	0.0472		1,098.5459
Total	**0.3533**	**0.4152**	**5.5945**	**0.0144**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**1,097.5546**	**1,097.5546**	**0.0472**		**1,098.5459**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896	0.0000	79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**	**0.0000**	**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3533	0.4152	5.5945	0.0144	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		1,097.5546	1,097.5546	0.0472		1,098.5459
Total	**0.3533**	**0.4152**	**5.5945**	**0.0144**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**1,097.5546**	**1,097.5546**	**0.0472**		**1,098.5459**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600		78,073.5239	78,073.5239	24.7016		78,592.2583

Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**		**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3232	0.3803	5.1733	0.0144	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		1,053.0715	1,053.0715	0.0440		1,053.9947
Total	**0.3232**	**0.3803**	**5.1733**	**0.0144**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**1,053.0715**	**1,053.0715**	**0.0440**		**1,053.9947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600	0.0000	78,073.5239	78,073.5239	24.7016		78,592.2582
Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**	**0.0000**	**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3232	0.3803	5.1733	0.0144	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		1,053.0715	1,053.0715	0.0440		1,053.9947
Total	**0.3232**	**0.3803**	**5.1733**	**0.0144**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**1,053.0715**	**1,053.0715**	**0.0440**		**1,053.9947**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526		76,335.6414	76,335.6414	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**		**76,335.6414**	**76,335.6414**	**24.6885**		**76,854.0997**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3011	0.3528	4.8250	0.0144	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		1,011.4252	1,011.4252	0.0416		1,012.2989
Total	**0.3011**	**0.3528**	**4.8250**	**0.0144**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**1,011.4252**	**1,011.4252**	**0.0416**		**1,012.2989**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526	0.0000	76,335.6413	76,335.6413	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**	**0.0000**	**76,335.6413**	**76,335.6413**	**24.6885**		**76,854.0997**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.3011	0.3528	4.8250	0.0144	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		1,011.4252	1,011.4252	0.0416		1,012.2989
Total	**0.3011**	**0.3528**	**4.8250**	**0.0144**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**1,011.4252**	**1,011.4252**	**0.0416**		**1,012.2989**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038		76,329.7311	76,329.7311	24.6866		76,848.1493
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**		**76,329.7311**	**76,329.7311**	**24.6866**		**76,848.1493**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2836	0.3301	4.5386	0.0144	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		994.3626	994.3626	0.0397		995.1953
Total	**0.2836**	**0.3301**	**4.5386**	**0.0144**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**994.3626**	**994.3626**	**0.0397**		**995.1953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038	0.0000	76,329.7310	76,329.7310	24.6866		76,848.1492
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**	**0.0000**	**76,329.7310**	**76,329.7310**	**24.6866**		**76,848.1492**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2836	0.3301	4.5386	0.0144	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		994.3626	994.3626	0.0397		995.1953
Total	**0.2836**	**0.3301**	**4.5386**	**0.0144**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**994.3626**	**994.3626**	**0.0397**		**995.1953**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Max

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	40.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.6619	590.6320	286.4369	0.8016	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,656.1042	81,656.1042	24.7640	0.0000	82,176.1480
2018	46.4699	497.5301	255.5972	0.8017	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,342.5817	80,342.5817	24.7593	0.0000	80,862.5269
2019	42.6563	429.6992	242.9778	0.8014	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	78,997.0303	78,997.0303	24.7456	0.0000	79,516.6879
2020	39.8435	377.9130	231.5194	0.8010	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,222.5791	77,222.5791	24.7301	0.0000	77,741.9111
2021	36.4132	314.6387	218.9807	0.8011	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,201.6424	77,201.6424	24.7262	0.0000	77,720.8932
Total	**218.0447**	**2,210.4130**	**1,235.5119**	**4.0068**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**395,419.9376**	**395,419.9376**	**123.7252**	**0.0000**	**398,018.1672**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	52.6619	590.6320	286.4369	0.8016	1.1406	21.9120	23.0526	0.3025	20.1591	20.4615	0.0000	81,656.1041	81,656.1041	24.7640	0.0000	82,176.1480
2018	46.4699	497.5301	255.5972	0.8017	1.1406	18.1484	19.2889	0.3025	16.6966	16.9990	0.0000	80,342.5816	80,342.5816	24.7593	0.0000	80,862.5269
2019	42.6563	429.6992	242.9778	0.8014	1.1406	15.6162	16.7567	0.3025	14.3669	14.6694	0.0000	78,997.0302	78,997.0302	24.7456	0.0000	79,516.6878
2020	39.8435	377.9130	231.5194	0.8010	1.1406	13.7602	14.9008	0.3025	12.6595	12.9619	0.0000	77,222.5791	77,222.5791	24.7301	0.0000	77,741.9111
2021	36.4132	314.6387	218.9807	0.8011	1.1406	11.5333	12.6739	0.3025	10.6107	10.9132	0.0000	77,201.6423	77,201.6423	24.7262	0.0000	77,720.8932
Total	**218.0447**	**2,210.4130**	**1,235.5119**	**4.0068**	**5.7028**	**80.9701**	**86.6729**	**1.5124**	**74.4927**	**76.0051**	**0.0000**	**395,419.9373**	**395,419.9373**	**123.7252**	**0.0000**	**398,018.1668**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**	**0.0000**	**0.0841**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Grading	Off-Highway Trucks	40	12.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	40	100.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520		80,655.7472	80,655.7472	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**		**80,655.7472**	**80,655.7472**	**24.7128**		**81,174.7153**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3427	0.5712	5.3156	0.0127	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,000.3570	1,000.3570	0.0512		1,001.4327
Total	**0.3427**	**0.5712**	**5.3156**	**0.0127**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,000.3570**	**1,000.3570**	**0.0512**		**1,001.4327**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	52.3191	590.0608	281.1214	0.7889		21.9043	21.9043		20.1520	20.1520	0.0000	80,655.7471	80,655.7471	24.7128		81,174.7153
Total	**52.3191**	**590.0608**	**281.1214**	**0.7889**		**21.9043**	**21.9043**		**20.1520**	**20.1520**	**0.0000**	**80,655.7471**	**80,655.7471**	**24.7128**		**81,174.7153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3427	0.5712	5.3156	0.0127	1.1406	7.6900e-003	1.1483	0.3025	7.0900e-003	0.3096		1,000.3570	1,000.3570	0.0512		1,001.4327
Total	**0.3427**	**0.5712**	**5.3156**	**0.0127**	**1.1406**	**7.6900e-003**	**1.1483**	**0.3025**	**7.0900e-003**	**0.3096**		**1,000.3570**	**1,000.3570**	**0.0512**		**1,001.4327**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896		79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**		**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3015	0.5144	4.7523	0.0127	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		962.5163	962.5163	0.0472		963.5076
Total	**0.3015**	**0.5144**	**4.7523**	**0.0127**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**962.5163**	**962.5163**	**0.0472**		**963.5076**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	46.1684	497.0157	250.8449	0.7891		18.1409	18.1409		16.6896	16.6896	0.0000	79,380.0653	79,380.0653	24.7121		79,899.0193
Total	**46.1684**	**497.0157**	**250.8449**	**0.7891**		**18.1409**	**18.1409**		**16.6896**	**16.6896**	**0.0000**	**79,380.0653**	**79,380.0653**	**24.7121**		**79,899.0193**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3015	0.5144	4.7523	0.0127	1.1406	7.5200e-003	1.1481	0.3025	6.9600e-003	0.3094		962.5163	962.5163	0.0472		963.5076
Total	**0.3015**	**0.5144**	**4.7523**	**0.0127**	**1.1406**	**7.5200e-003**	**1.1481**	**0.3025**	**6.9600e-003**	**0.3094**		**962.5163**	**962.5163**	**0.0472**		**963.5076**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600		78,073.5239	78,073.5239	24.7016		78,592.2583

Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**		**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2583**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2741	0.4708	4.3639	0.0126	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		923.5064	923.5064	0.0440		924.4296
Total	**0.2741**	**0.4708**	**4.3639**	**0.0126**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**923.5064**	**923.5064**	**0.0440**		**924.4296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	42.3822	429.2284	238.6139	0.7888		15.6087	15.6087		14.3600	14.3600	0.0000	78,073.5239	78,073.5239	24.7016		78,592.2582
Total	**42.3822**	**429.2284**	**238.6139**	**0.7888**		**15.6087**	**15.6087**		**14.3600**	**14.3600**	**0.0000**	**78,073.5239**	**78,073.5239**	**24.7016**		**78,592.2582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2741	0.4708	4.3639	0.0126	1.1406	7.4200e-003	1.1480	0.3025	6.8800e-003	0.3094		923.5064	923.5064	0.0440		924.4296
Total	**0.2741**	**0.4708**	**4.3639**	**0.0126**	**1.1406**	**7.4200e-003**	**1.1480**	**0.3025**	**6.8800e-003**	**0.3094**		**923.5064**	**923.5064**	**0.0440**		**924.4296**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526		76,335.6414	76,335.6414	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**		**76,335.6414**	**76,335.6414**	**24.6885**		**76,854.0997**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2549	0.4363	4.0508	0.0126	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		886.9377	886.9377	0.0416		887.8114
Total	**0.2549**	**0.4363**	**4.0508**	**0.0126**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**886.9377**	**886.9377**	**0.0416**		**887.8114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	39.5886	377.4766	227.4686	0.7885		13.7528	13.7528		12.6526	12.6526	0.0000	76,335.6413	76,335.6413	24.6885		76,854.0997
Total	**39.5886**	**377.4766**	**227.4686**	**0.7885**		**13.7528**	**13.7528**		**12.6526**	**12.6526**	**0.0000**	**76,335.6413**	**76,335.6413**	**24.6885**		**76,854.0997**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.2549	0.4363	4.0508	0.0126	1.1406	7.4100e-003	1.1480	0.3025	6.8700e-003	0.3094		886.9377	886.9377	0.0416		887.8114
Total	**0.2549**	**0.4363**	**4.0508**	**0.0126**	**1.1406**	**7.4100e-003**	**1.1480**	**0.3025**	**6.8700e-003**	**0.3094**		**886.9377**	**886.9377**	**0.0416**		**887.8114**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038		76,329.7311	76,329.7311	24.6866		76,848.1493
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**		**76,329.7311**	**76,329.7311**	**24.6866**		**76,848.1493**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2401	0.4079	3.7955	0.0126	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		871.9113	871.9113	0.0397		872.7439
Total	**0.2401**	**0.4079**	**3.7955**	**0.0126**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**871.9113**	**871.9113**	**0.0397**		**872.7439**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	36.1731	314.2309	215.1852	0.7885		11.5259	11.5259		10.6038	10.6038	0.0000	76,329.7310	76,329.7310	24.6866		76,848.1492
Total	**36.1731**	**314.2309**	**215.1852**	**0.7885**		**11.5259**	**11.5259**		**10.6038**	**10.6038**	**0.0000**	**76,329.7310**	**76,329.7310**	**24.6866**		**76,848.1492**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2401	0.4079	3.7955	0.0126	1.1406	7.4300e-003	1.1480	0.3025	6.8900e-003	0.3094		871.9113	871.9113	0.0397		872.7439
Total	**0.2401**	**0.4079**	**3.7955**	**0.0126**	**1.1406**	**7.4300e-003**	**1.1480**	**0.3025**	**6.8900e-003**	**0.3094**		**871.9113**	**871.9113**	**0.0397**		**872.7439**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Unmitigated	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841

Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.6400e-003	3.6000e-004	0.0378	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.2000e-004		0.0841
Total	**3.6400e-003**	**3.6000e-004**	**0.0378**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.2000e-004**		**0.0841**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	15,500.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	1.3010	15.0003	9.2061	0.0181	14.7817	0.5326	15.3143	2.3596	0.4900	2.8496	0.0000	1,679.5143	1,679.5143	0.3340	0.0000	1,686.5284
2018	1.2331	14.0459	8.8190	0.0181	14.7817	0.5077	15.2894	2.3596	0.4671	2.8267	0.0000	1,640.1904	1,640.1904	0.3320	0.0000	1,647.1617
2019	1.1106	12.7849	8.2527	0.0181	14.7817	0.4471	15.2288	2.3596	0.4114	2.7710	0.0000	1,600.4086	1,600.4086	0.3303	0.0000	1,607.3453
2020	1.0983	12.7320	8.0382	0.0181	14.7817	0.4467	15.2284	2.3596	0.4110	2.7706	0.0000	1,556.1145	1,556.1145	0.3291	0.0000	1,563.0256
2021	1.0908	12.6793	7.8775	0.0181	14.7817	0.4463	15.2281	2.3596	0.4106	2.7703	0.0000	1,547.5094	1,547.5094	0.3281	0.0000	1,554.3998
Total	**5.8338**	**67.2424**	**42.1934**	**0.0904**	**73.9086**	**2.3804**	**76.2890**	**11.7980**	**2.1901**	**13.9881**	**0.0000**	**8,023.7372**	**8,023.7372**	**1.6535**	**0.0000**	**8,058.4608**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.3010	15.0003	9.2061	0.0181	6.1315	0.5326	6.6641	1.0178	0.4900	1.5078	0.0000	1,679.5143	1,679.5143	0.3340	0.0000	1,686.5284
2018	1.2331	14.0459	8.8190	0.0181	6.1315	0.5077	6.6392	1.0178	0.4671	1.4850	0.0000	1,640.1904	1,640.1904	0.3320	0.0000	1,647.1617
2019	1.1106	12.7849	8.2527	0.0181	6.1315	0.4471	6.5786	1.0178	0.4114	1.4292	0.0000	1,600.4086	1,600.4086	0.3303	0.0000	1,607.3453
2020	1.0983	12.7320	8.0382	0.0181	6.1315	0.4467	6.5781	1.0178	0.4110	1.4288	0.0000	1,556.1145	1,556.1145	0.3291	0.0000	1,563.0256
2021	1.0908	12.6793	7.8775	0.0181	6.1315	0.4463	6.5778	1.0178	0.4106	1.4285	0.0000	1,547.5094	1,547.5094	0.3281	0.0000	1,554.3998
Total	**5.8338**	**67.2424**	**42.1934**	**0.0904**	**30.6574**	**2.3804**	**33.0378**	**5.0892**	**2.1901**	**7.2792**	**0.0000**	**8,023.7372**	**8,023.7372**	**1.6535**	**0.0000**	**8,058.4608**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.52**	**0.00**	**56.69**	**56.86**	**0.00**	**47.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 15500

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	4.00	570	0.40
Grading	Scrapers	2	14.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	14.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812		1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**14.1807**	**0.5230**	**14.7038**	**2.1996**	**0.4812**	**2.6808**		**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812	0.0000	1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**5.5305**	**0.5230**	**6.0535**	**0.8579**	**0.4812**	**1.3390**	**0.0000**	**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0455	0.3494	0.5413	1.0700e-003	0.0307	5.7200e-003	0.0364	8.7400e-003	5.2600e-003	0.0140		105.1830	105.1830	7.6000e-004		105.1989
Worker	0.1983	0.2303	3.1005	7.2200e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		570.2972	570.2972	0.0256		570.8350
Total	**0.2438**	**0.5796**	**3.6418**	**8.2900e-003**	**0.6010**	**9.5700e-003**	**0.6106**	**0.1600**	**8.8100e-003**	**0.1688**		**675.4802**	**675.4802**	**0.0264**		**676.0339**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588		988.1626	988.1626	0.3076		994.6228

Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**14.1807**	**0.4987**	**14.6794**	**2.1996**	**0.4588**	**2.6584**		**988.1626**	**988.1626**	**0.3076**		**994.6228**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588	0.0000	988.1626	988.1626	0.3076		994.6228
Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**5.5305**	**0.4987**	**6.0292**	**0.8579**	**0.4588**	**1.3167**	**0.0000**	**988.1626**	**988.1626**	**0.3076**		**994.6228**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0382	0.3139	0.4744	1.0600e-003	0.0307	5.2600e-003	0.0360	8.7400e-003	4.8400e-003	0.0136		103.2505	103.2505	7.4000e-004		103.2660
Worker	0.1766	0.2076	2.7973	7.2200e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		548.7773	548.7773	0.0236		549.2729
Total	**0.2148**	**0.5215**	**3.2716**	**8.2800e-003**	**0.6010**	**9.0200e-003**	**0.6100**	**0.1600**	**8.3200e-003**	**0.1683**		**652.0278**	**652.0278**	**0.0243**		**652.5389**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034		972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**14.1807**	**0.4385**	**14.6193**	**2.1996**	**0.4034**	**2.6031**		**972.2907**	**972.2907**	**0.3076**		**978.7508**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974
Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034	0.0000	972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**5.5305**	**0.4385**	**5.9690**	**0.8579**	**0.4034**	**1.2613**	**0.0000**	**972.2907**	**972.2907**	**0.3076**		**978.7508**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0348	0.2848	0.4422	1.0600e-003	0.0307	4.8700e-003	0.0356	8.7400e-003	4.4800e-003	0.0132		101.5822	101.5822	7.1000e-004		101.5972
Worker	0.1616	0.1901	2.5867	7.1800e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		526.5358	526.5358	0.0220		526.9974

Total	**0.1964**	**0.4750**	**3.0289**	**8.2400e-003**	**0.6010**	**8.5800e-003**	**0.6096**	**0.1600**	**7.9200e-003**	**0.1679**		**628.1179**	**628.1179**	**0.0227**		**628.5945**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035		951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**14.1807**	**0.4386**	**14.6193**	**2.1996**	**0.4035**	**2.6031**		**951.1343**	**951.1343**	**0.3076**		**957.5943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035	0.0000	951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**5.5305**	**0.4386**	**5.9691**	**0.8579**	**0.4035**	**1.2614**	**0.0000**	**951.1343**	**951.1343**	**0.3076**		**957.5943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0299	0.2455	0.3960	1.0600e-003	0.0307	4.3500e-003	0.0351	8.7400e-003	4.0000e-003	0.0127		99.2675	99.2675	6.9000e-004		99.2819
Worker	0.1506	0.1764	2.4125	7.1800e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		505.7126	505.7126	0.0208		506.1495
Total	**0.1805**	**0.4219**	**2.8084**	**8.2400e-003**	**0.6010**	**8.0500e-003**	**0.6090**	**0.1600**	**7.4300e-003**	**0.1674**		**604.9801**	**604.9801**	**0.0215**		**605.4314**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036		951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**14.1807**	**0.4387**	**14.6194**	**2.1996**	**0.4036**	**2.6032**		**951.1136**	**951.1136**	**0.3076**		**957.5734**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036	0.0000	951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**5.5305**	**0.4387**	**5.9692**	**0.8579**	**0.4036**	**1.2614**	**0.0000**	**951.1136**	**951.1136**	**0.3076**		**957.5734**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0277	0.2042	0.3727	1.0600e-003	0.0307	3.9200e-003	0.0346	8.7400e-003	3.6100e-003	0.0124		99.2145	99.2145	6.8000e-004		99.2288
Worker	0.1418	0.1650	2.2693	7.1800e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		497.1813	497.1813	0.0198		497.5976
Total	**0.1695**	**0.3692**	**2.6420**	**8.2400e-003**	**0.6010**	**7.6400e-003**	**0.6086**	**0.1600**	**7.0600e-003**	**0.1670**		**596.3958**	**596.3958**	**0.0205**		**596.8264**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	15,500.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblOffRoadEquipment	UsageHours	8.00	14.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

2017	1.2867	15.0822	9.0209	0.0172	14.7817	0.5327	15.3144	2.3596	0.4900	2.8497	0.0000	1,608.6775	1,608.6775	0.3340	0.0000	1,615.6919
2018	1.2168	14.1192	8.6591	0.0172	14.7817	0.5078	15.2895	2.3596	0.4672	2.8268	0.0000	1,571.9635	1,571.9635	0.3320	0.0000	1,578.9352
2019	1.0944	12.8515	8.1067	0.0172	14.7817	0.4472	15.2289	2.3596	0.4114	2.7710	0.0000	1,534.9287	1,534.9287	0.3303	0.0000	1,541.8659
2020	1.0815	12.7920	7.9126	0.0172	14.7817	0.4467	15.2284	2.3596	0.4110	2.7706	0.0000	1,493.1871	1,493.1871	0.3291	0.0000	1,500.0988
2021	1.0745	12.7334	7.7633	0.0172	14.7817	0.4464	15.2281	2.3596	0.4107	2.7703	0.0000	1,485.5998	1,485.5998	0.3281	0.0000	1,492.4906
Total	**5.7538**	**67.5784**	**41.4625**	**0.0859**	**73.9086**	**2.3807**	**76.2893**	**11.7980**	**2.1903**	**13.9883**	**0.0000**	**7,694.3566**	**7,694.3566**	**1.6536**	**0.0000**	**7,729.0823**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2017	1.2867	15.0822	9.0209	0.0172	6.1315	0.5327	6.6641	1.0178	0.4900	1.5079	0.0000	1,608.6775	1,608.6775	0.3340	0.0000	1,615.6919
2018	1.2168	14.1192	8.6591	0.0172	6.1315	0.5078	6.6392	1.0178	0.4672	1.4850	0.0000	1,571.9635	1,571.9635	0.3320	0.0000	1,578.9352
2019	1.0944	12.8515	8.1067	0.0172	6.1315	0.4472	6.5786	1.0178	0.4114	1.4292	0.0000	1,534.9287	1,534.9287	0.3303	0.0000	1,541.8659
2020	1.0815	12.7920	7.9126	0.0172	6.1315	0.4467	6.5782	1.0178	0.4110	1.4288	0.0000	1,493.1871	1,493.1871	0.3291	0.0000	1,500.0988
2021	1.0745	12.7334	7.7633	0.0172	6.1315	0.4464	6.5778	1.0178	0.4107	1.4285	0.0000	1,485.5998	1,485.5998	0.3281	0.0000	1,492.4906
Total	**5.7538**	**67.5784**	**41.4625**	**0.0859**	**30.6574**	**2.3807**	**33.0380**	**5.0892**	**2.1903**	**7.2795**	**0.0000**	**7,694.3566**	**7,694.3566**	**1.6536**	**0.0000**	**7,729.0823**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.52**	**0.00**	**56.69**	**56.86**	**0.00**	**47.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**	**0.0000**	**0.0844**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 15500

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	4.00	570	0.40
Grading	Scrapers	2	14.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	14.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812		1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**14.1807**	**0.5230**	**14.7038**	**2.1996**	**0.4812**	**2.6808**		**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0572	14.4207	5.5643	9.8100e-003		0.5230	0.5230		0.4812	0.4812	0.0000	1,004.0341	1,004.0341	0.3076		1,010.4944
Total	**1.0572**	**14.4207**	**5.5643**	**9.8100e-003**	**5.5305**	**0.5230**	**6.0535**	**0.8579**	**0.4812**	**1.3390**	**0.0000**	**1,004.0341**	**1,004.0341**	**0.3076**		**1,010.4944**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0581	0.3759	0.7988	1.0600e-003	0.0307	5.7900e-003	0.0365	8.7400e-003	5.3200e-003	0.0141		104.4648	104.4648	7.8000e-004		104.4812
Worker	0.1714	0.2856	2.6578	6.3300e-003	0.5703	3.8500e-003	0.5741	0.1512	3.5500e-003	0.1548		500.1785	500.1785	0.0256		500.7163
Total	**0.2295**	**0.6615**	**3.4566**	**7.3900e-003**	**0.6010**	**9.6400e-003**	**0.6106**	**0.1600**	**8.8700e-003**	**0.1689**		**604.6434**	**604.6434**	**0.0264**		**605.1975**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588		988.1626	988.1626	0.3076		994.6228

Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**14.1807**	**0.4987**	**14.6794**	**2.1996**	**0.4588**	**2.6584**		**988.1626**	**988.1626**	**0.3076**		**994.6228**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	1.0182	13.5245	5.5473	9.8100e-003		0.4987	0.4987		0.4588	0.4588	0.0000	988.1626	988.1626	0.3076		994.6228
Total	**1.0182**	**13.5245**	**5.5473**	**9.8100e-003**	**5.5305**	**0.4987**	**6.0292**	**0.8579**	**0.4588**	**1.3167**	**0.0000**	**988.1626**	**988.1626**	**0.3076**		**994.6228**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0478	0.3376	0.7357	1.0600e-003	0.0307	5.3200e-003	0.0360	8.7400e-003	4.8900e-003	0.0136		102.5427	102.5427	7.6000e-004		102.5586
Worker	0.1508	0.2572	2.3762	6.3300e-003	0.5703	3.7600e-003	0.5740	0.1512	3.4800e-003	0.1547		481.2582	481.2582	0.0236		481.7538
Total	**0.1986**	**0.5948**	**3.1118**	**7.3900e-003**	**0.6010**	**9.0800e-003**	**0.6101**	**0.1600**	**8.3700e-003**	**0.1684**		**583.8009**	**583.8009**	**0.0244**		**584.3124**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034		972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**14.1807**	**0.4385**	**14.6193**	**2.1996**	**0.4034**	**2.6031**		**972.2907**	**972.2907**	**0.3076**		**978.7508**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148
Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9142	12.3100	5.2239	9.8100e-003		0.4385	0.4385		0.4034	0.4034	0.0000	972.2907	972.2907	0.3076		978.7508
Total	**0.9142**	**12.3100**	**5.2239**	**9.8100e-003**	**5.5305**	**0.4385**	**5.9690**	**0.8579**	**0.4034**	**1.2613**	**0.0000**	**972.2907**	**972.2907**	**0.3076**		**978.7508**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0431	0.3061	0.7009	1.0600e-003	0.0307	4.9300e-003	0.0356	8.7400e-003	4.5300e-003	0.0133		100.8848	100.8848	7.4000e-004		100.9003
Worker	0.1371	0.2354	2.1819	6.2900e-003	0.5703	3.7100e-003	0.5740	0.1512	3.4400e-003	0.1547		461.7532	461.7532	0.0220		462.2148

Total	**0.1802**	**0.5416**	**2.8828**	**7.3500e-003**	**0.6010**	**8.6400e-003**	**0.6096**	**0.1600**	**7.9700e-003**	**0.1680**		**562.6380**	**562.6380**	**0.0227**		**563.1151**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035		951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**14.1807**	**0.4386**	**14.6193**	**2.1996**	**0.4035**	**2.6031**		**951.1343**	**951.1343**	**0.3076**		**957.5943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9178	12.3101	5.2298	9.8100e-003		0.4386	0.4386		0.4035	0.4035	0.0000	951.1343	951.1343	0.3076		957.5943
Total	**0.9178**	**12.3101**	**5.2298**	**9.8100e-003**	**5.5305**	**0.4386**	**5.9691**	**0.8579**	**0.4035**	**1.2614**	**0.0000**	**951.1343**	**951.1343**	**0.3076**		**957.5943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0363	0.2638	0.6574	1.0600e-003	0.0307	4.4000e-003	0.0351	8.7400e-003	4.0500e-003	0.0128		98.5839	98.5839	7.1000e-004		98.5988
Worker	0.1275	0.2182	2.0254	6.2900e-003	0.5703	3.7000e-003	0.5740	0.1512	3.4300e-003	0.1547		443.4689	443.4689	0.0208		443.9057
Total	**0.1637**	**0.4819**	**2.6828**	**7.3500e-003**	**0.6010**	**8.1000e-003**	**0.6091**	**0.1600**	**7.4800e-003**	**0.1675**		**542.0528**	**542.0528**	**0.0215**		**542.5045**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					14.1807	0.0000	14.1807	2.1996	0.0000	2.1996			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036		951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**14.1807**	**0.4387**	**14.6194**	**2.1996**	**0.4036**	**2.6032**		**951.1136**	**951.1136**	**0.3076**		**957.5734**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.5305	0.0000	5.5305	0.8579	0.0000	0.8579			0.0000			0.0000
Off-Road	0.9213	12.3101	5.2356	9.8100e-003		0.4387	0.4387		0.4036	0.4036	0.0000	951.1136	951.1136	0.3076		957.5734
Total	**0.9213**	**12.3101**	**5.2356**	**9.8100e-003**	**5.5305**	**0.4387**	**5.9692**	**0.8579**	**0.4036**	**1.2614**	**0.0000**	**951.1136**	**951.1136**	**0.3076**		**957.5734**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0331	0.2194	0.6300	1.0600e-003	0.0307	3.9600e-003	0.0347	8.7400e-003	3.6400e-003	0.0124		98.5306	98.5306	7.0000e-004		98.5453
Worker	0.1200	0.2039	1.8977	6.2900e-003	0.5703	3.7200e-003	0.5740	0.1512	3.4500e-003	0.1547		435.9556	435.9556	0.0198		436.3720
Total	**0.1531**	**0.4234**	**2.5277**	**7.3500e-003**	**0.6010**	**7.6800e-003**	**0.6087**	**0.1600**	**7.0900e-003**	**0.1671**		**534.4862**	**534.4862**	**0.0205**		**534.9172**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Unmitigated	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844
Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.9100e-003	3.8000e-004	0.0388	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0794	0.0794	2.4000e-004		0.0844

Total	**3.9100e-003**	**3.8000e-004**	**0.0388**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0794**	**0.0794**	**2.4000e-004**		**0.0844**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Conveyor Loading/Unloading Emissions

E (lb/ton) = k*(0.0032)*(U/5)^1.3/(M/2)^1.4

where
k = particle size multiplier (dimensionless)
U = mean wind speed (miles per hour [mph])
M = material moisture content (%)

Constants	
0.0032	2
5	1.4
1.3	

k		U (mph)	M (%)
PM_{10}	$PM_{2.5}$		
0.35	0.053	6	4.8

PM_{10} (lb/ton)	4.17E-04	Uncontrolled
$PM_{2.5}$ (lb/ton)	6.31E-05	
PM_{10} (lb/ton)	1.58E-04	Controlled
$PM_{2.5}$ (lb/ton)	2.40E-05	

		Uncontrolled		Controlled	
Material handled (tons/day)		**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Maximum	21,000	8.8	1.3	3.3	0.5
Average	10,500	4.4	0.7	1.7	0.3

Source: AP-42, Chapter 13.2.4-4
Average annual wind speed at Mather Airport (http://www.wrcc.dri.edu/climatedata/climtables/westwind/)
Mining will generally proceed in a vertical plane on any given disturbed acre, continuously exposing new ground which typically has sufficient inherent moisture.
Assumed moisture content of 4.8% to be conservative considering soil moisture and site watering.
Controlled emission rates based on a 62% reduction from water sprays at conveyor transfer points
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Truck Loading/Unloading Emissions - Overburden

E (lb/ton) = k*(0.0032)*(U/5)^1.3/(M/2)^1.4

where
k = particle size multiplier (dimensionless)
U = mean wind speed (miles per hour [mph])
M = material moisture content (%)

Constants	
0.0032	2
5	1.4
1.3	

k		U (mph)	M (%)
PM_{10}	$PM_{2.5}$		
0.35	0.053	6	12

PM_{10} (lb/ton)	1.16E-04
$PM_{2.5}$ (lb/ton)	1.75E-05

Per applicant:

1	truck per	2	minutes
30	truckloads per	60	minutes
360	truckloads per	12	hours
300	truckloads per	10	hours

Maximum	7,200	cubic yards/day
Average	6,000	cubic yards/day

Material handled (tons/day)		PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Maximum	9,101	1.1	0.2
Average	7,584	0.9	0.1

Operational hours for off-road trucks

Maximum	12	hours/day
Average	10	hours/day

Truck capacity

20	cubic yards

1.264 tons per cubic yard
based on bulk density of 1.5 grams per cubic centimeter

Source: AP-42, Chapter 13.2.4-4
Average annual wind speed at Mather Airport (http://www.wrcc.dri.edu/climatedata/climtables/westwind/)
Mining will generally proceed in a vertical plane on any given disturbed acre, continuously exposing new ground which typically has sufficient inherent moisture.
Assumed moisture content of 12% considering soil moisture and site watering based on the WRAP Fugitive Dust Handbook.
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Truck Travel on Unpaved Roads - Overburden

E (lb/VMT) = k*(s/12)^a*(W/3)^b*((365-p)/365)*(1-CE)

where
E = size specific emission factor (lb/vehicle mile traveled)
s = surface material silt content (%)
W = mean vehicle weight (tons)
p = number of days in a year with at least 0.254 mm (0.01 in) of precipitation
CE = control efficiency

	k	a	b
PM_{10}	1.5	0.9	0.45
$PM_{2.5}$	0.15	0.9	0.45

		Units
s	4.8	%
W	30	tons
p	57	days
CE	84	%

PM_{10} (lb/VMT)	2.50E-01
$PM_{2.5}$ (lb/VMT)	2.50E-02

Per applicant:

1	truck per	2	minutes
30	truckloads per	60	minutes
360	truckloads per	12	hours
300	truckloads per	10	hours

Maximum	12	hours/day
Average	10	hours/day

Maximum	162	VMT/day
Average	135	VMT/day

0.5 mile per truck

	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Maximum	40.5	4.1
Average	33.8	3.4

Source: AP-42, Chapter 13.2.2
Average annual precipitation days from Mather Airport (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5400)
The off-road trucks used would be end or bottom dump trucks. Mean weight is average of full and empty trucks.
Average travel distance based on transfer from northwestern edge of the Aspen VIII/IX site to the eastern edge of Aspen V South which is the anticipated route.
As mining proceeds, a portion of the overburden is expected to be used onsite and the need for offroad trucks would decline.
Control efficiency from South Coast Air Quality Management District, Table XI-D Mitigation Measure Examples: Fugitive Dust from Unpaved Roads and WRAP Fugitive Dust Handbook.
Based on application of chemical dust suppressant.
Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook, September 7, 2006 (http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf).

Aspen VIII IX Avg

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2017
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT -

Grading - Overburden Export

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	20.00
tblOffRoadEquipment	PhaseName		Grading
tblProjectCharacteristics	OperationalYear	2014	2017
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	2.8555	31.9948	15.5682	0.0436	0.0716	1.1870	1.2586	0.0190	1.0920	1.1111	0.0000	4,024.0935	4,024.0935	1.2174	0.0000	4,049.6586
2018	2.5296	27.0552	13.9470	0.0438	0.0719	0.9869	1.0588	0.0191	0.9080	0.9271	0.0000	3,974.3387	3,974.3387	1.2218	0.0000	3,999.9964
2019	2.3220	23.3668	13.2579	0.0437	0.0719	0.8492	0.9211	0.0191	0.7813	0.8004	0.0000	3,907.5112	3,907.5112	1.2211	0.0000	3,933.1540
2020	2.1772	20.6295	12.6806	0.0439	0.0721	0.7512	0.8233	0.0192	0.6911	0.7103	0.0000	3,834.1907	3,834.1907	1.2250	0.0000	3,859.9152
2021	1.9822	17.1101	11.9481	0.0437	0.0719	0.6272	0.6991	0.0191	0.5770	0.5961	0.0000	3,818.3499	3,818.3499	1.2201	0.0000	3,843.9718
Total	**11.8665**	**120.1564**	**67.4018**	**0.2187**	**0.3593**	**4.4015**	**4.7607**	**0.0955**	**4.0494**	**4.1449**	**0.0000**	**19,558.4839**	**19,558.4839**	**6.1054**	**0.0000**	**19,686.6960**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	2.8555	31.9948	15.5682	0.0436	0.0716	1.1870	1.2586	0.0190	1.0920	1.1111	0.0000	4,024.0887	4,024.0887	1.2174	0.0000	4,049.6538
2018	2.5296	27.0552	13.9470	0.0438	0.0719	0.9869	1.0588	0.0191	0.9080	0.9271	0.0000	3,974.3340	3,974.3340	1.2218	0.0000	3,999.9917
2019	2.3220	23.3667	13.2579	0.0437	0.0719	0.8492	0.9211	0.0191	0.7813	0.8004	0.0000	3,907.5066	3,907.5066	1.2211	0.0000	3,933.1494
2020	2.1772	20.6295	12.6805	0.0439	0.0721	0.7512	0.8233	0.0192	0.6911	0.7103	0.0000	3,834.1862	3,834.1862	1.2250	0.0000	3,859.9107
2021	1.9822	17.1101	11.9481	0.0437	0.0719	0.6272	0.6991	0.0191	0.5770	0.5961	0.0000	3,818.3454	3,818.3454	1.2201	0.0000	3,843.9673
Total	**11.8665**	**120.1563**	**67.4017**	**0.2187**	**0.3593**	**4.4015**	**4.7607**	**0.0955**	**4.0493**	**4.1449**	**0.0000**	**19,558.4610**	**19,558.4610**	**6.1053**	**0.0000**	**19,686.6730**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Off-Highway Trucks	20	10.00	400	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	20	50.00	0.00	0.00	15.00	8.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8340	31.9616	15.2274	0.0427		1.1865	1.1865		1.0916	1.0916	0.0000	3,963.3568	3,963.3568	1.2144	0.0000	3,988.8584
Total	**2.8340**	**31.9616**	**15.2274**	**0.0427**		**1.1865**	**1.1865**		**1.0916**	**1.0916**	**0.0000**	**3,963.3568**	**3,963.3568**	**1.2144**	**0.0000**	**3,988.8584**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0216**	**0.0332**	**0.3408**	**8.5000e-004**	**0.0716**	**5.0000e-004**	**0.0721**	**0.0190**	**4.6000e-004**	**0.0195**	**0.0000**	**60.7367**	**60.7367**	**3.0200e-003**	**0.0000**	**60.8001**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8340	31.9616	15.2274	0.0427		1.1865	1.1865		1.0916	1.0916	0.0000	3,963.3520	3,963.3520	1.2144	0.0000	3,988.8537
Total	**2.8340**	**31.9616**	**15.2274**	**0.0427**		**1.1865**	**1.1865**		**1.0916**	**1.0916**	**0.0000**	**3,963.3520**	**3,963.3520**	**1.2144**	**0.0000**	**3,988.8537**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0216**	**0.0332**	**0.3408**	**8.5000e-004**	**0.0716**	**5.0000e-004**	**0.0721**	**0.0190**	**4.6000e-004**	**0.0195**	**0.0000**	**60.7367**	**60.7367**	**3.0200e-003**	**0.0000**	**60.8001**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5104	27.0252	13.6397	0.0429		0.9864	0.9864		0.9075	0.9075	0.0000	3,915.6734	3,915.6734	1.2190	0.0000	3,941.2724
Total	**2.5104**	**27.0252**	**13.6397**	**0.0429**		**0.9864**	**0.9864**		**0.9075**	**0.9075**	**0.0000**	**3,915.6734**	**3,915.6734**	**1.2190**	**0.0000**	**3,941.2724**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240

Total	**0.0192**	**0.0300**	**0.3074**	**8.5000e-004**	**0.0719**	**4.9000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**58.6653**	**58.6653**	**2.7900e-003**	**0.0000**	**58.7240**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5104	27.0252	13.6397	0.0429		0.9864	0.9864		0.9075	0.9075	0.0000	3,915.6687	3,915.6687	1.2190	0.0000	3,941.2677
Total	**2.5104**	**27.0252**	**13.6397**	**0.0429**		**0.9864**	**0.9864**		**0.9075**	**0.9075**	**0.0000**	**3,915.6687**	**3,915.6687**	**1.2190**	**0.0000**	**3,941.2677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0192**	**0.0300**	**0.3074**	**8.5000e-004**	**0.0719**	**4.9000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**58.6653**	**58.6653**	**2.7900e-003**	**0.0000**	**58.7240**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.3045	23.3393	12.9746	0.0429		0.8487	0.8487		0.7808	0.7808	0.0000	3,851.2241	3,851.2241	1.2185	0.0000	3,876.8123
Total	**2.3045**	**23.3393**	**12.9746**	**0.0429**		**0.8487**	**0.8487**		**0.7808**	**0.7808**	**0.0000**	**3,851.2241**	**3,851.2241**	**1.2185**	**0.0000**	**3,876.8123**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0175**	**0.0275**	**0.2833**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**56.2871**	**56.2871**	**2.6000e-003**	**0.0000**	**56.3417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	2.3045	23.3393	12.9746	0.0429		0.8487	0.8487		0.7808	0.7808	0.0000	3,851.2195	3,851.2195	1.2185	0.0000	3,876.8077
Total	**2.3045**	**23.3393**	**12.9746**	**0.0429**		**0.8487**	**0.8487**		**0.7808**	**0.7808**	**0.0000**	**3,851.2195**	**3,851.2195**	**1.2185**	**0.0000**	**3,876.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0175**	**0.0275**	**0.2833**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**56.2871**	**56.2871**	**2.6000e-003**	**0.0000**	**56.3417**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1609	20.6039	12.4160	0.0430		0.7507	0.7507		0.6906	0.6906	0.0000	3,779.9247	3,779.9247	1.2225	0.0000	3,805.5973
Total	**2.1609**	**20.6039**	**12.4160**	**0.0430**		**0.7507**	**0.7507**		**0.6906**	**0.6906**	**0.0000**	**3,779.9247**	**3,779.9247**	**1.2225**	**0.0000**	**3,805.5973**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0163**	**0.0256**	**0.2646**	**8.5000e-004**	**0.0721**	**4.9000e-004**	**0.0726**	**0.0192**	**4.5000e-004**	**0.0196**	**0.0000**	**54.2660**	**54.2660**	**2.4700e-003**	**0.0000**	**54.3179**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1609	20.6039	12.4160	0.0430		0.7507	0.7507		0.6906	0.6906	0.0000	3,779.9202	3,779.9202	1.2225	0.0000	3,805.5928
Total	**2.1609**	**20.6039**	**12.4160**	**0.0430**		**0.7507**	**0.7507**		**0.6906**	**0.6906**	**0.0000**	**3,779.9202**	**3,779.9202**	**1.2225**	**0.0000**	**3,805.5928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0163**	**0.0256**	**0.2646**	**8.5000e-004**	**0.0721**	**4.9000e-004**	**0.0726**	**0.0192**	**4.5000e-004**	**0.0196**	**0.0000**	**54.2660**	**54.2660**	**2.4700e-003**	**0.0000**	**54.3179**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9669	17.0863	11.7007	0.0429		0.6267	0.6267		0.5766	0.5766	0.0000	3,765.2060	3,765.2060	1.2177	0.0000	3,790.7786
Total	**1.9669**	**17.0863**	**11.7007**	**0.0429**		**0.6267**	**0.6267**		**0.5766**	**0.5766**	**0.0000**	**3,765.2060**	**3,765.2060**	**1.2177**	**0.0000**	**3,790.7786**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0153**	**0.0238**	**0.2474**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**53.1440**	**53.1440**	**2.3500e-003**	**0.0000**	**53.1932**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9669	17.0863	11.7007	0.0429		0.6267	0.6267		0.5766	0.5766	0.0000	3,765.2015	3,765.2015	1.2177	0.0000	3,790.7741
Total	**1.9669**	**17.0863**	**11.7007**	**0.0429**		**0.6267**	**0.6267**		**0.5766**	**0.5766**	**0.0000**	**3,765.2015**	**3,765.2015**	**1.2177**	**0.0000**	**3,790.7741**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0153**	**0.0238**	**0.2474**	**8.5000e-004**	**0.0719**	**4.8000e-004**	**0.0723**	**0.0191**	**4.5000e-004**	**0.0196**	**0.0000**	**53.1440**	**53.1440**	**2.3500e-003**	**0.0000**	**53.1932**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504380	0.068251	0.178421	0.147199	0.044767	0.006294	0.020809	0.016358	0.002307	0.002286	0.006181	0.000572	0.002175

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Unmitigated	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.6000e-004	4.0000e-005	4.7200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5400e-003
Total	**4.6000e-004**	**4.0000e-005**	**4.7200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Aspen VIII IX Avg

Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	363.00	User Defined Unit	363.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2014
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Mining on 363 acres

Construction Phase - Mining with overburden removal for first 5 years

Off-road Equipment - From applicant

Trips and VMT - From applicant

Grading - Grading

Energy Use - Adjusted for project acreage based on total consumption for conveyors

Water And Wastewater - Provided by applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	NumDays	620.00	1,305.00
tblEnergyUse	NT24E	0.00	7,686.00
tblEnergyUse	T24E	0.00	7,686.00
tblGrading	AcresOfGrading	2,610.00	7,750.00
tblGrading	MaterialExported	0.00	500,000.00
tblLandUse	LotAcreage	0.00	363.00
tblOffRoadEquipment	HorsePower	255.00	570.00
tblOffRoadEquipment	HorsePower	361.00	773.00
tblOffRoadEquipment	HorsePower	97.00	853.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	125,000.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	50.00
tblWater	OutdoorWaterUseRate	0.00	40,500,000.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0968	1.0185	0.7855	1.6200e-003	5.2189	0.0352	5.2542	1.0117	0.0324	1.0441	0.0000	132.3107	132.3107	0.0213	0.0000	132.7570
2018	0.0910	0.9557	0.7446	1.6300e-003	5.2192	0.0337	5.2530	1.0118	0.0310	1.0428	0.0000	129.3468	129.3468	0.0211	0.0000	129.7897

2019	0.0820	0.8699	0.6953	1.6200e-003	5.2192	0.0297	5.2490	1.0118	0.0274	1.0391	0.0000	125.8321	125.8321	0.0209	0.0000	126.2709
2020	0.0807	0.8658	0.6729	1.6300e-003	5.2195	0.0298	5.2493	1.0118	0.0274	1.0392	0.0000	122.5460	122.5460	0.0208	0.0000	122.9835
2021	0.0793	0.8551	0.6514	1.6200e-003	5.2192	0.0296	5.2489	1.0118	0.0273	1.0390	0.0000	121.1557	121.1557	0.0206	0.0000	121.5891
Total	**0.4298**	**4.5651**	**3.5497**	**8.1200e-003**	**26.0962**	**0.1581**	**26.2543**	**5.0588**	**0.1455**	**5.2042**	**0.0000**	**631.1912**	**631.1912**	**0.1047**	**0.0000**	**633.3901**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0968	1.0185	0.7855	1.6200e-003	2.0814	0.0352	2.1167	0.4068	0.0324	0.4393	0.0000	132.3106	132.3106	0.0213	0.0000	132.7569
2018	0.0910	0.9557	0.7446	1.6300e-003	2.0817	0.0337	2.1154	0.4069	0.0310	0.4379	0.0000	129.3467	129.3467	0.0211	0.0000	129.7897
2019	0.0820	0.8699	0.6953	1.6200e-003	2.0817	0.0297	2.1114	0.4069	0.0274	0.4343	0.0000	125.8320	125.8320	0.0209	0.0000	126.2708
2020	0.0807	0.8658	0.6729	1.6300e-003	2.0820	0.0298	2.1118	0.4070	0.0274	0.4344	0.0000	122.5459	122.5459	0.0208	0.0000	122.9834
2021	0.0793	0.8551	0.6514	1.6200e-003	2.0817	0.0296	2.1113	0.4069	0.0273	0.4342	0.0000	121.1557	121.1557	0.0206	0.0000	121.5891
Total	**0.4298**	**4.5651**	**3.5497**	**8.1200e-003**	**10.4085**	**0.1581**	**10.5666**	**2.0346**	**0.1455**	**2.1801**	**0.0000**	**631.1909**	**631.1909**	**0.1047**	**0.0000**	**633.3898**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.11**	**0.00**	**59.75**	**59.78**	**0.00**	**58.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	37.9550	37.9550	1.8600e-003	3.9000e-004	38.1137
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**37.9640**	**37.9640**	**1.8900e-003**	**3.9000e-004**	**38.1233**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	37.9550	37.9550	1.8600e-003	3.9000e-004	38.1137
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**37.9640**	**37.9640**	**1.8900e-003**	**3.9000e-004**	**38.1233**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**

Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	12/31/2021	5	1305	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 7750

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	0	8.00	174	0.41
Grading	Rubber Tired Dozers	1	2.00	570	0.40
Grading	Scrapers	2	8.00	773	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	853	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	5	50.00	4.00	0.00	15.00	8.50	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0687	0.9373	0.3617	6.4000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	59.2049	59.2049	0.0181	0.0000	59.5858
Total	**0.0687**	**0.9373**	**0.3617**	**6.4000e-004**	**5.1435**	**0.0340**	**5.1775**	**0.9915**	**0.0313**	**1.0228**	**0.0000**	**59.2049**	**59.2049**	**0.0181**	**0.0000**	**59.5858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4600e-003	0.0480	0.0830	1.4000e-004	3.8800e-003	7.5000e-004	4.6200e-003	1.1100e-003	6.9000e-004	1.7900e-003	0.0000	12.3691	12.3691	9.0000e-005	0.0000	12.3710
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0280**	**0.0812**	**0.4238**	**9.9000e-004**	**0.0755**	**1.2500e-003**	**0.0767**	**0.0201**	**1.1500e-003**	**0.0213**	**0.0000**	**73.1058**	**73.1058**	**3.1100e-003**	**0.0000**	**73.1711**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0687	0.9373	0.3617	6.4000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	59.2048	59.2048	0.0181	0.0000	59.5858
Total	**0.0687**	**0.9373**	**0.3617**	**6.4000e-004**	**2.0060**	**0.0340**	**2.0400**	**0.3867**	**0.0313**	**0.4180**	**0.0000**	**59.2048**	**59.2048**	**0.0181**	**0.0000**	**59.5858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4600e-003	0.0480	0.0830	1.4000e-004	3.8800e-003	7.5000e-004	4.6200e-003	1.1100e-003	6.9000e-004	1.7900e-003	0.0000	12.3691	12.3691	9.0000e-005	0.0000	12.3710
Worker	0.0216	0.0332	0.3408	8.5000e-004	0.0716	5.0000e-004	0.0721	0.0190	4.6000e-004	0.0195	0.0000	60.7367	60.7367	3.0200e-003	0.0000	60.8001
Total	**0.0280**	**0.0812**	**0.4238**	**9.9000e-004**	**0.0755**	**1.2500e-003**	**0.0767**	**0.0201**	**1.1500e-003**	**0.0213**	**0.0000**	**73.1058**	**73.1058**	**3.1100e-003**	**0.0000**	**73.1711**

3.2 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0664	0.8825	0.3620	6.4000e-004		0.0325	0.0325		0.0299	0.0299	0.0000	58.4931	58.4931	0.0182	0.0000	58.8755
Total	**0.0664**	**0.8825**	**0.3620**	**6.4000e-004**	**5.1435**	**0.0325**	**5.1760**	**0.9915**	**0.0299**	**1.0215**	**0.0000**	**58.4931**	**58.4931**	**0.0182**	**0.0000**	**58.8755**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4200e-003	0.0433	0.0753	1.4000e-004	3.8900e-003	6.9000e-004	4.5800e-003	1.1100e-003	6.3000e-004	1.7500e-003	0.0000	12.1884	12.1884	9.0000e-005	0.0000	12.1902
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0246**	**0.0733**	**0.3826**	**9.9000e-004**	**0.0757**	**1.1800e-003**	**0.0769**	**0.0202**	**1.0800e-003**	**0.0213**	**0.0000**	**70.8537**	**70.8537**	**2.8800e-003**	**0.0000**	**70.9142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0664	0.8825	0.3620	6.4000e-004		0.0325	0.0325		0.0299	0.0299	0.0000	58.4930	58.4930	0.0182	0.0000	58.8754
Total	**0.0664**	**0.8825**	**0.3620**	**6.4000e-004**	**2.0060**	**0.0325**	**2.0385**	**0.3867**	**0.0299**	**0.4166**	**0.0000**	**58.4930**	**58.4930**	**0.0182**	**0.0000**	**58.8754**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4200e-003	0.0433	0.0753	1.4000e-004	3.8900e-003	6.9000e-004	4.5800e-003	1.1100e-003	6.3000e-004	1.7500e-003	0.0000	12.1884	12.1884	9.0000e-005	0.0000	12.1902
Worker	0.0192	0.0300	0.3074	8.5000e-004	0.0719	4.9000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	58.6653	58.6653	2.7900e-003	0.0000	58.7240
Total	**0.0246**	**0.0733**	**0.3826**	**9.9000e-004**	**0.0757**	**1.1800e-003**	**0.0769**	**0.0202**	**1.0800e-003**	**0.0213**	**0.0000**	**70.8537**	**70.8537**	**2.8800e-003**	**0.0000**	**70.9142**

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0597	0.8032	0.3409	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	57.5536	57.5536	0.0182	0.0000	57.9360
Total	**0.0597**	**0.8032**	**0.3409**	**6.4000e-004**	**5.1435**	**0.0286**	**5.1721**	**0.9915**	**0.0263**	**1.0179**	**0.0000**	**57.5536**	**57.5536**	**0.0182**	**0.0000**	**57.9360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9200e-003	0.0392	0.0711	1.4000e-004	3.8900e-003	6.4000e-004	4.5300e-003	1.1100e-003	5.9000e-004	1.7000e-003	0.0000	11.9914	11.9914	9.0000e-005	0.0000	11.9932
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0224**	**0.0667**	**0.3544**	**9.9000e-004**	**0.0757**	**1.1200e-003**	**0.0769**	**0.0202**	**1.0400e-003**	**0.0213**	**0.0000**	**68.2785**	**68.2785**	**2.6900e-003**	**0.0000**	**68.3349**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0597	0.8032	0.3409	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	57.5535	57.5535	0.0182	0.0000	57.9359
Total	**0.0597**	**0.8032**	**0.3409**	**6.4000e-004**	**2.0060**	**0.0286**	**2.0346**	**0.3867**	**0.0263**	**0.4130**	**0.0000**	**57.5535**	**57.5535**	**0.0182**	**0.0000**	**57.9359**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	4.9200e-003	0.0392	0.0711	1.4000e-004	3.8900e-003	6.4000e-004	4.5300e-003	1.1100e-003	5.9000e-004	1.7000e-003	0.0000	11.9914	11.9914	9.0000e-005	0.0000	11.9932
Worker	0.0175	0.0275	0.2833	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	56.2871	56.2871	2.6000e-003	0.0000	56.3417
Total	**0.0224**	**0.0667**	**0.3544**	**9.9000e-004**	**0.0757**	**1.1200e-003**	**0.0769**	**0.0202**	**1.0400e-003**	**0.0213**	**0.0000**	**68.2785**	**68.2785**	**2.6900e-003**	**0.0000**	**68.3349**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8063	0.3426	6.4000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	56.5170	56.5170	0.0183	0.0000	56.9008
Total	**0.0601**	**0.8063**	**0.3426**	**6.4000e-004**	**5.1435**	**0.0287**	**5.1722**	**0.9915**	**0.0264**	**1.0180**	**0.0000**	**56.5170**	**56.5170**	**0.0183**	**0.0000**	**56.9008**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.0339	0.0658	1.4000e-004	3.9100e-003	5.7000e-004	4.4800e-003	1.1200e-003	5.3000e-004	1.6400e-003	0.0000	11.7630	11.7630	8.0000e-005	0.0000	11.7647
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0206**	**0.0595**	**0.3304**	**9.9000e-004**	**0.0760**	**1.0600e-003**	**0.0771**	**0.0203**	**9.8000e-004**	**0.0213**	**0.0000**	**66.0290**	**66.0290**	**2.5500e-003**	**0.0000**	**66.0826**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8063	0.3426	6.4000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	56.5169	56.5169	0.0183	0.0000	56.9008
Total	**0.0601**	**0.8063**	**0.3426**	**6.4000e-004**	**2.0060**	**0.0287**	**2.0347**	**0.3867**	**0.0264**	**0.4131**	**0.0000**	**56.5169**	**56.5169**	**0.0183**	**0.0000**	**56.9008**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.0339	0.0658	1.4000e-004	3.9100e-003	5.7000e-004	4.4800e-003	1.1200e-003	5.3000e-004	1.6400e-003	0.0000	11.7630	11.7630	8.0000e-005	0.0000	11.7647
Worker	0.0163	0.0256	0.2646	8.5000e-004	0.0721	4.9000e-004	0.0726	0.0192	4.5000e-004	0.0196	0.0000	54.2660	54.2660	2.4700e-003	0.0000	54.3179
Total	**0.0206**	**0.0595**	**0.3304**	**9.9000e-004**	**0.0760**	**1.0600e-003**	**0.0771**	**0.0203**	**9.8000e-004**	**0.0213**	**0.0000**	**66.0290**	**66.0290**	**2.5500e-003**	**0.0000**	**66.0826**

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.1435	0.0000	5.1435	0.9915	0.0000	0.9915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0601	0.8032	0.3416	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	56.3000	56.3000	0.0182	0.0000	56.6824
Total	**0.0601**	**0.8032**	**0.3416**	**6.4000e-004**	**5.1435**	**0.0286**	**5.1721**	**0.9915**	**0.0263**	**1.0179**	**0.0000**	**56.3000**	**56.3000**	**0.0182**	**0.0000**	**56.6824**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8700e-003	0.0281	0.0624	1.4000e-004	3.8900e-003	5.1000e-004	4.4100e-003	1.1100e-003	4.7000e-004	1.5900e-003	0.0000	11.7118	11.7118	8.0000e-005	0.0000	11.7135
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0192**	**0.0519**	**0.3098**	**9.9000e-004**	**0.0757**	**9.9000e-004**	**0.0768**	**0.0202**	**9.2000e-004**	**0.0212**	**0.0000**	**64.8557**	**64.8557**	**2.4300e-003**	**0.0000**	**64.9067**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0060	0.0000	2.0060	0.3867	0.0000	0.3867	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0601	0.8032	0.3416	6.4000e-004		0.0286	0.0286		0.0263	0.0263	0.0000	56.3000	56.3000	0.0182	0.0000	56.6824
Total	**0.0601**	**0.8032**	**0.3416**	**6.4000e-004**	**2.0060**	**0.0286**	**2.0346**	**0.3867**	**0.0263**	**0.4130**	**0.0000**	**56.3000**	**56.3000**	**0.0182**	**0.0000**	**56.6824**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8700e-003	0.0281	0.0624	1.4000e-004	3.8900e-003	5.1000e-004	4.4100e-003	1.1100e-003	4.7000e-004	1.5900e-003	0.0000	11.7118	11.7118	8.0000e-005	0.0000	11.7135
Worker	0.0153	0.0238	0.2474	8.5000e-004	0.0719	4.8000e-004	0.0723	0.0191	4.5000e-004	0.0196	0.0000	53.1440	53.1440	2.3500e-003	0.0000	53.1932
Total	**0.0192**	**0.0519**	**0.3098**	**9.9000e-004**	**0.0757**	**9.9000e-004**	**0.0768**	**0.0202**	**9.2000e-004**	**0.0212**	**0.0000**	**64.8557**	**64.8557**	**2.4300e-003**	**0.0000**	**64.9067**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	15.00	7.50	8.50	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.504217	0.068068	0.177511	0.150009	0.045572	0.006451	0.019525	0.014983	0.002306	0.002359	0.006212	0.000585	0.002203

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003

Unmitigated	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	4.8400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.0100e-003	9.0100e-003	3.0000e-005	0.0000	9.5700e-003
Total	**4.9000e-004**	**5.0000e-005**	**4.8400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.0100e-003**	**9.0100e-003**	**3.0000e-005**	**0.0000**	**9.5700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	37.9550	1.8600e-003	3.9000e-004	38.1137
Unmitigated	37.9550	1.8600e-003	3.9000e-004	38.1137

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 40.5	37.9550	1.8600e-003	3.9000e-004	38.1137
Total		**37.9550**	**1.8600e-003**	**3.9000e-004**	**38.1137**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 40.5	37.9550	1.8600e-003	3.9000e-004	38.1137
Total		**37.9550**	**1.8600e-003**	**3.9000e-004**	**38.1137**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Conveyor Electricity Use Greenhouse Gas Emissions

		Emission Factors (lb/MWh)			Emissions (MT/year)			
kWh/year	**MWh/year**	**CO_2**	**CH_4**	**N_2O**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
2,790,000	2,790	590	0.029	0.00617	746.66	0.04	0.01	749.85

Global Warming Potential

CO_2	1
CH_4	21
N_2O	310

Conversion Factors

1 MT	2204.62	lb

Notes:
Electricity consumption provided by applicant
Emission factors from CalEEMod User Guide (Appendix D, Table 1.2)
kWh = kilowatt-hour; MWh = megawatt-hour; lb = pounds; MT = metric tons
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide

Water Consumption Greenhouse Gas Emissions

				Emission Factors (lb/MWh)			Emissions (MT/year)			
MG/year	**kWh/MG**	**kWh/year**	**MWh/year**	**CO_2**	**CH_4**	**N_2O**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
40.5	3500	141750	141.8	590	0.029	0.00617	37.94	0.05	0.01	41.94

Global Warming Potential

CO_2	1
CH_4	21
N_2O	310

Conversion Factors

1 MT	2204.62	lb

Notes:
Water consumption provided by applicant
Energy intensity for water use based on CEC's Report "Refining Estimates of Water-Related Energy Use in California (2006)" Publication Number: CEC-500-2006-118
Emission factors from CalEEMod User Guide (Appendix D, Table 1.2)
MG = million gallons; kWh = kilowatt-hour; MWh = megawatt-hour; lb = pounds; MT = metric tons
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide

Environmental Noise Analysis

Teichert Aspen VIII & IX

Sacramento County, California

BAC Job # 2014-166

Prepared For:

Teichert Materials

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September 16, 2015

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Introduction

This report describes fundamentals of noise, quantifies the general ambient noise environment in the proposed Teichert Aspen VIII and IX Project (Project) site vicinity, describes the noise standards which would be applied to the Project by Sacramento County in addition to applicable California Environmental Quality Act (CEQA) requirements, and provides an assessment of potential noise impacts associated with aggregate extraction at the project sites. Figure 1 shows the project location. Figure 2 shows the mining boundaries and nearest residences.

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Table 1 shows common noise levels associated with various sources. Appendix “A” contains definitions of Acoustical Terminology.

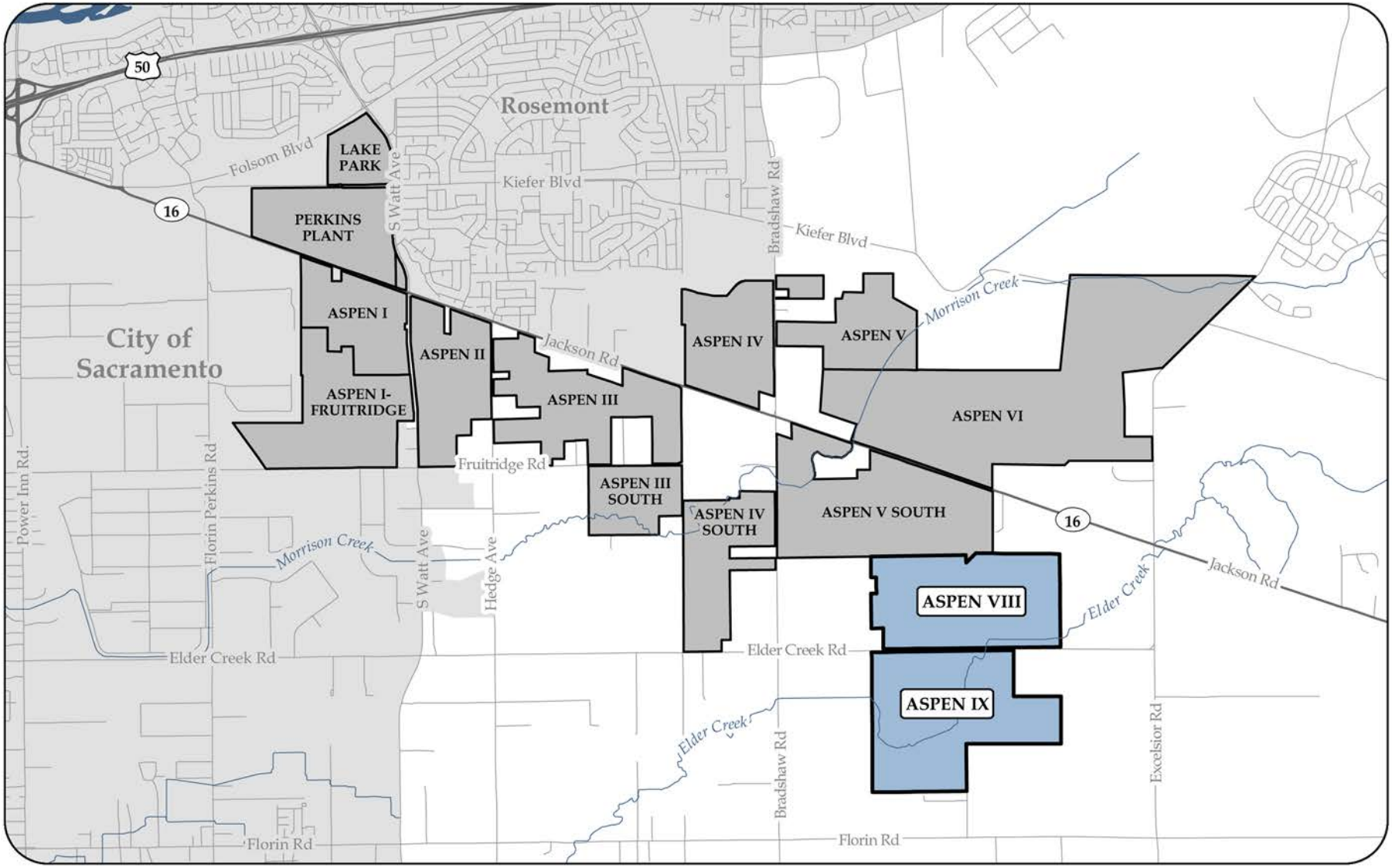
The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq) over a given time period (usually one hour). The Leq is the foundation of the Day-Night Average Level noise descriptor, Ldn, and shows very good correlation with community response to noise.

Figure 1

Teichert Aspen VIII & IX - Sacramento County, California

Site Vicinity



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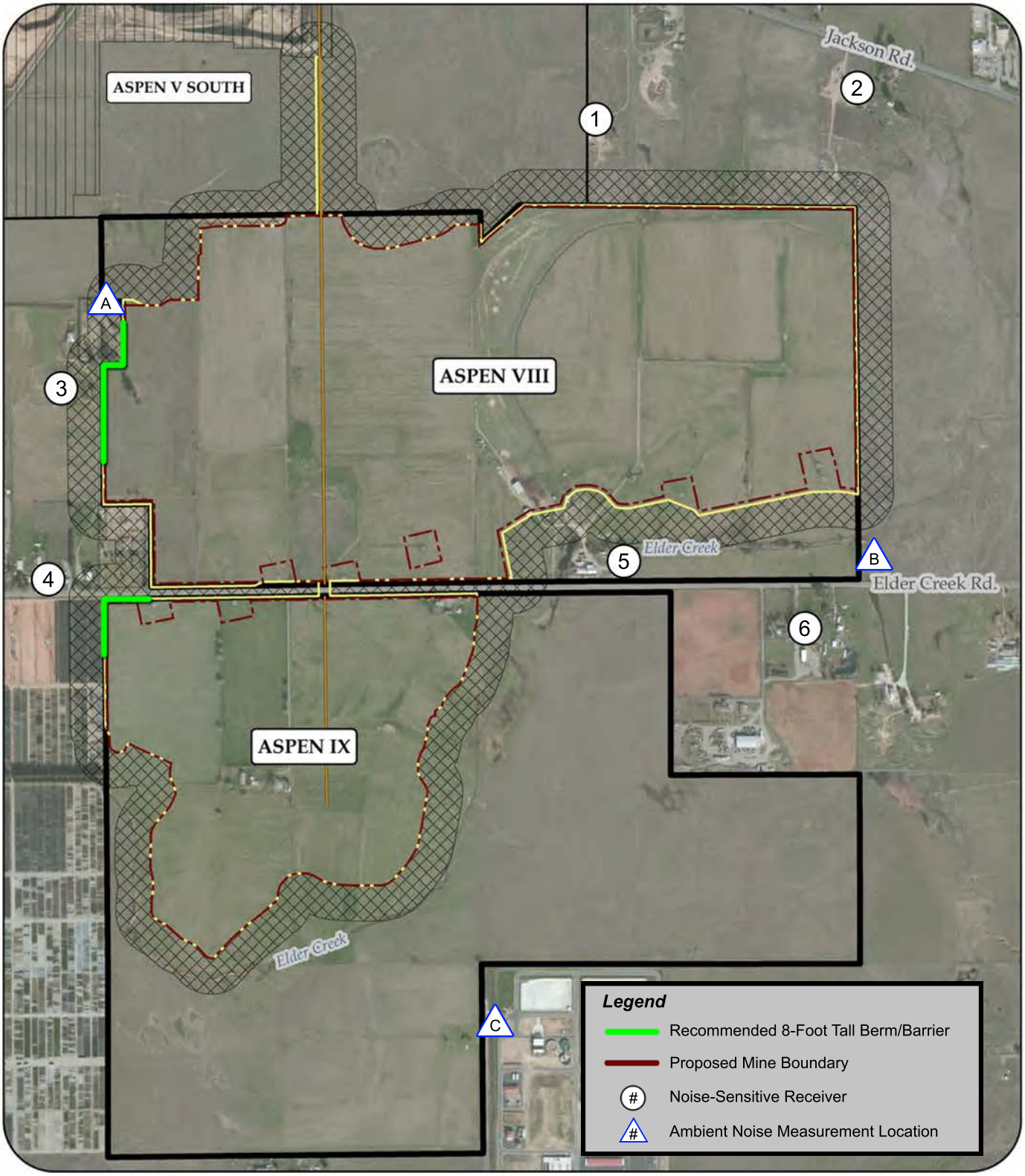
Scale (feet)

0 2,000 4,000

Figure 2

Teichert Aspen VIII & IX - Sacramento County, California

Project Area, Nearest Noise-Sensitive Receivers, and Ambient Monitoring Locations



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Scale (feet)

0 500 1,000

The Day-night Average Level (Ldn) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Ldn-based noise standards are commonly used to assess noise impacts associated with traffic, railroad and aircraft noise sources.

The Sacramento County noise standards, which are discussed in detail later in this section, are expressed in terms of hourly maximum and median noise level standards for on-site activities, such as those aggregate extraction activities associated with the proposed project.

In addition to the County's noise standards, the California Environmental Quality Act (CEQA) also requires that noise impacts be assessed relative to ambient noise levels which are present without the project. As a result, ambient noise surveys were conducted as part of this analysis for subsequent comparison against project-generated noise levels.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered to have a significant effect according to CEQA. Because every physical process creates noise, whether it's the addition of a single vehicle on a roadway, or a tractor in an agricultural field, the use of audibility as a significance criterion would be unworkable. CEQA requires a significant increase in noise levels before noise impacts must be identified, not simply an audible change. The discussion of what constitutes a significant change is discussed later in this report.

Existing Ambient Noise Environment

The existing ambient noise environment in the immediate project vicinity is defined primarily by traffic on Elder Creek Road and Jackson Highway, and by intermittent aircraft overflights associated with Mather Airport.

To quantify the existing ambient noise environment near the project site boundaries, continuous noise level measurements were conducted at three (3) locations in August and October, 2013. The noise measurement sites are identified on Figure 1. Weather conditions present during the monitoring program were typical for the measurement periods.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute. The results of the ambient noise level measurements are provided in Appendix B. A summary of the ambient noise level measurements is provided in Table 1.

Table 1
Summary of Ambient Noise Measurement Results
Teichert Aspen VIII and IX Excavation Site Property Lines

Site	Description	Date	L_{dn}	L_{50}[1]	L_{max}[1]
A	Near Northwest Corner Aspen VIII	10/22/13 – 10/24/13	56-58	45-46	69-76
B	Southeast Corner Aspen VIII	8/30/13 – 9/2/13	53-59	39-43	69-73
C	Southern Portion of Aspen IX	8/30/13 – 9/2/13	48-53	42-43	60-63

1. See Appendix A for an explanation of acoustical terminology
2. Because excavation activities would reportedly not occur during nighttime periods, the hourly maximum and median noise levels shown in this Table are provided for daytime hours only.

The Table 1 data indicate that the existing ambient noise environment at the perimeter of the project site during the survey period consisted of fairly typical noise levels for rural areas affected mainly by local and distant traffic. Average Ldn values along the site perimeter ranged from 48-59 dB. Average daytime median noise levels typically ranged from the mid to upper 30's to mid 40's, with average maximum values ranging from 60-76 dB Lmax.

Criteria for Acceptable Noise Exposure

Sacramento County General Plan

The Noise Element of the Sacramento County General Plan contains policies pertaining to acceptable noise generation and exposure levels within the County. Policy NO-6, reproduced below, is specifically pertinent to the evaluation of noise impacts due to Aspen VIII & IX excavation operations.

NO-6 Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not to exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

Table 2
Non-Transportation Noise Standards
Median (L50) / Maximum (Lmax)[a]
Sacramento County Noise Element

	Outdoor Area[b]		Interior[c]
Land Use	**Daytime**	**Nighttime**	**Day & Night**
All Residential	55 / 75	50 / 70	35 / 55
Transient lodging[d]	55 / 75	--	35 / 55
Hospitals, nursing homes[e,f]	55 / 75	--	35 / 55
Theaters, auditoriums, music halls[f]	--	--	30 / 50
Churches, meeting halls[f]	55 / 75	--	35 / 60
Office buildings[f]	60 / 75	--	45 / 65
Commercial Buildings[f]	--	--	45 / 65
Playgrounds, neighborhood parks[f]	65 / 75	--	--
Industry[f]	60 / 80	--	50 / 70

Source: Sacramento County General Plan (2011)

Notes:

[a] The Table 2 standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards of Table 2, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

[b] Sensitive areas are defined in the acoustic terminology section of the Noise Element.

[c] Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.

[d] Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

[e] Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

[f] The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.

[g] Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Sacramento County Zoning Code

Article 4 of the Sacramento County Zoning Code specifically pertains to surface mining operations within Sacramento County. Section 235-53 requires that hours of operation for mining activities shall be 6 am 10 pm Monday through Friday, 6 am - 3 pm on Saturday, and no mining allowed on Sundays or labor union holidays.

Section 235-60 of the Zoning Code states that the sound level created by the mining use at the boundary line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:

a. The noise limit for a cumulative period of more than 30 minutes in any hour, or;

b. The noise limit plus 5 dBA for a cumulative period of more than one minute per hour, or the noise limit plus 20 dBA for any period of time.

Essentially the County Zoning Code applies a 70 dB L50 standard, a 75 dB L02, and a 90 dB Lmax standard to the property line of the mine site.

Criteria for Determining Significance of Project-Related Noise Increases

Criteria for determining the significance of project-related noise level increases are developed based on information contained in the California Environmental Quality Act Guidelines (State CEQA Guidelines). According to those guidelines, a project may have a significant effect on the environment if it will satisfy the following conditions:

(b) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

It is generally recognized that an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. A common practice is to assume that a clearly noticeable increase of 5 dB is required for a finding of significance.

Evaluation of Project-Noise Generation

Project Description

The project applicant proposes to excavate aggregate resources from the two project areas (Aspen VIII and IX). The material will be excavated primarily using front-loaders, but self-elevating scrapers, excavators, motor graders, and water trucks will likely also be used at the sites periodically. The material will be transported to the main Teichert Perkins plant via conveyor.

Project-Related Noise Generation

Table 3 shows the types of equipment which may be used at the project site and the reference maximum noise levels corresponding to the operation of that equipment. These noise levels were obtained from Bollard Acoustical Consultants noise level measurements conducted at various locations in recent years.

Table 3
Major Noise-Producing Equipment and Anticipated Noise Emission Levels
Teichert Aspen VIII and IX Project - Sacramento County

	Approximate Noise Level, dBA @ 100 ft. Reference Dist.		
Equipment Type	**Maximum (Lmax)**	**Average (Leq)**	**Median (L50)**
Excavating Equipment: (Combinations of loaders, scrapers, dozers, graders, and water trucks)	80	70	65

Notes: Average noise levels represent any one-hour period and assume continuous operation of the excavation equipment.

Project Noise Levels at Mine Site Boundaries

The average distance between operating excavation equipment and the nearest proposed excavation boundaries of the Teichert Aspen VIII and IX sites would be approximately 50 feet. At that distance excavation equipment noise levels would be approximately 85 dB L_{max} and 70 dB L_{50}. These levels would satisfy the Sacramento County Zoning Code requirements of 90 dB L_{max} and 70 dB L_{50} at the mine site boundaries. Therefore, no noise mitigation measures would be required of this project relative to the County's Zoning Code standards.

Project Noise Levels at Nearest Residences

The nearest residences to the proposed project area are located approximately 250 to 830 feet from the nearest proposed limits of excavation. The distances from the boundaries of excavation to the project site property lines varies. Table 4 shows the predicted noise levels during initial mining activities at the closest positions to the receivers identified in Figure 2. Initial mining activities are considered to be worst-case since mining noise levels will decrease as the equipment descends deeper into the excavation area and the pit walls begin to serve as noise barriers.

Table 4
Predicted Noise Levels at Nearest Sensitive Receivers
Teichert Aspen VIII and IX Excavation Areas - Sacramento County

Residence[1]	Distance (ft)	Maximum (Lmax)	Median (L50)
1	490	65	50
2	750	61	46
3	250	72	57
4	300	70	55
5	320	69	54
6	830	60	45
Sacramento County Daytime Noise Limits		75	55

1 – The locations of the nearest residences are indicated on Figure 2.

Assessment of Impacts at Nearest Residences Relative to County Noise Standards

The Table 4 data indicate that the County's General Plan standard of 75 dB L_{max} applicable at residential uses during daytime hours would be satisfied at each of the nearest residences. In addition, the Table 4 data indicate that the County's General Plan standard of 55 dB L_{50} would be satisfied at each of the nearest residences with the exception of Residence #3. At that residence, which is 250 feet from the proposed excavation operations, the predicted median hourly noise level of 57 dB would exceed the County's exterior noise standard by 2 dB. Although this is considered a fairly small exceedance, noise mitigation measures should be incorporated into the proposed operations to achieve compliance with the County noise standards. Such measures are provided in the Conclusions section of this report.

Assessment of Impacts at Nearest Residences Relative to Ambient Conditions

Measurement Sites A & B (See Figure 1) generally represent ambient conditions at the nearest residences to the proposed Aspen 8 & 9 mining areas. According to Table 1, measured daytime maximum noise levels at Sites A & B averaged 69-76 dB. Assuming a 5 dB increase over ambient would result in a finding of significant impact, the threshold for maximum noise levels at the nearest residences would range from 74 to 81 dBA. As indicated in Table 4, predicted maximum noise levels due to the project would range from 60 to 71 dB Lmax at the nearest residences. As a result, the project is not predicted to result in a significant increase in existing maximum (L_{max}) noise levels at the nearest existing residences.

With respect to average (L_{eq}) noise levels, Appendix B indicates that measured average noise levels during daytime periods generally ranged from 50 to 60 dB at measurement Sites A & B. Given that range of measured average ambient noise levels, satisfaction with the County's 55 dB noise standard would be adequate to ensure that the project did not result in a significant increase in ambient noise levels during daytime hours.

Although the project would not result in a significant increase in average (L_{eq}), or maximum (L_{max}) noise levels, it is possible that the project could result in a substantial increase in median (L_{50}) noise levels. Table 1 shows that measured median noise levels ranged from 39 to 46 dB at Sites A & B. However, there was considerable variability in measured median noise levels from hour to hour, depending primarily on the degree of local traffic present during the hour. For example, at measurement Site A, the average of the median noise levels for daytime hours (7 am to 10 pm) was 46 dBA. However, between 6 am and 9 am, measured median noise levels on that same day exceeded 50 dBA. Measured median noise levels at Site B were lower than Site A, but there was variability in the measured ambient noise levels at that location as well.

Just as measured median ambient noise levels varied, so too would median noise levels generated by the proposed project. More specifically, median noise levels at the project will be variable as the location of heavy earthmoving equipment operations are constantly changing. Nonetheless, this analysis concludes that the project could result in short-term substantial increases in median noise levels at receptors 3 & 4 (See Figure 2). A similar finding occurs at Receptor 5, but that residence is located within the project site boundaries and owned by the applicant. As a result, it is not considered a sensitive receptor for the purposes of this evaluation.

Due to the potential for short-term significant increases (in excess of 5 dB) in median noise levels at Receptors 3 and 4, this analysis recommends additional noise mitigation measures for those two receptors. Such measures are provided in the Conclusions section of this report.

Conclusions and Recommendations

Aggregate excavation operations at the Teichert Aspen VIII and IX sites are predicted to generate noise levels in compliance with the Sacramento County Zoning Code at the nearest property boundaries. In addition, maximum noise levels are predicted to satisfy the County General Plan noise standards at each of the nearest residences to the project site. Furthermore, the project noise generation is not predicted to substantially exceed existing average (L_{eq}) and maximum (L_{max}) noise levels measured in the immediate project vicinity. However, because median noise levels could temporarily exceed County General Plan noise standards, and substantially exceed measured existing median noise levels at Receptors 3 and 4 during daytime hours (see Figure 2), the following specific noise mitigation measures are recommended for this project:

1. Excavation activities occurring within 600 feet of any existing residence shall be limited to daytime hours (7 am to 10 pm) until such time as excavation equipment has recessed deep enough into the pit so as to be shielded from view of the nearest residences by intervening topography (i.e. the pit edge). Once the excavation equipment is sufficiently depressed in the pit such that the excavation equipment is completely shielded from view of the nearest residences, excavation-generated noise levels would be reduced, and it may be possible to operate during nighttime hours. Field noise measurements should be conducted to ensure nighttime operations could occur without exceeding County noise standards or significantly exceeding existing ambient conditions.

2. Noise generated during initial excavation activities within 600 feet of receptors R3 and R4 should be reduced through utilization of fewer scrapers during excavation activities near this residence, though the installation of temporary noise barriers, or a combination of the two. For the relatively brief period in which scrapers would be in operation within 600 feet of Residence #3 or #4, a halving of the number of scrapers operating in that area would result in a 3 dB reduction in excavation noise. A temporary noise barrier, such as a plywood fence, chain like fence with sound curtain attached, or earthen berm, all constructed to a minimum height of 8 feet, would provide the degree of noise reduction required to achieve compliance with the County's 55 dB L_{50} noise standard and ensure that the project did not result in a substantial increase in ambient noise levels at those two potentially impacted residences. The locations of the recommended noise barriers are shown on Figure 2.

3. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

This concludes our environmental noise assessment for Aspen VIII & IX in Sacramento County, California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions or requests for additional information.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

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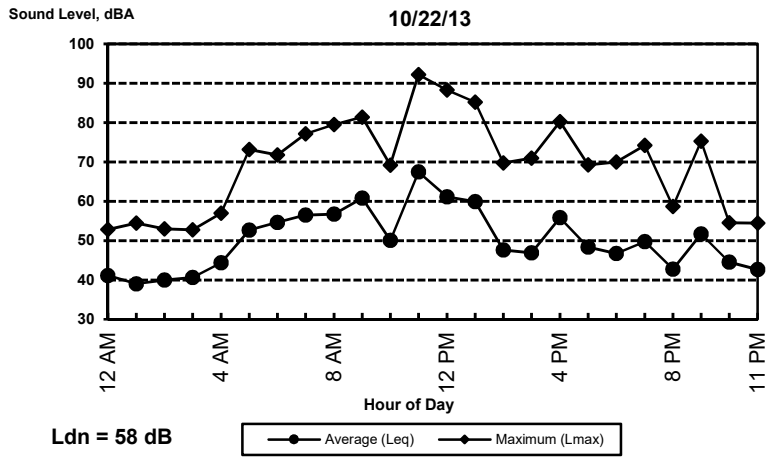
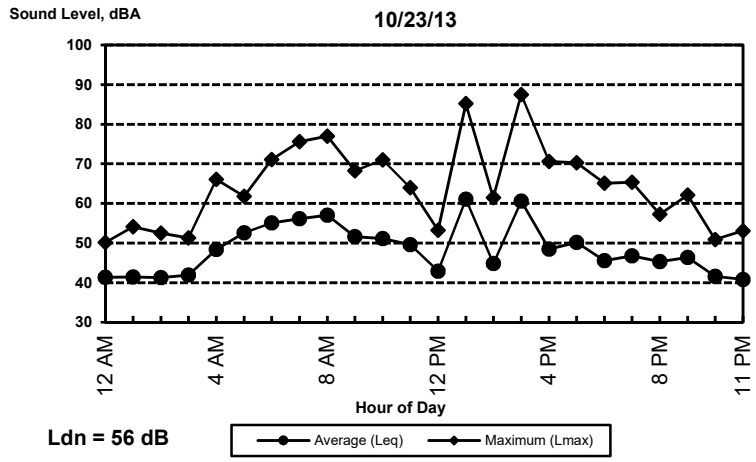
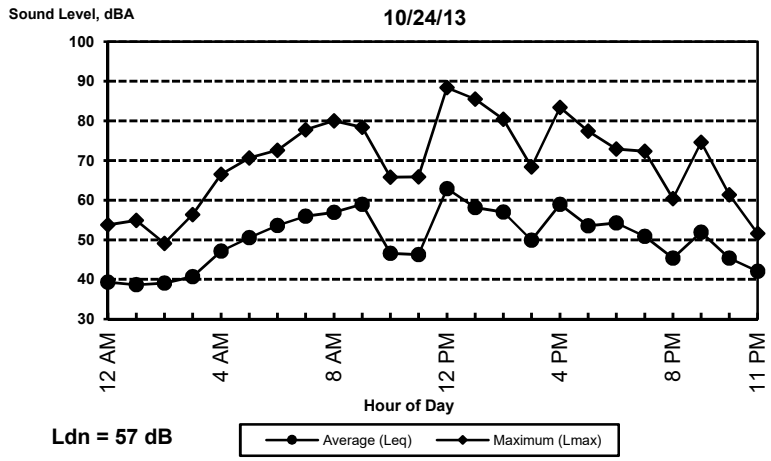
Appendix B-1
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site A



Ldn = 58 dB



Ldn = 56 dB



Ldn = 57 dB

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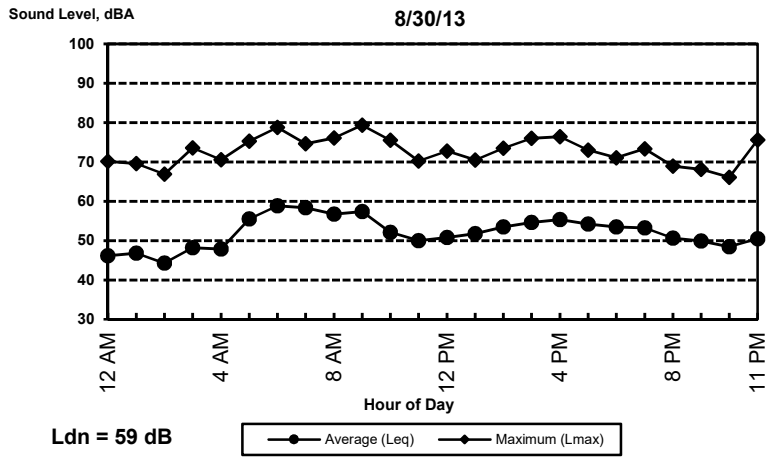
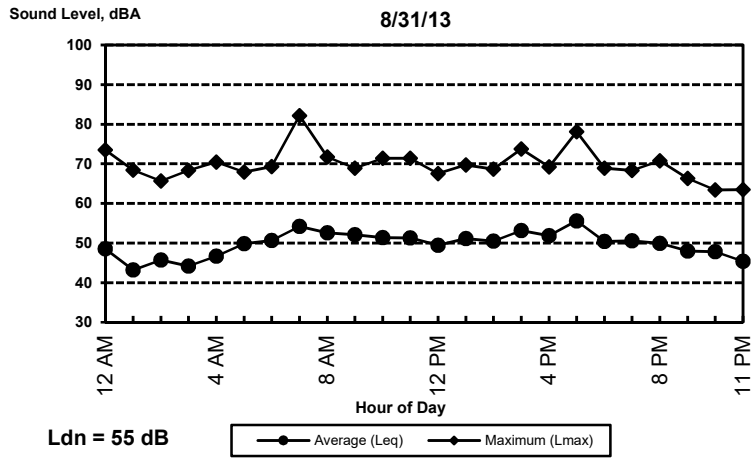
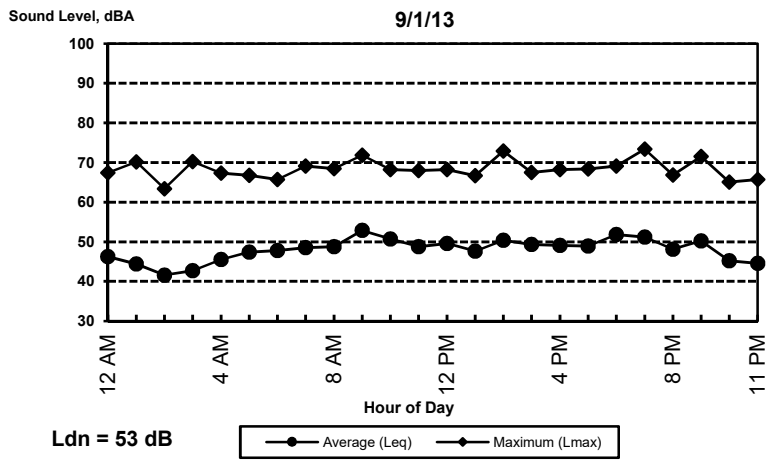
Appendix B-2
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site B



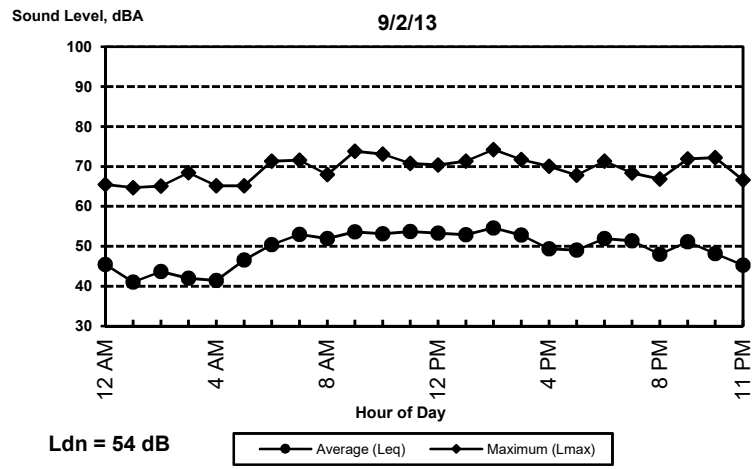
Ldn = 59 dB



Ldn = 55 dB



Ldn = 53 dB



Ldn = 54 dB

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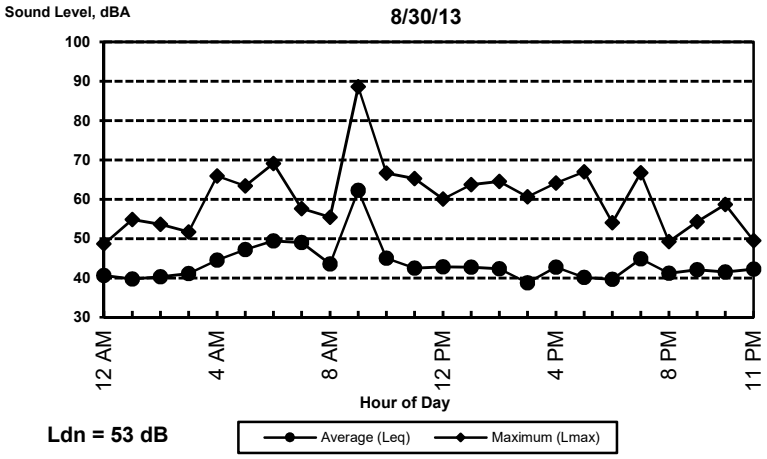
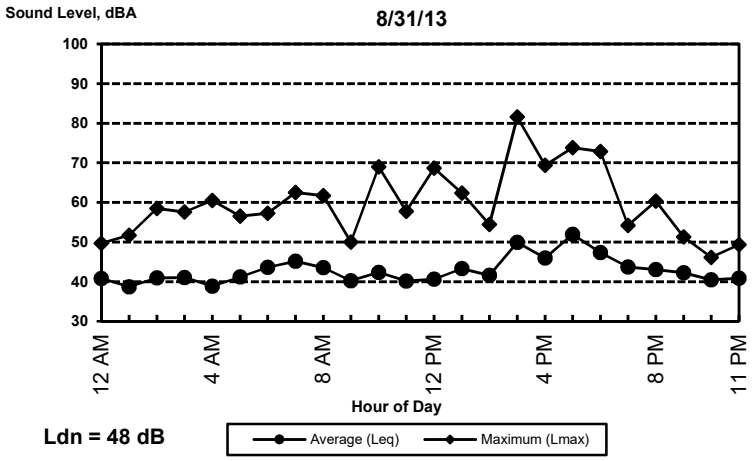
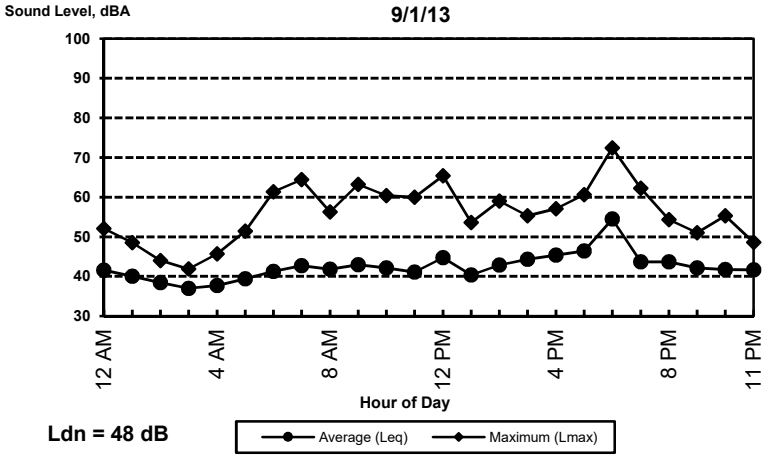
Appendix B-3
Aspen VIII and IX - Sacramento County, California
Long-Term Ambient Noise Monitoring Results - Site C



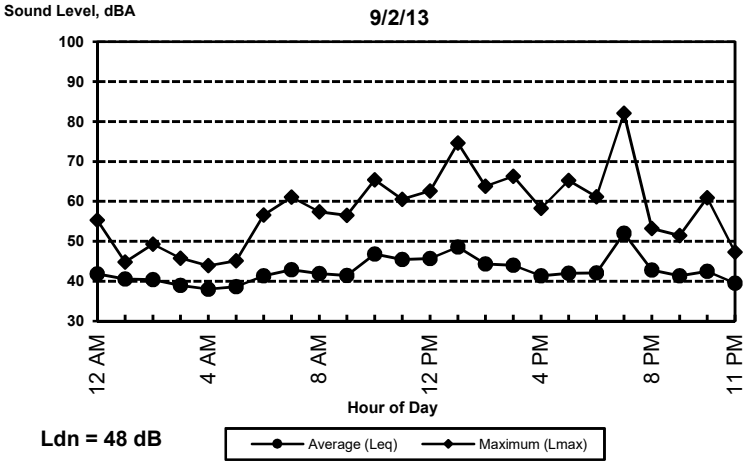
Ldn = 53 dB



Ldn = 48 dB



Ldn = 48 dB



Ldn = 48 dB

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BOLLARD ACOUSTICAL CONSULTANTS, INC.
Acoustics ▸ Vibration ▸ Noise Control Engineering

June 17, 2016

Mr. John Lane
Teichert Aggregates
Submitted via e-mail.

Subject: **Bollard Acoustical Consultants, Inc. (BAC) comments on the Draft EIR for the Aspen VIII and IX Mining Use Permit (Control Number: PLNP2014-00201 State Clearinghouse Number: 2015022062, Date: May 27, 2016)**

Dear Mr. Lane:

Pursuant to your request, BAC has reviewed the DEIR for the above referenced project. As you know, BAC prepared a noise study for this project which was subsequently used by Sacramento County staff in the preparation of the DEIR for this project. BAC's comments on the DEIR are as follows:

1. **Noise study report version:** The noise study included at the Sacramento County website containing the project environmental documents is not the latest version of the noise study. Specifically, the version at the County Website is dated August 22, 2014 while BAC's latest version is dated September 16, 2015. While the two report versions are very similar, the later version contains a discussion of potential noise impacts relative to ambient conditions which would have been useful in the evaluation of Impact NO-2 and the noise mitigation related to that impact.

2. **Impact NO-1, Exceedance of the County's 55 dB noise standard at Receptor 3:** Regarding Impact NO-1, the DEIR correctly identifies an impact at Receptor 3 due to a predicted median noise level resulting from initial (at grade) mining activities being 2 dB in excess of the County noise standard (predicted level of 57 dB relative to County standard of 55 dB). However, noise mitigation measure Mitigation Measure NO-1(A), which was developed to mitigate Impact NO-1, goes beyond what would be required to reduce this impact to a level of insignificance. MM NO-1(A) is reproduced below:

   NO-1: Median Noise Levels Mitigation Measure

   A. One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time.

   As noted above, the exceedance of the County noise standard which triggered the finding of significance for Noise Impact NO-1 was only 2 dB. This 2 dB exceedance would only occur when initial excavation operations were occurring within 300 feet of Receptor B (within 50 feet of the proposed mine site boundaries).

A reduction of 2 dB could be achieved by either of the following mitigation measures:

- When initial excavation operations are occurring within 300 feet of Receptor 3, the number of scrapers used for initial overburden removal should be reduced by 50% until the excavation equipment has recessed in the pit a sufficient depth such that the excavation equipment is shielded from view of this residence. This measure would result in a 3 dB decrease in excavation-related noise generation.

  OR

- An 8-foot tall property line earthen berm or temporary noise barrier shall be constructed between initial excavation operations and Receptor 3. This measure would result in a 5 dB decrease in excavation-related noise generation.

Either of these two mitigation alternatives would be sufficient to mitigate impact NO-1.

3. **Impact NO-2, significant increases in ambient noise levels at Receptors 3 and 4:** BAC concurs with the DEIR finding that the noise impact associated with short-term increases in ambient noise levels at 9895 and 9897 Elder Creek Road (BAC noise study Receptors 3 & 4), would be significant. The DEIR notes that implementation of Mitigation Measure NO-1(A) would reduce Impact NO-2 to a less than significant level. As noted above, Mitigation measure NO-1 requires that only one piece of heavy equipment operate within 850 feet of Receptors 3 and 4 at any given time.

   Page 11-12 of the DEIR states that, in order to reduce the ambient noise level impacts to less than significant, the ambient noise will have to be reduced by approximately 11 dB. BAC does not believe that this conclusion is accurate, and provides the following information in support of an alternative noise mitigation option:

   As noted in Table NO-5, the predicted, unmitigated, noise-generation of the project is 57 dB L_{50} at Receptor 3 and 55 dB L_{50} at Receptor 4. The daytime ambient conditions at these receptors was determined from noise monitoring at Site A as being 45-46 dB L_{50}. Therefore, the noise generation of the project would exceed the ambient conditions by approximately 11 dB at Receptor 3 and 9 dB at Receptor 4.

   Because the threshold of significance for a project-related noise increase is 5 dB, the allowable ambient conditions with the project would be 5 dB above existing ambient levels without the project, or approximately 51 dB. Provided the noise generation of the project does not exceed 49 dB at Receptors 3 & 4, existing plus project noise levels would not exceed 51 dB at those locations, and the noise impact of the project would be less than significant. Therefore, the actual noise attenuation required of the project to mitigate this impact to a level of insignificance would be 8 dB (57 dB – 49 dB) at Receptor 3 and 6 dB at Receptor 4. Without mitigation, noise generated by initial excavation operations is predicted to exceed 49 dB L_{50} within 800 feet of Receptors 3 & 4. Excavation activities beyond that distance would not trigger a significant increase in ambient noise levels or require additional mitigation.

To achieve the 6-8 dB decreases in noise generated by initial excavation activities at Receptors 3 & 4 required to mitigate this impact to a level of insignificance, the following two noise mitigation options should both be implemented:

- An 8-foot tall property line earthen berm or temporary noise barrier shall be constructed between initial excavation operations and Receptor 3. This measure would result in a 5 dB decrease in excavation-related noise generation.

  AND

- Initial excavation operations are occurring within 400 feet of Receptor 3, the number of scrapers used for initial overburden removal should be reduced by 50% until the excavation equipment has recessed in the pit a sufficient depth such that the excavation equipment is shielded from view of this residence. This measure would result in a 3 dB decrease in excavation-related noise generation.

The combined noise reduction of these two mitigation options would reduce initial excavation noise levels by approximately 8 dB, thereby reducing this impact at Receptor 3 to a less than significant level.

This concludes BAC's comments on this DEIR. Please call me at (916) 663-0500 if you have any questions regarding this proposal, or if I can otherwise be of assistance.

Sincerely,

Bollard Acoustical Consultants, Inc.

Paul Bollard

Paul Bollard
President

Project Planning ■ Civil Engineering ■ Landscape Architecture

Aspen VIII and IX
Hydraulic Analysis of Elder Creek

To: Mr. John Lane, Teichert Aggregates

From: Martin Lewis

Date: January 13, 2016

Subject: Updated Hydraulics of Elder Creek
Proposed Aspen VIII and IX Mining Sites, Sacramento County.

Introduction

This document serves as a follow-up to Cunningham Engineering's (CEC's) technical memoranda of December 4, 2014 and September 28, 2015, which summarized our HEC-RAS hydraulic analysis of the reach of Elder Creek that traverses the proposed Aspen VIII and IX mining sites (the 'project'). This memorandum is intended as a finalization of the September 28 document, incorporating comments received in a memo from Sacramento County DWR dated December 29, 2015, together with supplemental/clarifying DWR comments received via email correspondence during the week of January 4, 2016.

As noted in the above-referenced memoranda, Teichert proposes to develop the mining plans so as to remain outside the main creek's computed 200-year flood limits, but plans to mine into the small FEMA-mapped Zone X and Zone AO areas that lie onsite. The existing (2012) FEMA 100-year floodplain limits are indicated on Exhibit A, attached.

The post-project 100-year/200-year flood limits, as computed herein, are plotted on the attached Exhibit B, together with the proposed mining limits. Also re-plotted thereon is the current effective FEMA 100-year floodplain, for visual comparison with the post-project 100-year flood limits. It is noted that while the mining boundary will at all locations lie outside the 200-year flood limit, the final boundary location may also be influenced by pit design considerations.

Preliminary Analysis – December 2014

CEC's initial hydraulic analysis, described in our December 2014 memo, was based on our updating Sacramento County DWR's 2007 HEC-RAS analysis of Elder Creek (herein referred to as the 'DWR 2007 model'). Based on our initial analysis, we concluded that a new 4-8'w by

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■ Sacramento: 2120 20th Street, Suite Three ▪ Sacramento, California 95818 ▪ (916)455-2026 ▪ fax (916)451-2066

4.5'h concrete box culvert (CBC) under Elder Creek Road would provide sufficient conveyance capacity to pass the 200-year peak flow, eliminating roadway overtopping and existing right-bank spillage on approach to Elder Creek Road. At the time of conducting our preliminary analysis in late 2014, DWR was concurrently working on updating its system-wide hydrology and hydraulics (H&H) models for Elder Creek. Accordingly, our December 2014 memo acknowledged that DWR's ongoing update to the system-wide H&H models could yield new information that might in turn require an update to our local analysis of the creek. This is indeed the case, and CEC's updated hydraulic analysis – as described below - takes into account DWR's model updates as of August 2015.

Updated Analysis – September 2015

In August 2015, Sacramento County DWR provided Cunningham Engineering (CEC) with a copy of its updated Elder Creek system-wide existing-conditions hydraulic model (HEC-RAS project file 'ASPEN_ALTEG_Comp_Model.prj', dated 8/26/15, and herein referred to as the 'DWR 2015 model'). Compared with the 2007 DWR model, the 2015 DWR model uses updated hydrologic input, and the newer model's stream geometry is based on more detailed and current topographic information (sourced in part from Sacramento County lidar and CVFED lidar data). In particular, the 2015 DWR model uses CVFED lidar topo data on Aspen VIII and on at least a portion of Aspen IX.

For the 100-year event, the 2015 DWR existing-conditions HEC-RAS model yields results that are broadly similar to the 2007 DWR model. In particular, both models indicate a right-bank westbound spill between river station (RS) 10.65 and RS 10.619 – on the Aspen VIII site immediately upstream of Elder Creek Road. The models indicate this spilled floodwater generally flowing west along the Elder Creek Road corridor. In both models, most of this spilled water continues overland in the northwest part of the Aspen IX site, returning to Elder Creek on the Aspen IX site near its western boundary. On Exhibit A, this is manifested as the FEMA Zone AO areas along Elder Creek Road and on the northwest portion of Aspen IX.

However, one notable difference between the 2007 and 2015 DWR models' 100-year analyses is the latter model's prediction of a second spill on Aspen VIII. This additional spill is also from the creek's right bank, located between river RS 10.720 and RS 10.65 – roughly 300 to 400 feet upstream of Elder Creek Road. During high flows, the 2015 DWR model indicates water from this second spill flowing northward along an existing south-to-north irrigation ditch corridor that bisects the Aspen XIII site, eventually discharging north from the Aspen XIII site at its northerly boundary.

For the 100-year event, the 2015 DWR model estimates a peak northbound spill rate of 62 cfs. In the model, the spill is represented via a lateral weir element, whose crest profile is based on CVFED topo mapping in the vicinity of the spill. CEC also reviewed the CVFED lidar mapping in the vicinity of the northbound spill, and our interpretation of the CVFED topo results in a slightly different lateral weir definition. This in turn produced a lower peak spill rate (18 cfs) than that predicted by the 2015 DWR model.

For CEC's updated hydraulic analysis, we also made some modifications to the 2015 DWR model's overbank elevations within cross-sections RS 9.974 to RS 9.524 on the westerly portion of Aspen IX. The purpose of these revisions was to reflect our interpretation of the CVFED lidar topography in that subreach, which suggests to us lower overbank elevations than shown in the 2015 DWR model. Our revised (lowered) overbank elevations result in slightly lower computed peak water surface elevations (WSEs) within that ± ½-mile subreach of Aspen IX - approximately 0.5' lower on average.

A revised existing-conditions geometric model (the 'CEC 2015 pre-project model'), incorporating the CEC edits to the above-referenced Aspen VIII lateral weir and to the Aspen XI westerly cross-sections, was subsequently used herein as the baseline to which our post-project hydraulic analysis has been compared. (For the purposes of this document, the term *pre-project* means existing conditions prior to mining on Aspen VIII/IX; and *post-project* means during and after mining).

Vertical Datum

The DWR 2007 hydraulic model and DWR 2015 model are both referenced to NGVD 29 vertical datum. The 2015 model uses a composite topo base, including topographic data acquired from CVFED Lidar mapping (converted from NAVD 88 to NGVD 29 by subtracting 2.4'). The CEC 2015 model of the creek is also referenced to NGVD 29.

Post-Project Conditions

As noted in December 2014 memo, it is proposed that the Aspen VIII/IX mining plan eliminate the spillage from the creek's right bank just upstream of the Elder Creek Road culvert. This will be accomplished by upsizing the Elder Creek Road culvert to increase its conveyance capacity.

The proposed increment in culvert capacity will also include the existing Elder Creek Road overtopping flow component, with the intent of preventing pit capture due to roadway overtopping. The hydraulic model representing the culvert upgrade (the "CEC 2015 post-project model'') replaces the existing CMP culvert with a 4-8'w by 4.5'h CBC. While the existing culvert length is approximately 45', it is recognized that future widening of Elder Creek Road may occur. As such, the proposed CBC's length was set at 100' for modeling purposes, in order to provide for adequate sizing relative to a future widened Elder Creek Road.

In the CEC 2015 post-project model, the entrance invert of the proposed 4.5'-high CBC was set to match the existing CMP entrance invert of EL 71.5 (NGVD 29). At the point where the centerline of Elder Creek Road intersects the proposed CBC centerline, the existing roadway crown elevation is at EL 78.1, providing approximately 2.1' of cover from CBC soffit to the roadway centerline.

During final design of the CBC, additional cover could be provided - if desired - by matching pre/post culvert exit inverts (rather than entrance inverts). The existing CMP exit invert is at EL

71.0, so matching the CBC exit invert to that elevation would provide approximately 0.5' of additional cover for the proposed CBC. It is not anticipated that the proposed CBC will require local raising of Elder Creek Road.

The CEC 2015 post-project model confirms that the proposed CBC would provide sufficient capacity to pass the 200-year peak flow (956 cfs) under Elder Creek Road. The new culvert's corresponding maximum headwater elevation is computed at EL 77.1 at the model cross-section immediately upstream of the CBC barrel's entrance. For the 100-year peak flow (893 cfs), the corresponding headwater elevation is EL 76.8.

The proposed Mining & Reclamation Plans for Aspen VIII and IX call for the construction a low, compacted-earth berm located near the top of the proposed mining slope. The berm will lie generally outside the 200-year flood limit, will have a 12-foot minimum top-width and 2H:1V side-slopes, and is intended to provide the proposed mining pit with 3 feet freeboard in the 200-year event. The proposed pit-side berm will run the full length of the creek on both the Aspen VIII and IX sites. At the proposed CBC crossing of Elder Creek Road, the Aspen VIII and IX berms will each tie to the west wingwalls of the new culvert structure, maintaining 3' of freeboard on the pit-side of the creek. While the berms are expected to provide reliable flood protection for the proposed mining operations, it is currently not intended that the berms be certified with FEMA accreditation. Absent such FEMA accreditation, all mining pit areas that will lie below the base flood elevation would need to be mapped into a 'Zone A' Special Flood Hazard Area.

On the non pit-side of Elder Creek, the peak 100-year WSEs will continue to be naturally contained within the limits of the Aspen VIII and IX properties. As such, abutting properties are not impacted by the local increases in peak WSE within Aspen VIII and IX.

The elimination of the right-bank northbound spill on Aspen VIII will result in that flow component now being conveyed downstream in Elder Creek. Accordingly, the increase in downstream peak flow is accompanied by a small increase in the creek's computed peak water levels. The post-project 100-year/200-year water surface profiles (WSPs) are tabulated in Attachment C, together with the pre-project WSPs as computed by the 2015 CEC pre-project model.

Also indicated in Attachment C is the pre-project to post-project increment in computed peak WSE for each model cross-section, together with reach-averaged changes in peak WSE: Downstream of Aspen IX, the computed average increment in Elder Creek's peak WSE is 0.01' (100-year) and 0.04' (200-year) for the reach extending from Aspen IX to Bradshaw Road. Between Bradshaw Road and Florin Road, the average increase is 0.00' (100-year); 0.01' (200-year).

[Using DWR's higher estimate of Aspen VIII's northbound spill (Q_{100}=62 cfs) in the pre-project model, the reach-averaged pre-project to post-project peak WSE differences would be slightly larger. Between Aspen IX and Bradshaw, the average increase would be 0.03' (100-year); 0.05' (200-year). Between Bradshaw and Florin, the increase would be 0.01' (100-year); 0.02' (200-year).]

Based on the above, it is our view that eliminating an Aspen VIII northbound spill in the approximate 20-60 cfs range will result in computed increments in offsite downstream WSEs that are minor enough to be considered negligible in material terms.

In addition, the 2104 Sacramento County Floodplain Management Ordinance (CFMO) defines maximum allowable increments in post-project WSEs resulting from the implementation of projects. CFMO Section 906-06 (H) requires that a project not have an *adverse impact*, as defined in CFMO Section 902-01. The definition of adverse impact includes (but is not limited to) an increase in the base flood elevation equal or greater than 0.1 foot. For the Aspen VIII/IX project, the computed downstream increments in peak WSEs are less than the 0.1-foot threshold. Therefore it appears that the project does not produce an adverse impact as defined in the CFMO.

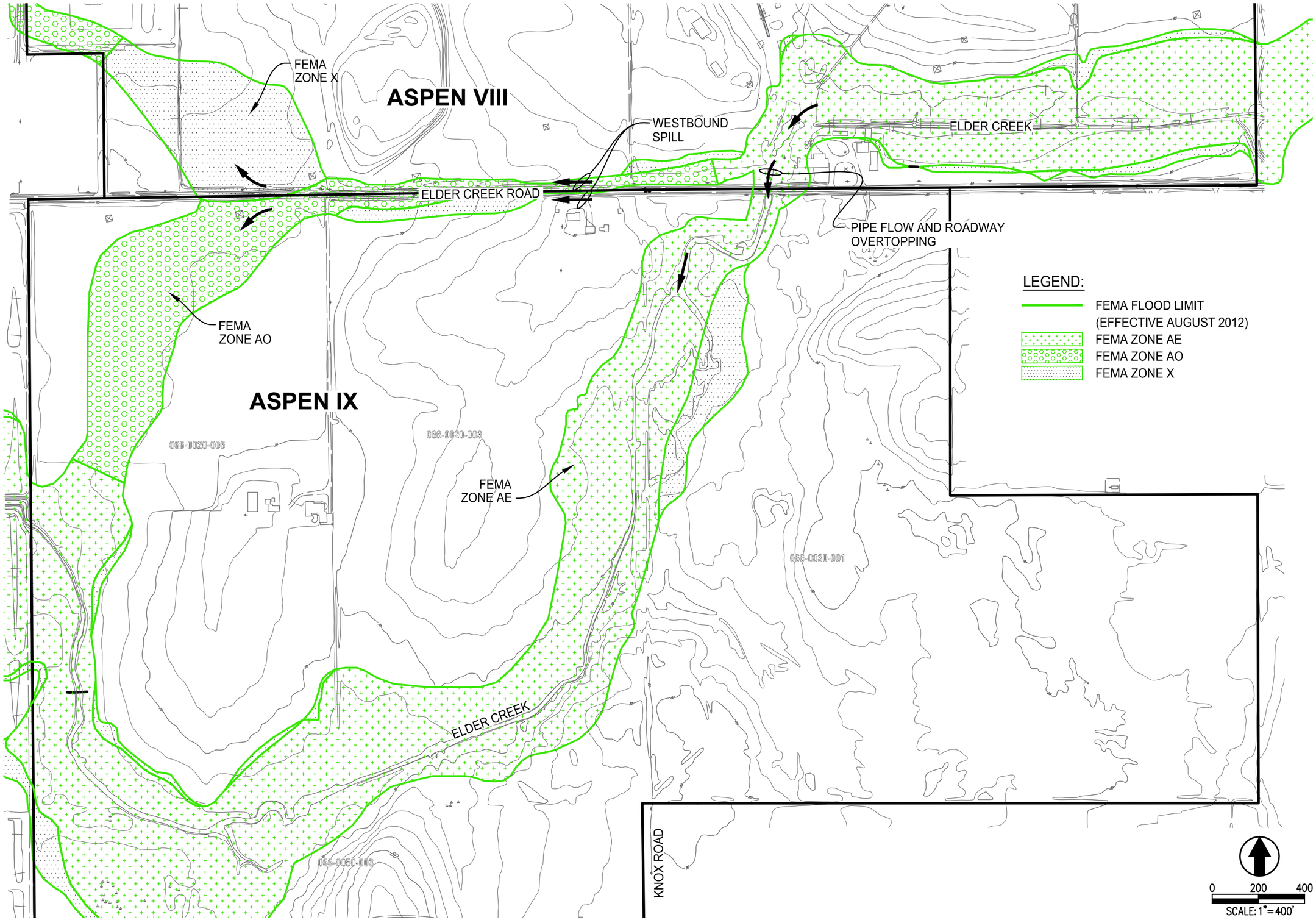
Summary and Conclusions

CEC has utilized DWR's most current (August 2015) system-wide hydraulic model of Elder Creek, with minor local adjustments, to compute 100-year/200-year flood limits within the proposed Aspen VIII and IX mining sites. The post-project 200-year flood limits, as computed herein, differ from those depicted in our 2014 memo, and the proposed mining limits have been adjusted accordingly. The existing roadway overtopping at Elder Creek Road, together with the two existing creek spills on Aspen VIII, will be eliminated for events up to the 200-year storm. This will be accomplished by replacing the existing under-capacity Elder Creek Road pipe culverts with a 4-8'w by 4.5'h CBC sized for the 200-year peak discharge. Pit-side freeboard of 3' will be provided by a proposed earthen berm.

The elimination of Aspen VIII's northbound spill will result in a minor increase in Elder Creek's peak flow downstream of Elder Creek Road. However, downstream of the project site the corresponding increase in peak water levels is small enough so as not to constitute an adverse impact based as defined by the Sacramento County Floodplain Management Ordinance.

Attachments

A. Aspen VIII & IX Existing FEMA 100-year Flood Limits.
B. Aspen VIII & IX Proposed Flood Limits and Mining Boundary.
C. Elder Creek Pre-project and Post-project WSP Tabulations.



SCALE 1"=400'

SHEET 1 OF 2

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CUNNINGHAM ENGINEERING

EXHIBIT A
ASPEN VIII & IX
EXISTING FEMA FLOOD LIMITS

SACRAMENTO COUNTY CALIFORNIA

DESIGNED ML
DRAWN LE
CHECKED ML
DATE: 01/13/16
JOB No: 1390.03

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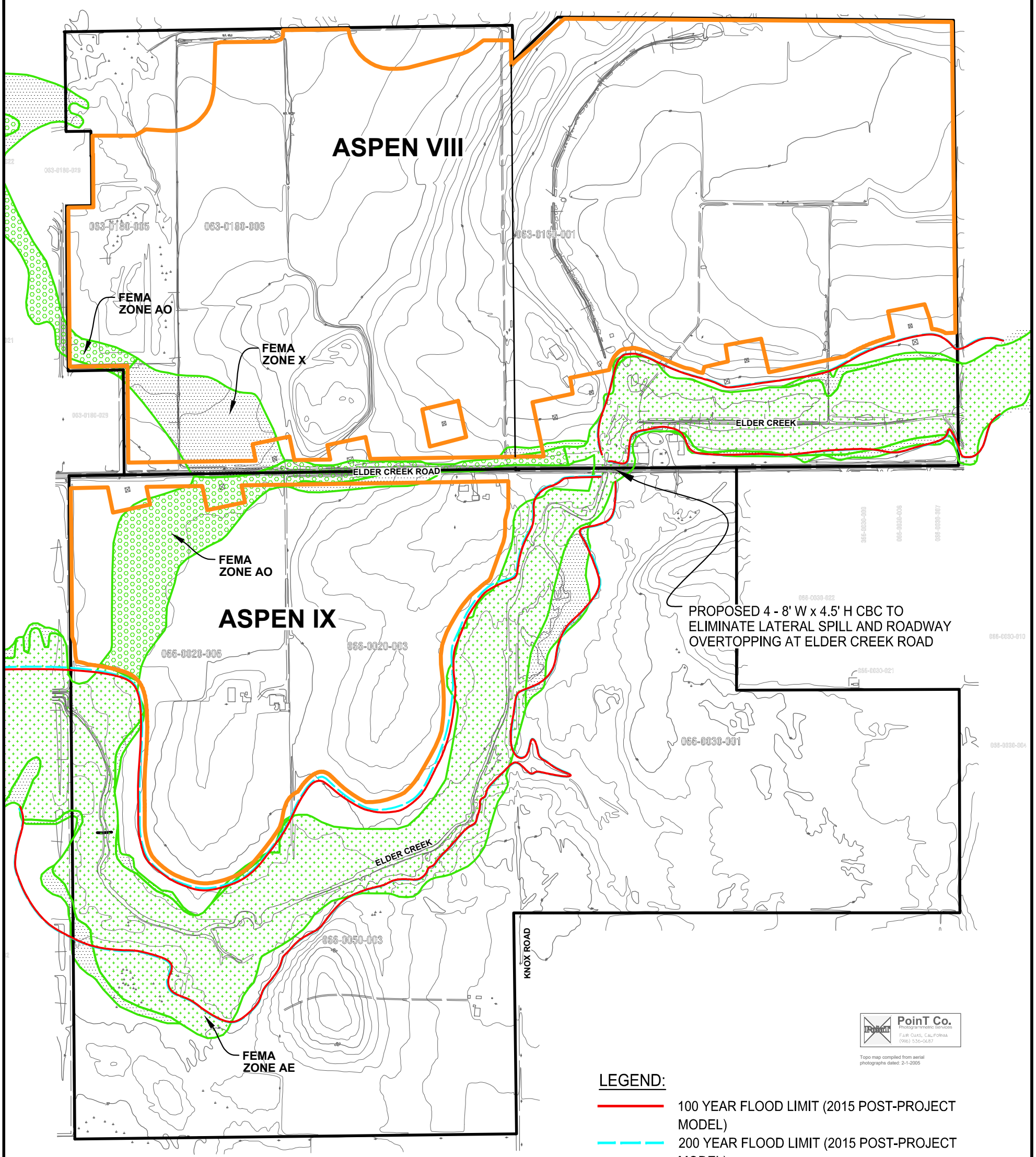

PoinT Co.
Photogrammetric Services
Fair Oaks, California
(916) 536-0487

Topo map compiled from aerial photographs dated: 2-1-2005

LEGEND:

- 100 YEAR FLOOD LIMIT (2015 POST-PROJECT MODEL)
- 200 YEAR FLOOD LIMIT (2015 POST-PROJECT MODEL)
- FEMA FLOOD LIMIT (EFFECTIVE AUGUST 2012)
- PROPOSED MINING BOUNDARY
- FEMA ZONE AE
- FEMA ZONE AO
- FEMA ZONE X

0 300 600
SCALE: 1"=600'

DESIGNED ML
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DATE: 01/13/16
JOB No: 1390.03

EXHIBIT B

ASPEN VIII & IX PROPOSED FLOOD LIMITS AND MINING BOUNDARY

SACRAMENTO COUNTY CALIFORNIA

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SCALE 1"=600'
SHEET 2 OF 2

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Aspen VIII/IX Mining Sites
Comparison of Elder Creek pre- to post-project peak water surface elevations **9/28/2015**

Plan:	**Description:**
"Aspen2-100/200"	Pre-project (100yr/200yr): Based on DWR 8/26/15 model, with CEC def'n of north spill structure on A8 (=> Q_{100}=18 cfs), and with westerly A9 x-secs updated by CEC to match CVFED lidar
"R1AE-100/200"	Post-project (100yr/200yr): As above , but with with proposed CBC at Elder Creek Road and both A8 spills eliminated

Note: Mining site extends from RS 11.063 (east edge of A8) to RS 9.486 (west edge of A9)

100-year

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	ΔWSE
REACH1	12.205	Max WS	R1AE-100	436	89.4	92.31	
REACH1	12.205	Max WS	Aspen2-100	436	89.4	92.31	0.00
REACH1	12.144	Max WS	R1AE-100	435	88.36	91.4	
REACH1	12.144	Max WS	Aspen2-100	435	88.36	91.4	0.00
REACH1	12.072	Max WS	R1AE-100	434	87.5	90.67	
REACH1	12.072	Max WS	Aspen2-100	434	87.5	90.67	0.00
REACH1	12.02	Max WS	R1AE-100	391	86.52	89.91	
REACH1	12.02	Max WS	Aspen2-100	392	86.52	89.91	0.00
REACH1	11.944	Max WS	R1AE-100	385	85.5	89.6	
REACH1	11.944	Max WS	Aspen2-100	385	85.5	89.6	0.00
REACH1	11.883	Max WS	R1AE-100	404	84.5	89.56	
REACH1	11.883	Max WS	Aspen2-100	404	84.5	89.56	0.00
REACH1	11.849	Max WS	R1AE-100	424	82.5	89.47	
REACH1	11.849	Max WS	Aspen2-100	424	82.5	89.47	0.00
REACH1	11.848	Max WS	R1AE-100	425	82.5	89.46	
REACH1	11.848	Max WS	Aspen2-100	425	82.5	89.46	0.00
REACH1	11.835			Culvert			
REACH1	11.822	Max WS	R1AE-100	425	82.5	87.19	
REACH1	11.822	Max WS	Aspen2-100	425	82.5	87.19	0.00
REACH1	11.724	Max WS	R1AE-100	461	83.19	86.27	
REACH1	11.724	Max WS	Aspen2-100	461	83.19	86.27	0.00
REACH1	11.659	Max WS	R1AE-100	485	82.38	85.8	
REACH1	11.659	Max WS	Aspen2-100	485	82.38	85.8	0.00
REACH1	11.593	Max WS	R1AE-100	508	81.3	85.08	
REACH1	11.593	Max WS	Aspen2-100	508	81.3	85.08	0.00
REACH1	11.538	Max WS	R1AE-100	528	80.77	84.6	
REACH1	11.538	Max WS	Aspen2-100	528	80.77	84.6	0.00
REACH1	11.482	Max WS	R1AE-100	550	80.23	84.11	
REACH1	11.482	Max WS	Aspen2-100	550	80.23	84.11	0.00
REACH1	11.433	Max WS	R1AE-100	569	79.88	83.55	
REACH1	11.433	Max WS	Aspen2-100	569	79.88	83.55	0.00
REACH1	11.376	Max WS	R1AE-100	592	79.2	83.07	
REACH1	11.376	Max WS	Aspen2-100	592	79.2	83.07	0.00
REACH1	11.313	Max WS	R1AE-100	616	78.7	82.82	
REACH1	11.313	Max WS	Aspen2-100	616	78.7	82.82	0.00
REACH1	11.252	Max WS	R1AE-100	639	78.41	82.55	
REACH1	11.252	Max WS	Aspen2-100	639	78.41	82.55	0.00
REACH1	11.175	Max WS	R1AE-100	664	77.7	81.84	
REACH1	11.175	Max WS	Aspen2-100	664	77.7	81.84	0.00
REACH1	11.125	Max WS	R1AE-100	683	77.27	81.32	
REACH1	11.125	Max WS	Aspen2-100	684	77.27	81.32	0.00
REACH1	11.063	Max WS	R1AE-100	684	76.84	80.61	
REACH1	11.063	Max WS	Aspen2-100	684	76.84	80.61	0.00
REACH1	10.995	Max WS	R1AE-100	758	76.21	79.98	
REACH1	10.995	Max WS	Aspen2-100	765	76.21	79.97	0.01
REACH1	10.936	Max WS	R1AE-100	744	74.53	79.28	
REACH1	10.936	Max WS	Aspen2-100	763	74.53	79.18	0.10
REACH1	10.884	Max WS	R1AE-100	742	74.56	78.91	
REACH1	10.884	Max WS	Aspen2-100	762	74.56	78.67	0.24
REACH1	10.834	Max WS	R1AE-100	742	74.04	78.84	
REACH1	10.834	Max WS	Aspen2-100	761	74.04	78.57	0.27
REACH1	10.775	Max WS	R1AE-100	741	73.83	78.76	
REACH1	10.775	Max WS	Aspen2-100	761	73.83	78.43	0.33
REACH1	10.72	Max WS	R1AE-100	736	72.77	78.62	
REACH1	10.72	Max WS	Aspen2-100	761	72.77	78.17	0.45
REACH1	10.705	Max WS	R1AE-100	733	72.79	78.6	

200-year

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	ΔWSE
REACH1	12.205	Max WS	R1AE-200	492	89.4	92.45	
REACH1	12.205	Max WS	Aspen2-200	492	89.4	92.45	0.00
REACH1	12.144	Max WS	R1AE-200	492	88.36	91.52	
REACH1	12.144	Max WS	Aspen2-200	492	88.36	91.52	0.00
REACH1	12.072	Max WS	R1AE-200	491	87.5	90.77	
REACH1	12.072	Max WS	Aspen2-200	491	87.5	90.77	0.00
REACH1	12.02	Max WS	R1AE-200	408	86.52	90.25	
REACH1	12.02	Max WS	Aspen2-200	409	86.52	90.25	0.00
REACH1	11.944	Max WS	R1AE-200	415	85.5	90.08	
REACH1	11.944	Max WS	Aspen2-200	415	85.5	90.08	0.00
REACH1	11.883	Max WS	R1AE-200	436	84.5	90.06	
REACH1	11.883	Max WS	Aspen2-200	436	84.5	90.06	0.00
REACH1	11.849	Max WS	R1AE-200	458	82.5	89.98	
REACH1	11.849	Max WS	Aspen2-200	458	82.5	89.98	0.00
REACH1	11.848	Max WS	R1AE-200	459	82.5	89.97	
REACH1	11.848	Max WS	Aspen2-200	459	82.5	89.98	-0.01
REACH1	11.835			Culvert			
REACH1	11.822	Max WS	R1AE-200	459	82.5	87.31	
REACH1	11.822	Max WS	Aspen2-200	459	82.5	87.31	0.00
REACH1	11.724	Max WS	R1AE-200	498	83.19	86.36	
REACH1	11.724	Max WS	Aspen2-200	498	83.19	86.36	0.00
REACH1	11.659	Max WS	R1AE-200	525	82.38	85.87	
REACH1	11.659	Max WS	Aspen2-200	525	82.38	85.87	0.00
REACH1	11.593	Max WS	R1AE-200	550	81.3	85.17	
REACH1	11.593	Max WS	Aspen2-200	551	81.3	85.17	0.00
REACH1	11.538	Max WS	R1AE-200	572	80.77	84.7	
REACH1	11.538	Max WS	Aspen2-200	572	80.77	84.7	0.00
REACH1	11.482	Max WS	R1AE-200	597	80.23	84.21	
REACH1	11.482	Max WS	Aspen2-200	597	80.23	84.21	0.00
REACH1	11.433	Max WS	R1AE-200	619	79.88	83.64	
REACH1	11.433	Max WS	Aspen2-200	619	79.88	83.64	0.00
REACH1	11.376	Max WS	R1AE-200	645	79.2	83.17	
REACH1	11.376	Max WS	Aspen2-200	646	79.2	83.17	0.00
REACH1	11.313	Max WS	R1AE-200	672	78.7	82.93	
REACH1	11.313	Max WS	Aspen2-200	673	78.7	82.93	0.00
REACH1	11.252	Max WS	R1AE-200	699	78.41	82.66	
REACH1	11.252	Max WS	Aspen2-200	699	78.41	82.66	0.00
REACH1	11.175	Max WS	R1AE-200	728	77.7	81.94	
REACH1	11.175	Max WS	Aspen2-200	728	77.7	81.94	0.00
REACH1	11.125	Max WS	R1AE-200	749	77.27	81.41	
REACH1	11.125	Max WS	Aspen2-200	751	77.27	81.41	0.00
REACH1	11.063	Max WS	R1AE-200	750	76.84	80.68	
REACH1	11.063	Max WS	Aspen2-200	751	76.84	80.68	0.00
REACH1	10.995	Max WS	R1AE-200	828	76.21	80.04	
REACH1	10.995	Max WS	Aspen2-200	831	76.21	80.03	0.01
REACH1	10.936	Max WS	R1AE-200	822	74.53	79.36	
REACH1	10.936	Max WS	Aspen2-200	829	74.53	79.25	0.11
REACH1	10.884	Max WS	R1AE-200	821	74.56	78.99	
REACH1	10.884	Max WS	Aspen2-200	827	74.56	78.76	0.23
REACH1	10.834	Max WS	R1AE-200	817	74.04	78.91	
REACH1	10.834	Max WS	Aspen2-200	827	74.04	78.65	0.26
REACH1	10.775	Max WS	R1AE-200	805	73.83	78.82	
REACH1	10.775	Max WS	Aspen2-200	827	73.83	78.52	0.30
REACH1	10.72	Max WS	R1AE-200	786	72.77	78.67	
REACH1	10.72	Max WS	Aspen2-200	827	72.77	78.24	0.43
REACH1	10.705	Max WS	R1AE-200	776	72.79	78.65	

REACH1	10.705	Max WS	Aspen2-100	761	72.79	78.12	0.48		REACH1	10.705	Max WS	Aspen2-200	827	72.79	78.19	0.46		
REACH1	10.704	Max WS	R1AE-100	732	72.8	78.6			REACH1	10.704	Max WS	R1AE-200	775	72.8	78.65			
REACH1	10.704	Max WS	Aspen2-100	761	72.8	78.07	0.53		REACH1	10.704	Max WS	Aspen2-200	826	72.8	78.14	0.51		
REACH1	10.689			Culvert					REACH1	10.689			Culvert					
REACH1	10.686	Max WS	R1AE-100	1029	72.84	77.96			REACH1	10.686	Max WS	R1AE-200	1131	72.84	78.04			
REACH1	10.686	Max WS	Aspen2-100	761	72.84	78.06	-0.10		REACH1	10.686	Max WS	Aspen2-200	826	72.84	78.12	-0.08		
REACH1	10.684			Lat Struct					REACH1	10.684			Lat Struct					
REACH1	10.681	Max WS	R1AE-100	1028	72.54	77.97			REACH1	10.681	Max WS	R1AE-200	1128	72.54	78.06			
REACH1	10.681	Max WS	Aspen2-100	760	72.54	78.06	-0.09		REACH1	10.681	Max WS	Aspen2-200	825	72.54	78.13	-0.07		
REACH1	10.65	Max WS	R1AE-100	905	72.54	77.2			REACH1	10.65	Max WS	R1AE-200	972	72.54	77.39			
REACH1	10.65	Max WS	Aspen2-100	744	72.54	77.54	-0.34		REACH1	10.65	Max WS	Aspen2-200	800	72.54	77.59	-0.20		
REACH1	10.63			Lat Struct					REACH1	10.63			Lat Struct					
REACH1	10.623	Max WS	R1AE-100	900	71.5	76.84			REACH1	10.623	Max WS	R1AE-200	968	71.5	77.11			
REACH1	10.619	Max WS	Aspen2-100	638	73.44	77.15			REACH1	10.619	Max WS	Aspen2-200	686	73.44	77.19			
REACH1	10.613			Culvert					REACH1	10.613			Culvert					
REACH1	10.607	Max WS	Aspen2-100	638	72.62	75.94			REACH1	10.607	Max WS	Aspen2-200	686	72.62	75.95			
REACH1	10.601	Max WS	R1AE-100	893	71.4	75.72			REACH1	10.601	Max WS	R1AE-200	956	71.4	75.78			
REACH1	10.562	Max WS	R1AE-100	889	72.38	75.56			REACH1	10.562	Max WS	R1AE-200	955	72.38	75.62			
REACH1	10.562	Max WS	Aspen2-100	638	72.38	75.29	0.27		REACH1	10.562	Max WS	Aspen2-200	686	72.38	75.35	0.27		
REACH1	10.507	Max WS	R1AE-100	884	72.21	74.82			REACH1	10.507	Max WS	R1AE-200	952	72.21	74.88			
REACH1	10.507	Max WS	Aspen2-100	638	72.21	74.57	0.25		REACH1	10.507	Max WS	Aspen2-200	686	72.21	74.63	0.25		
REACH1	10.442	Max WS	R1AE-100	875	71.96	73.73			REACH1	10.442	Max WS	R1AE-200	941	71.96	73.79			
REACH1	10.442	Max WS	Aspen2-100	644	71.96	73.51	0.22		REACH1	10.442	Max WS	Aspen2-200	692	71.96	73.57	0.22		
REACH1	10.361	Max WS	R1AE-100	857	70.48	72.95			REACH1	10.361	Max WS	R1AE-200	925	70.48	73.03			
REACH1	10.361	Max WS	Aspen2-100	651	70.48	72.74	0.21		REACH1	10.361	Max WS	Aspen2-200	700	70.48	72.8	0.23		
REACH1	10.312	Max WS	R1AE-100	851	69.38	72.62			REACH1	10.312	Max WS	R1AE-200	921	69.38	72.7			
REACH1	10.312	Max WS	Aspen2-100	655	69.38	72.4	0.22		REACH1	10.312	Max WS	Aspen2-200	704	69.38	72.46	0.24		
REACH1	10.272	Max WS	R1AE-100	850	68.63	72.13			REACH1	10.272	Max WS	R1AE-200	920	68.63	72.24			
REACH1	10.272	Max WS	Aspen2-100	657	68.63	71.91	0.22		REACH1	10.272	Max WS	Aspen2-200	708	68.63	72	0.24		
REACH1	10.214	Max WS	R1AE-100	1022	67.41	71.44			REACH1	10.214	Max WS	R1AE-200	1126	67.41	71.56			
REACH1	10.214	Max WS	Aspen2-100	834	67.41	71.23	0.21		REACH1	10.214	Max WS	Aspen2-200	918	67.41	71.33	0.23		
REACH1	10.141	Max WS	R1AE-100	1021	66.11	70.69			REACH1	10.141	Max WS	R1AE-200	1127	66.11	70.81			
REACH1	10.141	Max WS	Aspen2-100	840	66.11	70.48	0.21		REACH1	10.141	Max WS	Aspen2-200	924	66.11	70.58	0.23		
REACH1	10.09	Max WS	R1AE-100	1020	66.19	70.09			REACH1	10.09	Max WS	R1AE-200	1126	66.19	70.2			
REACH1	10.09	Max WS	Aspen2-100	844	66.19	69.91	0.18		REACH1	10.09	Max WS	Aspen2-200	928	66.19	70	0.20		
REACH1	10.034	Max WS	R1AE-100	1016	66.32	69.56			REACH1	10.034	Max WS	R1AE-200	1124	66.32	69.66			
REACH1	10.034	Max WS	Aspen2-100	848	66.32	69.41	0.15		REACH1	10.034	Max WS	Aspen2-200	933	66.32	69.49	0.17		
REACH1	9.974	Max WS	R1AE-100	1016	66.02	69.16			REACH1	9.974	Max WS	R1AE-200	1125	66.02	69.26			
REACH1	9.974	Max WS	Aspen2-100	853	66.02	69.02	0.14		REACH1	9.974	Max WS	Aspen2-200	938	66.02	69.1	0.16		
REACH1	9.919	Max WS	R1AE-100	1010	65.5	68.6			REACH1	9.919	Max WS	R1AE-200	1117	65.5	68.71			
REACH1	9.919	Max WS	Aspen2-100	856	65.5	68.45	0.15		REACH1	9.919	Max WS	Aspen2-200	941	65.5	68.55	0.16		
REACH1	9.878	Max WS	R1AE-100	1004	65.13	68.32			REACH1	9.878	Max WS	R1AE-200	1112	65.13	68.43			
REACH1	9.878	Max WS	Aspen2-100	857	65.13	68.15	0.17		REACH1	9.878	Max WS	Aspen2-200	943	65.13	68.26	0.17		
REACH1	9.813	Max WS	R1AE-100	1003	64.02	68.07			REACH1	9.813	Max WS	R1AE-200	1112	64.02	68.18			
REACH1	9.813	Max WS	Aspen2-100	862	64.02	67.92	0.15		REACH1	9.813	Max WS	Aspen2-200	948	64.02	68.02	0.16		
REACH1	9.749	Max WS	R1AE-100	1000	63.84	67.63			REACH1	9.749	Max WS	R1AE-200	1109	63.84	67.75			
REACH1	9.749	Max WS	Aspen2-100	865	63.84	67.48	0.15		REACH1	9.749	Max WS	Aspen2-200	952	63.84	67.58	0.17		
REACH1	9.701	Max WS	R1AE-100	997	63.1	67.33			REACH1	9.701	Max WS	R1AE-200	1107	63.1	67.45			
REACH1	9.701	Max WS	Aspen2-100	867	63.1	67.18	0.15		REACH1	9.701	Max WS	Aspen2-200	955	63.1	67.28	0.17		
REACH1	9.633	Max WS	R1AE-100	998	62.68	67.12			REACH1	9.633	Max WS	R1AE-200	1110	62.68	67.25			
REACH1	9.633	Max WS	Aspen2-100	872	62.68	66.98	0.14		REACH1	9.633	Max WS	Aspen2-200	960	62.68	67.08	0.17		
REACH1	9.566	Max WS	R1AE-100	999	62.13	66.6			REACH1	9.566	Max WS	R1AE-200	1113	62.13	66.73			
REACH1	9.566	Max WS	Aspen2-100	876	62.13	66.45	0.15		REACH1	9.566	Max WS	Aspen2-200	964	62.13	66.55	0.18		
REACH1	9.524	Max WS	R1AE-100	1001	61.85	66.18			REACH1	9.524	Max WS	R1AE-200	1116	61.85	66.31			
REACH1	9.524	Max WS	Aspen2-100	879	61.85	66.02	0.16		REACH1	9.524	Max WS	Aspen2-200	967	61.85	66.13	0.18		
REACH1	9.49			Lat Struct					REACH1	9.49			Lat Struct					
								Aspen 9										Aspen 9
REACH1	9.486	Max WS	R1AE-100	1000	61.3	65.29		Avg ΔWSE	REACH1	9.486	Max WS	R1AE-200	1114	61.3	65.42			Avg ΔWSE
REACH1	9.486	Max WS	Aspen2-100	880	61.3	65.23	0.06	0.18	REACH1	9.486	Max WS	Aspen2-200	969	61.3	65.34	0.08		0.19
REACH1	9.438	Max WS	R1AE-100	997	59.8	64.66			REACH1	9.438	Max WS	R1AE-200	1113	59.8	64.81			
REACH1	9.438	Max WS	Aspen2-100	977	59.8	64.64	0.02		REACH1	9.438	Max WS	Aspen2-200	1074	59.8	64.76	0.05		
REACH1	9.387	Max WS	R1AE-100	997	59.4	64.16			REACH1	9.387	Max WS	R1AE-200	1113	59.4	64.31			

REACH1	9.387	Max WS	Aspen2-100	979	59.4	64.14	0.02		REACH1	9.387	Max WS	Aspen2-200	1076	59.4	64.27	0.04	
REACH1	9.329	Max WS	R1AE-100	997	58.3	63.58			REACH1	9.329	Max WS	R1AE-200	1113	58.3	63.72		
REACH1	9.329	Max WS	Aspen2-100	981	58.3	63.56	0.02		REACH1	9.329	Max WS	Aspen2-200	1079	58.3	63.68	0.04	
REACH1	9.282	Max WS	R1AE-100	997	57.4	63.27			REACH1	9.282	Max WS	R1AE-200	1113	57.4	63.41		
REACH1	9.282	Max WS	Aspen2-100	983	57.4	63.25	0.02		REACH1	9.282	Max WS	Aspen2-200	1081	57.4	63.37	0.04	
REACH1	9.228	Max WS	R1AE-100	996	56.4	62.7			REACH1	9.228	Max WS	R1AE-200	1112	56.4	62.91		
REACH1	9.228	Max WS	Aspen2-100	984	56.4	62.68	0.02		REACH1	9.228	Max WS	Aspen2-200	1082	56.4	62.86	0.05	
REACH1	9.185	Max WS	R1AE-100	996	55.6	61.88			REACH1	9.185	Max WS	R1AE-200	1112	55.6	62.05		
REACH1	9.185	Max WS	Aspen2-100	986	55.6	61.87	0.01		REACH1	9.185	Max WS	Aspen2-200	1084	55.6	62.01	0.04	
REACH1	9.143	Max WS	R1AE-100	997	55.51	61.59			REACH1	9.143	Max WS	R1AE-200	1113	55.51	61.75		
REACH1	9.143	Max WS	Aspen2-100	988	55.51	61.58	0.01		REACH1	9.143	Max WS	Aspen2-200	1086	55.51	61.71	0.04	
REACH1	9.091	Max WS	R1AE-100	999	55.37	61.36			REACH1	9.091	Max WS	R1AE-200	1115	55.37	61.52		
REACH1	9.091	Max WS	Aspen2-100	990	55.37	61.35	0.01		REACH1	9.091	Max WS	Aspen2-200	1089	55.37	61.48	0.04	
REACH1	9.039	Max WS	R1AE-100	1001	55.28	61.11			REACH1	9.039	Max WS	R1AE-200	1117	55.28	61.26		
REACH1	9.039	Max WS	Aspen2-100	993	55.28	61.1	0.01		REACH1	9.039	Max WS	Aspen2-200	1092	55.28	61.22	0.04	
REACH1	8.975	Max WS	R1AE-100	1004	55.14	60.5			REACH1	8.975	Max WS	R1AE-200	1121	55.14	60.66		
REACH1	8.975	Max WS	Aspen2-100	996	55.14	60.49	0.01	Aspen 9 to B'shaw Avg ΔWSE	REACH1	8.975	Max WS	Aspen2-200	1096	55.14	60.61	0.05	Aspen 9 to B'shaw Avg ΔWSE
REACH1	8.969	Max WS	R1AE-100	1004	54.9	60.48			REACH1	8.969	Max WS	R1AE-200	1121	54.9	60.63		
REACH1	8.969	Max WS	Aspen2-100	997	54.9	60.47	0.01	0.01	REACH1	8.969	Max WS	Aspen2-200	1096	54.9	60.59	0.04	0.04
REACH1	8.961			Bridge	(Bradshaw Road)				REACH1	8.961			Bridge	(Bradshaw Road)			
REACH1	8.954	Max WS	R1AE-100	1004	54.9	60.35			REACH1	8.954	Max WS	R1AE-200	1121	54.9	60.5		
REACH1	8.954	Max WS	Aspen2-100	997	54.9	60.35	0.00		REACH1	8.954	Max WS	Aspen2-200	1096	54.9	60.47	0.03	
REACH1	8.89	Max WS	R1AE-100	1006	54.05	60.08			REACH1	8.89	Max WS	R1AE-200	1124	54.05	60.2		
REACH1	8.89	Max WS	Aspen2-100	999	54.05	60.07	0.01		REACH1	8.89	Max WS	Aspen2-200	1099	54.05	60.18	0.02	
REACH1	8.811	Max WS	R1AE-100	1004	53	59.23			REACH1	8.811	Max WS	R1AE-200	1119	53	59.36		
REACH1	8.811	Max WS	Aspen2-100	997	53	59.22	0.01		REACH1	8.811	Max WS	Aspen2-200	1095	53	59.34	0.02	
REACH1	8.752	Max WS	R1AE-100	994	52.8	58.77			REACH1	8.752	Max WS	R1AE-200	1105	52.8	58.89		
REACH1	8.752	Max WS	Aspen2-100	988	52.8	58.76	0.01		REACH1	8.752	Max WS	Aspen2-200	1084	52.8	58.87	0.02	
REACH1	8.697	Max WS	R1AE-100	984	52.6	58.55			REACH1	8.697	Max WS	R1AE-200	1094	52.6	58.66		
REACH1	8.697	Max WS	Aspen2-100	979	52.6	58.55	0.00		REACH1	8.697	Max WS	Aspen2-200	1078	52.6	58.65	0.01	
REACH1	8.598	Max WS	R1AE-100	977	52.2	58.26			REACH1	8.598	Max WS	R1AE-200	1088	52.2	58.36		
REACH1	8.598	Max WS	Aspen2-100	975	52.2	58.25	0.01		REACH1	8.598	Max WS	Aspen2-200	1074	52.2	58.35	0.01	
REACH1	8.565	Max WS	R1AE-100	975	52.15	58.08			REACH1	8.565	Max WS	R1AE-200	1086	52.15	58.18		
REACH1	8.565	Max WS	Aspen2-100	973	52.15	58.07	0.01		REACH1	8.565	Max WS	Aspen2-200	1072	52.15	58.17	0.01	
REACH1	8.466	Max WS	R1AE-100	974	52.04	57.74			REACH1	8.466	Max WS	R1AE-200	1085	52.04	57.83		
REACH1	8.466	Max WS	Aspen2-100	973	52.04	57.74	0.00		REACH1	8.466	Max WS	Aspen2-200	1071	52.04	57.82	0.01	
REACH1	8.258	Max WS	R1AE-100	975	51.6	56.83			REACH1	8.258	Max WS	R1AE-200	1088	51.6	56.9		
REACH1	8.258	Max WS	Aspen2-100	975	51.6	56.83	0.00		REACH1	8.258	Max WS	Aspen2-200	1076	51.6	56.9	0.00	
REACH1	8.195	Max WS	R1AE-100	977	51.33	56.38			REACH1	8.195	Max WS	R1AE-200	1092	51.33	56.41		
REACH1	8.195	Max WS	Aspen2-100	978	51.33	56.38	0.00		REACH1	8.195	Max WS	Aspen2-200	1080	51.33	56.41	0.00	
REACH1	8.105	Max WS	R1AE-100	980	51	55.95			REACH1	8.105	Max WS	R1AE-200	1094	51	56		
REACH1	8.105	Max WS	Aspen2-100	980	51	55.96	-0.01		REACH1	8.105	Max WS	Aspen2-200	1082	51	55.99	0.01	
REACH1	7.93	Max WS	R1AE-100	1044	50.36	55.16			REACH1	7.93	Max WS	R1AE-200	1167	50.36	55.24		
REACH1	7.93	Max WS	Aspen2-100	1049	50.36	55.17	-0.01		REACH1	7.93	Max WS	Aspen2-200	1157	50.36	55.23	0.01	
REACH1	7.863	Max WS	R1AE-100	1051	50.16	54.67			REACH1	7.863	Max WS	R1AE-200	1168	50.16	54.82		
REACH1	7.863	Max WS	Aspen2-100	1056	50.16	54.67	0.00		REACH1	7.863	Max WS	Aspen2-200	1161	50.16	54.81	0.01	
REACH1	7.784			Lat Struct					REACH1	7.784			Lat Struct				
REACH1	7.783	Max WS	R1AE-100	1060	49.88	53.93			REACH1	7.783	Max WS	R1AE-200	1175	49.88	54.04		
REACH1	7.783	Max WS	Aspen2-100	1064	49.88	53.93	0.00		REACH1	7.783	Max WS	Aspen2-200	1168	49.88	54.04	0.00	
REACH1	7.74	Max WS	R1AE-100	1055	49.72	53.66			REACH1	7.74	Max WS	R1AE-200	1158	49.72	53.71		
REACH1	7.74	Max WS	Aspen2-100	1059	49.72	53.66	0.00		REACH1	7.74	Max WS	Aspen2-200	1152	49.72	53.71	0.00	
REACH1	7.689	Max WS	R1AE-100	867	49.61	53.57			REACH1	7.689	Max WS	R1AE-200	953	49.61	53.61		
REACH1	7.689	Max WS	Aspen2-100	871	49.61	53.57	0.00		REACH1	7.689	Max WS	Aspen2-200	948	49.61	53.61	0.00	
REACH1	7.625	Max WS	R1AE-100	868	49	53.56			REACH1	7.625	Max WS	R1AE-200	954	49	53.6		
REACH1	7.625	Max WS	Aspen2-100	872	49	53.56	0.00		REACH1	7.625	Max WS	Aspen2-200	950	49	53.6	0.00	
REACH1	7.6225			Bridge					REACH1	7.6225			Bridge				
REACH1	7.62	Max WS	R1AE-100	868	49	53.55			REACH1	7.62	Max WS	R1AE-200	954	49	53.59		
REACH1	7.62	Max WS	Aspen2-100	872	49	53.56	-0.01		REACH1	7.62	Max WS	Aspen2-200	950	49	53.59	0.00	
REACH1	7.619			Lat Struct					REACH1	7.619			Lat Struct				
REACH1	7.543	Max WS	R1AE-100	755	48.46	52.99			REACH1	7.543	Max WS	R1AE-200	833	48.46	53.05		
REACH1	7.543	Max WS	Aspen2-100	759	48.46	53	-0.01		REACH1	7.543	Max WS	Aspen2-200	829	48.46	53.05	0.00	
REACH1	7.516	Max WS	R1AE-100	633	48.3	52.5			REACH1	7.516	Max WS	R1AE-200	687	48.3	52.57		
REACH1	7.516	Max WS	Aspen2-100	636	48.3	52.5	0.00		REACH1	7.516	Max WS	Aspen2-200	684	48.3	52.57	0.00	

REACH1	7.318			Lat Struct					REACH1	7.318			Lat Struct					
REACH1	7.317	Max WS	R1AE-100	728	47.3	52.15			REACH1	7.317	Max WS	R1AE-200	794	47.3	52.25			
REACH1	7.317	Max WS	Aspen2-100	728	47.3	52.15	0.00		REACH1	7.317	Max WS	Aspen2-200	791	47.3	52.25	0.00		
REACH1	7.258	Max WS	R1AE-100	677	47.28	52			REACH1	7.258	Max WS	R1AE-200	716	47.28	52.13			
REACH1	7.258	Max WS	Aspen2-100	677	47.28	52	0.00		REACH1	7.258	Max WS	Aspen2-200	714	47.28	52.12	0.01		
REACH1	7.17	Max WS	R1AE-100	697	47.04	51.89			REACH1	7.17	Max WS	R1AE-200	766	47.04	52.03			
REACH1	7.17	Max WS	Aspen2-100	697	47.04	51.89	0.00		REACH1	7.17	Max WS	Aspen2-200	762	47.04	52.02	0.01		
REACH1	7.16			Lat Struct					REACH1	7.16			Lat Struct					
REACH1	7.0905	Max WS	R1AE-100	616	46.96	51.82			REACH1	7.0905	Max WS	R1AE-200	661	46.96	51.96			
REACH1	7.0905	Max WS	Aspen2-100	617	46.96	51.82	0.00		REACH1	7.0905	Max WS	Aspen2-200	659	46.96	51.95	0.01		
REACH1	7.012	Max WS	R1AE-100	672	46	51.64			REACH1	7.012	Max WS	R1AE-200	721	46	51.79			
REACH1	7.012	Max WS	Aspen2-100	673	46	51.65	-0.01	B'shaw to Florin	REACH1	7.012	Max WS	Aspen2-200	718	46	51.78	0.01	B'shaw to Florin	
REACH1	7.011	Max WS	R1AE-100	673	46	51.64		Avg ΔWSE	REACH1	7.011	Max WS	R1AE-200	721	46	51.78		Avg ΔWSE	
REACH1	7.011	Max WS	Aspen2-100	673	46	51.64	0.00	0.00	REACH1	7.011	Max WS	Aspen2-200	719	46	51.77	0.01	0.01	
REACH1	7.001			Bridge	(Florin Road)				REACH1	7.001			Bridge	(Florin Road)				
REACH1	6.992	Max WS	R1AE-100	672	46	51.54			REACH1	6.992	Max WS	R1AE-200	721	46	51.68			
REACH1	6.992	Max WS	Aspen2-100	673	46	51.54	0.00		REACH1	6.992	Max WS	Aspen2-200	718	46	51.68	0.00		
REACH1	6.9911			Lat Struct					REACH1	6.9911			Lat Struct					
REACH1	6.991			Lat Struct					REACH1	6.991			Lat Struct					
REACH1	6.99			Lat Struct					REACH1	6.99			Lat Struct					
REACH1	6.981	Max WS	R1AE-100	684	46.86	51.49			REACH1	6.981	Max WS	R1AE-200	731	46.86	51.63			
REACH1	6.981	Max WS	Aspen2-100	685	46.86	51.49	0.00		REACH1	6.981	Max WS	Aspen2-200	729	46.86	51.63	0.00		
REACH1	6.928	Max WS	R1AE-100	926	46.8	51.27			REACH1	6.928	Max WS	R1AE-200	969	46.8	51.45			
REACH1	6.928	Max WS	Aspen2-100	927	46.8	51.27	0.00		REACH1	6.928	Max WS	Aspen2-200	968	46.8	51.44	0.01		
REACH1	6.879			Lat Struct					REACH1	6.879			Lat Struct					
REACH1	6.877	Max WS	R1AE-100	843	46.16	51.19			REACH1	6.877	Max WS	R1AE-200	928	46.16	51.37			
REACH1	6.877	Max WS	Aspen2-100	844	46.16	51.19	0.00		REACH1	6.877	Max WS	Aspen2-200	925	46.16	51.36	0.01		
REACH1	6.83	Max WS	R1AE-100	1017	46.04	50.76			REACH1	6.83	Max WS	R1AE-200	1148	46.04	50.92			
REACH1	6.83	Max WS	Aspen2-100	1018	46.04	50.77	-0.01		REACH1	6.83	Max WS	Aspen2-200	1142	46.04	50.92	0.00		
REACH1	6.8295			Lat Struct					REACH1	6.8295			Lat Struct					
REACH1	6.829	Max WS	R1AE-100	1076	46.12	50.76			REACH1	6.829	Max WS	R1AE-200	1213	46.12	50.92			
REACH1	6.829	Max WS	Aspen2-100	1078	46.12	50.76	0.00		REACH1	6.829	Max WS	Aspen2-200	1207	46.12	50.91	0.01		
REACH1	6.821			Bridge					REACH1	6.821			Bridge					
REACH1	6.813	Max WS	R1AE-100	1076	45.83	50.44			REACH1	6.813	Max WS	R1AE-200	1213	45.83	50.54			
REACH1	6.813	Max WS	Aspen2-100	1078	45.83	50.44	0.00		REACH1	6.813	Max WS	Aspen2-200	1207	45.83	50.54	0.00		
REACH1	6.782	Max WS	R1AE-100	1076	45.58	50.13			REACH1	6.782	Max WS	R1AE-200	1213	45.58	50.22			
REACH1	6.782	Max WS	Aspen2-100	1078	45.58	50.13	0.00		REACH1	6.782	Max WS	Aspen2-200	1207	45.58	50.22	0.00		
REACH1	6.751	Max WS	R1AE-100	1076	45.28	49.57			REACH1	6.751	Max WS	R1AE-200	1213	45.28	49.67			
REACH1	6.751	Max WS	Aspen2-100	1078	45.28	49.57	0.00		REACH1	6.751	Max WS	Aspen2-200	1207	45.28	49.67	0.00		
REACH1	6.682	Max WS	R1AE-100	1083	45.22	48.87			REACH1	6.682	Max WS	R1AE-200	1221	45.22	48.98			
REACH1	6.682	Max WS	Aspen2-100	1085	45.22	48.87	0.00		REACH1	6.682	Max WS	Aspen2-200	1215	45.22	48.97	0.01		
REACH1	6.633	Max WS	R1AE-100	1083	44.66	48.63			REACH1	6.633	Max WS	R1AE-200	1220	44.66	48.73			
REACH1	6.633	Max WS	Aspen2-100	1085	44.66	48.64	-0.01		REACH1	6.633	Max WS	Aspen2-200	1215	44.66	48.73	0.00		
REACH1	6.509			Lat Struct					REACH1	6.509			Lat Struct					
REACH1	6.482	Max WS	R1AE-100	946	43.65	48.26			REACH1	6.482	Max WS	R1AE-200	1222	43.65	48.3			
REACH1	6.482	Max WS	Aspen2-100	957	43.65	48.27	-0.01		REACH1	6.482	Max WS	Aspen2-200	1216	43.65	48.3	0.00		
REACH1	6.436	Max WS	R1AE-100	924	44.01	48.17			REACH1	6.436	Max WS	R1AE-200	900	44.01	48.16			
REACH1	6.436	Max WS	Aspen2-100	931	44.01	48.17	0.00		REACH1	6.436	Max WS	Aspen2-200	917	44.01	48.16	0.00		
REACH1	6.378	Max WS	R1AE-100	893	42.47	48.1			REACH1	6.378	Max WS	R1AE-200	877	42.47	48.09			
REACH1	6.378	Max WS	Aspen2-100	891	42.47	48.1	0.00		REACH1	6.378	Max WS	Aspen2-200	896	42.47	48.09	0.00		
REACH1	6.297	Max WS	R1AE-100	852	42.23	47.98			REACH1	6.297	Max WS	R1AE-200	846	42.23	47.97			
REACH1	6.297	Max WS	Aspen2-100	854	42.23	47.97	0.01		REACH1	6.297	Max WS	Aspen2-200	848	42.23	47.97	0.00		
REACH1	6.243	Max WS	R1AE-100	1183	41.74	47.18			REACH1	6.243	Max WS	R1AE-200	1226	41.74	47.21			
REACH1	6.243	Max WS	Aspen2-100	1207	41.74	47.18	0.00		REACH1	6.243	Max WS	Aspen2-200	1220	41.74	47.21	0.00		
REACH1	6.158	Max WS	R1AE-100	1075	40.82	46.38			REACH1	6.158	Max WS	R1AE-200	1202	40.82	46.58			
REACH1	6.158	Max WS	Aspen2-100	1076	40.82	46.38	0.00		REACH1	6.158	Max WS	Aspen2-200	1197	40.82	46.57	0.01		
REACH1	6.014	Max WS	R1AE-100	1054	39.88	46.12			REACH1	6.014	Max WS	R1AE-200	1181	39.88	46.34			
REACH1	6.014	Max WS	Aspen2-100	1054	39.88	46.12	0.00		REACH1	6.014	Max WS	Aspen2-200	1175	39.88	46.34	0.00		
REACH1	6.007	Max WS	R1AE-100	1051	39.36	46.09			REACH1	6.007	Max WS	R1AE-200	1179	39.36	46.31			
REACH1	6.007	Max WS	Aspen2-100	1051	39.36	46.09	0.00		REACH1	6.007	Max WS	Aspen2-200	1172	39.36	46.31	0.00		

REACH1	6.004			Culvert				
REACH1	6.001	Max WS	R1AE-100	1051	39.87	46.09		
REACH1	6.001	Max WS	Aspen2-100	1051	39.87	46.09	0.00	
REACH1	5.864	Max WS	R1AE-100	1024	39.06	45.79		
REACH1	5.864	Max WS	Aspen2-100	1024	39.06	45.79	0.00	D/S of Florin Rd
REACH1	5.816	Max WS	R1AE-100	1009	39.02	45.66		Avg ΔWSE
REACH1	5.816	Max WS	Aspen2-100	1008	39.02	45.66	0.00	0.00

REACH1	6.004			Culvert				
REACH1	6.001	Max WS	R1AE-200	1179	39.87	46.31		
REACH1	6.001	Max WS	Aspen2-200	1172	39.87	46.3	0.01	
REACH1	5.864	Max WS	R1AE-200	1162	39.06	46.04		
REACH1	5.864	Max WS	Aspen2-200	1156	39.06	46.03	0.01	D/S of Florin Rd
REACH1	5.816	Max WS	R1AE-200	1147	39.02	45.93		Avg ΔWSE
REACH1	5.816	Max WS	Aspen2-200	1141	39.02	45.92	0.01	0.00

Aspen VIII and IX
Updated Hydraulic Analysis of Elder Creek

To: Mr. John Lane, Teichert Aggregates

From: Martin Lewis

Date: August 12, 2016

Subject: Proposed Aspen VIII/IX Mining Project, Sacramento County:
Updated Elder Creek hydraulic analysis referencing 2016 DWR baseline

Introduction

This memorandum has been prepared in support of the Aspen VIII/IX EIR and Mining & Reclamation (M & R) plans. The memo is intended to supplement Cunningham Engineering's (CEC's) Technical Memo of January 13, 2016 (approved by County DWR on January 14, 2016).

The hydraulic analysis summarized in CEC's January 2016 memo was based on DWR's 2015 pre-project HEC-RAS model - the '2015 baseline model'. (For the purposes of this document, the term *pre-project* means existing conditions prior to mining on Aspen VIII/IX; and *post-project* means during and after mining). CEC's January 2016 memo indicated that the project's proposed elimination of the existing westbound and northbound creek spills on Aspen VIII would result in a minor increase in Elder Creek's 100-year peak flow downstream. However, the post-project HEC-RAS model indicated that the corresponding increase in downstream base flood (i.e. 100-year) elevations would be less than 0.1 foot, and as such would not constitute an adverse impact as defined by the Sacramento County Floodplain Management Ordinance.

In May 2016, DWR modified its 2015 pre-project model to create an updated baseline (pre-project) model. The 2016 baseline model differs from the 2015 model in its treatment of Elder Creek's existing westbound spill on Aspen VIII: Whereas the 2015 model indicates the majority of the Aspen VIII spill returning to Elder Creek on Aspen IX, that is not the case in the 2016 baseline model. As such, use of the 2016 baseline model to represent pre-project conditions will result in larger pre- to post-project increases in Elder Creek's downstream peak flows than what had previously been computed relative to the 2015 baseline. Consequently, the computed pre- to post-project increase in 100-year peak water levels will now equal or exceed 0.1 feet at certain locations downstream.

The purpose of this memo is to briefly summarize how the Aspen VIII/IX project intends to address the changes resulting from use of the 2016 baseline model as the pre-project reference.

Vertical Datum

Both the 2015 and 2016 DWR baseline models are referenced to NGVD 29 vertical datum. The models use a composite topo base, including topographic data acquired from CVFED Lidar mapping (converted from NAVD 88 to NGVD 29 by subtracting 2.4'). The CEC 2015 post-project model of the creek is also referenced to NGVD 29.

Updated (2016) DWR Baseline Model

As noted above, CEC's January 2016 memo relates pre- to post-project streamflow changes to the 2015 DWR baseline model. The 2015 model estimates a 100-year peak westbound spill on Aspen VIII of 96 cfs, which returns to Elder Creek on the westerly portion of Aspen IX. The resulting pre-project peak flow immediately downstream of Aspen IX (RS 9.438) is 961 cfs. The computed post-project peak flow at that location is 988 cfs, representing a relatively modest increase of 27 cfs.

In May 2016, DWR provided CEC with a copy of an updated Elder Creek system-wide existing-conditions hydraulic model (HEC-RAS project file 'BASELINE_MASTER_ASP.prj', dated 5/18/16).

The 5/18/16 DWR model contained revised lateral weir geometry for the right-bank westbound spill between RS 10.65 and RS 10.619, together with revised model geometry/flow routing for the conveyance of these spilled flows along the Elder Creek Road corridor. The revised routing along Elder Creek Road contains more topographic detail than the 2015 baseline model, and is thought to more representatively model the split of spilled flows into returning flows (to Elder Creek) and diverted flows (to Morrison Creek) respectively.

During June and July, DWR continued to refine the updated model. Concurrently, CEC and Wood-Rodgers (in their capacity as a consultant to Stonebridge Properties, working on a LOMR for Morrison Creek) reviewed DWR's 2016 models and suggested some minor revisions to the Aspen VIII reach on approach to Elder Creek Road. Accordingly, the 7/7/16 DWR model, incorporating subsequent minor modifications proposed by CEC and Wood-Rodgers (HEC-RAS project file 'ELDER_GERBER_TESTWR.prj', 7/18/16), will be herein referred to as the '2016 DWR baseline model'.

As a result of the above changes in the 2016 DWR baseline model, higher peak spills are estimated on Aspen VIII (86 cfs northbound at LS 10.719, plus 338 cfs westbound at LS 10.63). Of the westbound spill, 158 cfs is estimated to return to Elder Creek immediately downstream of Elder Creek Road, plus a further 54 cfs returning to the creek near the westerly edge of the Aspen IX property. The remainder of the Aspen VIII spill (i.e. that not returning to the creek on Aspen IX) leaves the Elder Creek watershed, and flows north to Morrison Creek. As a result, at RS 9.486 immediately downstream of Aspen IX, the 100-year pre-project peak flow is now estimated at 665 cfs, which is 296 cfs less than for the DWR 2015 baseline model. For

the 2016 model, the corresponding 100-year pre- to post-project flow increase at RS 9.486 is (822 – 665) = 157 cfs, which is large enough to cause 100-year water surface elevation (WSE) increases of 0.1' or more in some downstream locations.

This is tabulated in Attachment A, which represents the downstream reach extending from the west boundary Aspen IX downstream to the confluence of Elder Creek and Gerber Creek. For the 100-year event, comparing the post-project (without side-weir) condition to the 2016 baseline, the computed WSE increases are as follows:

- Aspen IX to Bradshaw Road: 0.19' to 0.36' (average 0.27')
- Bradshaw Road to Florin Road: 0.08' to 0.25' (average 0.13')
- Downstream of Florin Road: 0.21' to 0.26' (average 0.18')

Post-Project Conditions with addition of Aspen IX Side-Weir

In order to restore the computed post-project increment in downstream 100-year WSEs to less than 0.1 foot, it is proposed that the Aspen VIII/IX project add a high-flow diversion weir from Elder Creek just upstream of the westerly boundary of the Aspen IX property (between HEC-RAS RS 9.524 and RS 9.486). Attachment B presents the proposed location and general arrangement of the proposed diversion facilities. As shown on the exhibit, the diversion will comprise a ±400-LF lateral overflow weir along the creek's right overbank. The intent is to locate the weir just inboard of the computed post-project floodplain limit, but outside the proposed creek preserve setback of 150 feet.

CEC utilized the 2016 DWR baseline model as a starting point for a 2016 post-project model that includes the elimination of the Aspen VIII spills and the addition of the proposed Aspen IX side-weir. Preliminary model computations indicate that the weir will divert a peak flow of 187 cfs from the creek in the 100-year event, and 276 cfs in the 200-year event. The resultant post-project (with-weir) downstream 100-year WSP is presented in Attachment A, along with a comparison to the 2016 baseline WSP. With the side-weir included, the table shows pre- to post-project increments in peak 100-year WSE of less than 0.1' downstream of Aspen IX.

Attachment A also provides a tabular comparison of the downstream 200-year WSPs for the post-project condition (with side-weir) relative the 2016 baseline WSP. As with the 100-year event, the pre- to post-project increments in peak 200-year WSE are less than 0.1' downstream of Aspen IX.

It is proposed that the diverted flows be directed to the Aspen IX mining pit. The diverted flows will initially be conveyed via an excavated channel, located adjacent to the side-weir. Preliminary sizing of the channel is shown in Attachment B. The channel will discharge to a proposed culvert pipe installation (3 x 48" RCP or equivalent) running under the pit-side berm shown in the M & R plans. The culvert pipes will discharge to a 50'-wide rock-lined rundown, which will in turn drain to the pit-bottom retention basin. These conveyance facilities will be designed to accommodate the 200-year diverted peak flow, with final layout and sizing to accompany the preparation of the final M & R plans.

The post-project HEC-RAS model estimates a diverted volume of approximately 60 acre-feet for the 100-year event; and 83 acre-feet for the 200-year event. It is proposed that this diverted volume be contained within the limits of the proposed pit-bottom retention basin that is currently part of the M & R plans. The retention basin's original design footprint of ±6 acres will be not be expanded. Rather, the basin's design depth will be increased as required in order to accommodate the diverted volume. This revision to the retention pond will be reflected on the final M&R plans.

Post-project 100-year and 200-year flood limits within the Aspen VIII and IX properties are plotted on Attachment C.

Summary and Conclusions

CEC has utilized DWR's most recent (7/7/16) system-wide hydraulic model, with minor modifications by CEC and Wood-Rodgers (7/18/16), to recompute a baseline 100-year WSP downstream of the project site.

Based on a comparison of CEC's previously computed post-project WSP with the 2016 baseline WSP, Teichert proposes to add a high-flow diversion weir on Aspen IX. The weir will shave the peak off the post-project 100-year hydrograph such that the downstream increases in 100-year WSE are limited to less than 0.1 foot. The diverted creek flows will be directed to the proposed retention basin at the northwest corner of the Aspen IX pit.

Attachments

A. Elder Creek WSP Comparison Table

100-year:
1) Pre-project (2016 baseline)
2) Post-project (2016) without Aspen IX side-weir
3) Post-project (2016) with Aspen IX side-weir

200-year:
4) Pre-project (2016 baseline)
5) Post-project (2016) with Aspen IX side-weir

B. **Conceptual arrangement of proposed side-weir on Aspen IX** (2 sheets, 11"x17")

C. **Post-project floodplain exhibit for Aspen VIII and IX** (1 sheet, 11"x17")

Aspen VIII/IX Mining Sites

Elder Creek pre- and post-project peak water surface elevations downstream of Aspen IX

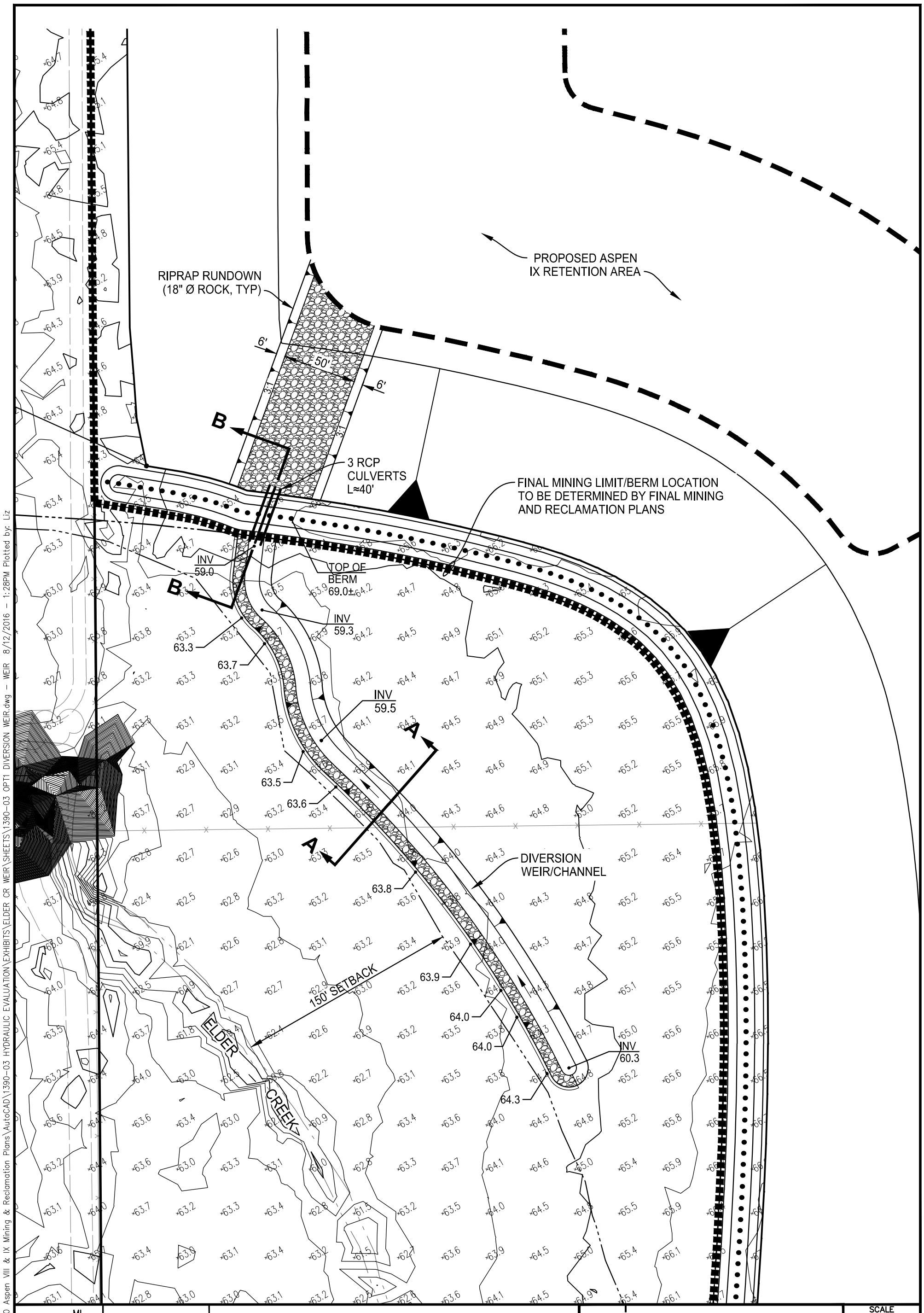
Note: Downstream limit of mining site on Aspen IX is at RS 9.486

100-year:

(1) 2016 100-yr Baseline model			(2) 2016 100-yr Post-Project model					(3) 2016 100-yr Post-Projext model			
			Without side weir on Aspen IX					With Aspen IX side weir at RS 9.5			
R. Sta.	Q_{100} (cfs)	W.S. Elev (ft)	R. Sta.	Q_{100} (cfs)	W.S. Elev (ft)	ΔWSE (2)-(1)		R. Sta.	Q_{100} (cfs)	W.S. Elev (ft)	ΔWSE (3)-(1)
9.524	608	64.28	9.524	820	64.55	0.27		9.524	844	64.40	0.12
9.490	Lat Struct		9.490	Lat Struct				9.500	Lat Struct		
9.486	610	63.76	9.486	821	64.05	0.29		9.486	679	63.78	0.02
9.438	665	63.46	9.438	822	63.74	0.28		9.438	663	63.46	0.00
9.387	667	63.00	9.387	824	63.35	0.35		9.387	665	63	0.00
9.329	668	62.38	9.329	825	62.74	0.36		9.329	666	62.38	0.00
9.282	669	61.97	9.282	825	62.30	0.33		9.282	667	61.97	0.00
9.228	670	61.67	9.228	825	61.92	0.25		9.228	668	61.67	0.00
9.185	670	61.55	9.185	826	61.80	0.25		9.185	669	61.55	0.00
9.143	671	61.37	9.143	826	61.62	0.25		9.143	670	61.37	0.00
9.091	672	61.22	9.091	828	61.46	0.24	Aspen 9	9.091	672	61.22	0.00
9.039	674	61.08	9.039	829	61.30	0.22	to B'shaw	9.039	674	61.08	0.00
8.975	677	60.92	8.975	832	61.12	0.20	Avg ΔWSE	8.975	676	60.92	0.00
8.969	677	60.92	8.969	832	61.11	0.19	0.27	8.969	677	60.92	0.00
8.961	Bridge (Bradshaw)		8.961	Bridge				8.961	Bridge		
8.954	677	60.79	8.954	832	60.99	0.20		8.954	677	60.79	0.00
8.890	678	59.98	8.890	833	60.23	0.25		8.890	678	59.98	0.00
8.811	680	59.16	8.811	836	59.36	0.20		8.811	681	59.16	0.00
8.752	682	58.35	8.752	837	58.5	0.15		8.752	682	58.35	0.00
8.697	681	57.79	8.697	836	57.91	0.12		8.697	682	57.79	0.00
8.598	683	57.45	8.598	838	57.55	0.10		8.598	684	57.45	0.00
8.565	682	57.28	8.565	837	57.38	0.10		8.565	684	57.28	0.00
8.466	682	56.93	8.466	837	57.04	0.11		8.466	684	56.93	0.00
8.258	674	56.17	8.258	825	56.32	0.15		8.258	678	56.17	0.00
8.195	674	55.88	8.195	826	56.05	0.17		8.195	679	55.89	0.01
8.105	675	55.79	8.105	827	55.96	0.17		8.105	680	55.80	0.01
7.930	725	54.70	7.930	875	54.84	0.14		7.930	732	54.71	0.01
7.863	733	54.08	7.863	880	54.22	0.14		7.863	740	54.09	0.01
7.784	Lat Struct		7.784	Lat Struct				7.784	Lat Struct		
7.783	740	53.77	7.783	887	53.88	0.11		7.783	748	53.78	0.01
7.740	742	53.58	7.740	883	53.68	0.10		7.740	751	53.59	0.01
7.689	598	53.42	7.689	700	53.53	0.11		7.689	605	53.43	0.01
7.625	599	53.37	7.625	701	53.48	0.11		7.625	606	53.38	0.01
7.623	Bridge		7.623	Bridge				7.623	Bridge		
7.620	599	53.35	7.620	701	53.47	0.12		7.620	606	53.36	0.01
7.619	Lat Struct		7.619	Lat Struct				7.619	Lat Struct		
7.543	525	52.72	7.543	609	52.83	0.11		7.543	531	52.73	0.01
7.516	504	52.29	7.516	573	52.37	0.08		7.516	510	52.30	0.01
7.318	Lat Struct		7.318	Lat Struct				7.318	Lat Struct		
7.317	591	51.94	7.317	670	52.04	0.10		7.317	597	51.95	0.01
7.258	579	51.85	7.258	640	51.95	0.10		7.258	584	51.86	0.01
7.170	538	51.79	7.170	574	51.89	0.10		7.170	542	51.80	0.01
7.160	Lat Struct		7.160	Lat Struct			B'shaw	7.160	Lat Struct		
7.091	403	51.75	7.091	390	51.86	0.11	to Florin	7.091	403	51.76	0.01
7.012	445	51.58	7.012	427	51.72	0.14	Avg ΔWSE	7.012	444	51.59	0.01
7.011	445	51.56	7.011	427	51.7	0.14	0.13	7.011	444	51.57	0.01
7.001	Bridge (Florin)		7.001	Bridge				7.001	Bridge		
6.992	444	51.36	6.992	425	51.55	0.19		6.992	443	51.38	0.02
6.991	Lat Struct		6.991	Lat Struct				6.991	Lat Struct		
6.990	Lat Struct		6.990	Lat Struct				6.990	Lat Struct		
6.981	450	51.27	6.981	429	51.49	0.22		6.981	449	51.29	0.02
6.928	595	51.13	6.928	610	51.39	0.26		6.928	598	51.15	0.02
6.879	Lat Struct		6.879	Lat Struct				6.879	Lat Struct		
6.877	529	51.08	6.877	553	51.36	0.28		6.877	531	51.11	0.03
6.830	680	50.66	6.830	799	50.92	0.26		6.830	690	50.68	0.02
6.830	Lat Struct		6.830	Lat Struct				6.830	Lat Struct		
6.829	735	50.63	6.829	862	50.88	0.25		6.829	747	50.65	0.02
6.821	Bridge		6.821	Bridge				6.821	Bridge		
6.813	735	50.27	6.813	862	50.44	0.17		6.813	746	50.29	0.02
6.782	735	49.74	6.782	862	49.86	0.12		6.782	746	49.75	0.01
6.751	735	49.27	6.751	862	49.38	0.11		6.751	746	49.28	0.01
6.682	733	48.47	6.682	858	48.6	0.13		6.682	744	48.48	0.01
6.633	731	48.21	6.633	853	48.36	0.15		6.633	742	48.22	0.01
6.482	724	47.88	6.482	840	48.05	0.17		6.482	735	47.90	0.02
6.436	721	47.76	6.436	836	47.94	0.18		6.436	731	47.78	0.02
6.378	718	47.66	6.378	832	47.84	0.18		6.378	728	47.69	0.03
6.297	716	47.58	6.297	829	47.75	0.17		6.297	725	47.60	0.02
6.243	703	47.34	6.243	821	47.53	0.19		6.243	713	47.37	0.03
6.158	685	47.05	6.158	810	47.25	0.20		6.158	698	47.08	0.03
6.014	682	47.00	6.014	808	47.2	0.20		6.014	695	47.04	0.04
6.007	682	47.00	6.007	808	47.2	0.20		6.007	695	47.03	0.03
6.004	Culvert		6.004	Culvert			D/S of	6.004	Culvert		
6.001	682	46.99	6.001	808	47.19	0.20	Florin Rd	6.001	695	47.03	0.04
5.864	681	45.98	5.864	806	46.14	0.16	Avg ΔWSE	5.864	695	46.00	0.02
5.816	681	45.68	5.816	805	45.81	0.13	0.19	5.816	695	45.69	0.01

200-year:

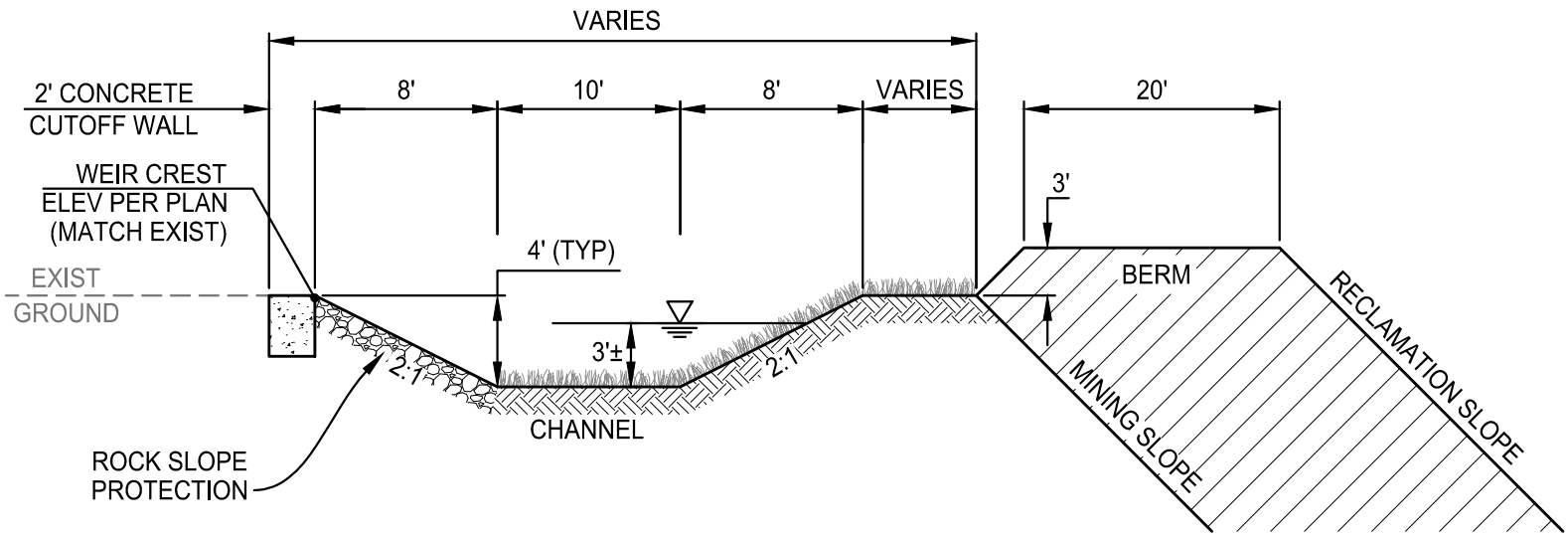
(4) 2016 200-yr baseline model			(5) 2016 200-yr Post-Projext model			
			With Aspen IX side weir at RS 9.5			
R. Sta.	Q_{200} (cfs)	W.S. Elev (ft)	R. Sta.	Q_{200} (cfs)	W.S. Elev (ft)	ΔWSE (5)-(4)
9.524	749	64.48	9.524	995	64.51	0.03
9.490	Lat Struct		9.500	Lat Struct		
9.486	750	64.01	9.486	746	63.89	-0.12
9.438	807	63.72	9.438	722	63.57	-0.15
9.387	808	63.32	9.387	724	63.15	-0.17
9.329	809	62.71	9.329	725	62.53	-0.18
9.282	808	62.26	9.282	726	62.10	-0.16
9.228	807	61.89	9.228	727	61.77	-0.12
9.185	808	61.77	9.185	728	61.65	-0.12
9.143	807	61.59	9.143	729	61.47	-0.12
9.091	808	61.43	9.091	731	61.32	-0.11
9.039	810	61.28	9.039	734	61.17	-0.11
8.975	812	61.10	8.975	737	61.00	-0.10
8.969	813	61.09	8.969	737	61.00	-0.09
8.961	Bridge		8.961	Bridge		
8.954	813	60.97	8.954	737	60.87	-0.10
8.890	814	60.20	8.890	739	60.08	-0.12
8.811	816	59.33	8.811	741	59.24	-0.09
8.752	817	58.48	8.752	743	58.41	-0.07
8.697	816	57.90	8.697	743	57.84	-0.06
8.598	817	57.54	8.598	745	57.50	-0.04
8.565	816	57.37	8.565	745	57.32	-0.05
8.466	815	57.02	8.466	745	56.97	-0.05
8.258	798	56.29	8.258	736	56.24	-0.05
8.195	798	56.03	8.195	736	55.96	-0.07
8.105	799	55.94	8.105	738	55.87	-0.07
7.930	857	54.82	7.930	800	54.77	-0.05
7.863	863	54.20	7.863	809	54.15	-0.05
7.784	Lat Struct		7.784	Lat Struct		
7.783	872	53.87	7.783	820	53.83	-0.04
7.740	870	53.67	7.740	822	53.64	-0.03
7.689	691	53.52	7.689	657	53.49	-0.03
7.625	693	53.47	7.625	659	53.44	-0.03
7.623	Bridge		7.623	Bridge		
7.620	693	53.46	7.620	659	53.42	-0.04
7.619	Lat Struct		7.619	Lat Struct		
7.543	603	52.82	7.543	576	52.79	-0.03
7.516	570	52.37	7.516	548	52.35	-0.02
7.318	Lat Struct		7.318	Lat Struct		
7.317	670	52.04	7.317	647	52.01	-0.03
7.258	641	51.95	7.258	624	51.92	-0.03
7.170	575	51.89	7.170	566	51.87	-0.02
7.160	Lat Struct		7.160	Lat Struct		
7.091	390	51.86	7.091	394	51.83	-0.03
7.012	427	51.72	7.012	434	51.68	-0.04
7.011	427	51.71	7.011	434	51.67	-0.04
7.001	Bridge		7.001	Bridge		
6.992	426	51.55	6.992	432	51.50	-0.05
6.991	Lat Struct		6.991	Lat Struct		
6.990	Lat Struct		6.991	Lat Struct		
6.981	429	51.49	6.981	437	51.44	-0.05
6.928	609	51.39	6.928	609	51.32	-0.07
6.879	Lat Struct		6.879	Lat Struct		
6.877	553	51.36	6.877	545	51.29	-0.07
6.830	799	50.92	6.830	768	50.85	-0.07
6.830	Lat Struct		6.830	Lat Struct		
6.829	863	50.88	6.829	830	50.82	-0.06
6.821	Bridge		6.821	Bridge		
6.813	863	50.45	6.813	830	50.40	-0.05
6.782	863	49.87	6.782	830	49.83	-0.04
6.751	863	49.38	6.751	830	49.35	-0.03
6.682	860	48.60	6.682	827	48.57	-0.03
6.633	857	48.36	6.633	825	48.32	-0.04
6.482	851	48.05	6.509	821	48.01	-0.04
6.436	849	47.93	6.436	819	47.89	-0.04
6.378	848	47.83	6.378	818	47.79	-0.04
6.297	847	47.73	6.297	818	47.70	-0.03
6.243	844	47.47	6.243	814	47.44	-0.03
6.158	835	47.14	6.158	807	47.11	-0.03
6.014	832	47.08	6.014	805	47.05	-0.03
6.007	832	47.07	6.007	804	47.04	-0.03
6.004	Culvert		6.004	Culvert		
6.001	832	47.07	6.001	804	47.04	-0.03
5.864	832	46.33	5.864	804	46.31	-0.02
5.816	832	46.10	5.816	804	46.08	-0.02



DESIGNED ML DRAWN LE CHECKED ML DATE: 08/12/16 JOB No: 1390.03	0 30 60 SCALE: 1"=60'	**ASPEN VIII & IX** **ELDER CREEK DIVERSION WEIR** SACRAMENTO COUNTY CALIFORNIA	CUNNINGHAM ENGINEERING CECWEST.COM Project Planning ■ Civil Engineering ■ Landscape Architecture ■ Sacramento Office: 2120 20th Street, Suite Three, Sacramento, CA 95818, (916) 455-2026 ■ Davis Office: 2940 Spafford Street, Suite 200, Davis, CA 95618, (530) 758-2026	SCALE 1"=60' SHEET 1 OF 2

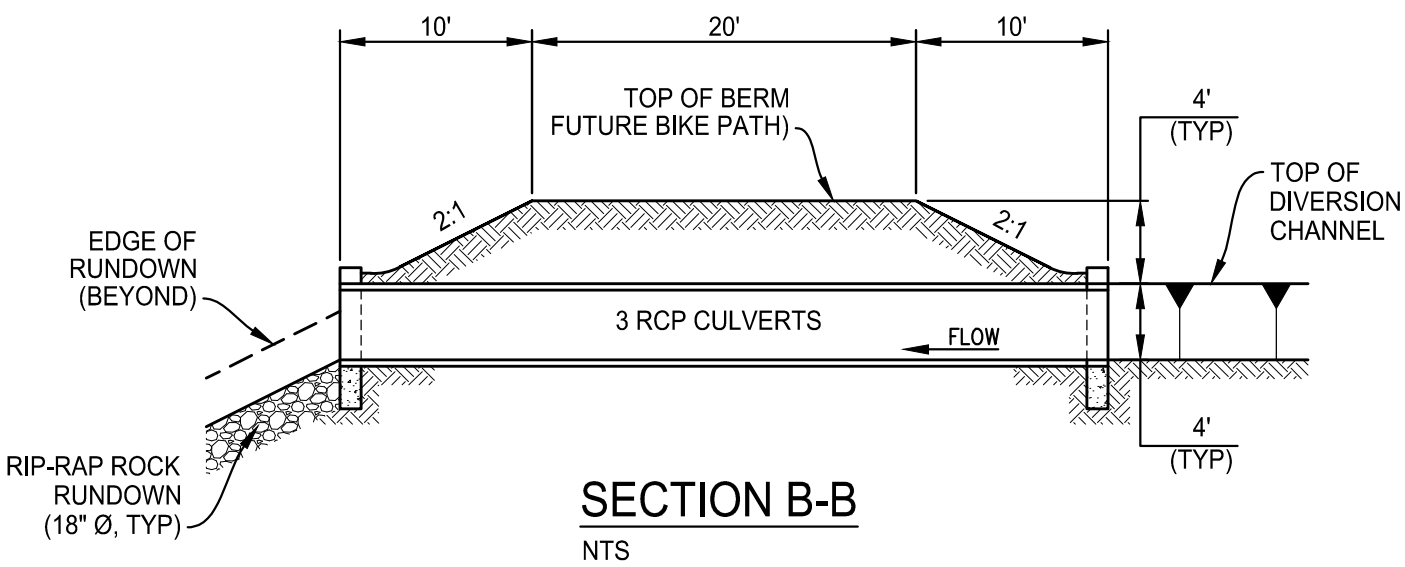
S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-03 HYDRAULIC EVALUATION\EXHIBITS\ELDER CR WEIR\SHEETS\1390-03 OPT1 DIVERSION WEIR.dwg - WEIR 8/12/2016 - 1:28PM Plotted by: Liz

ATTACHMENT B1



SECTION A-A (TYP)

NTS



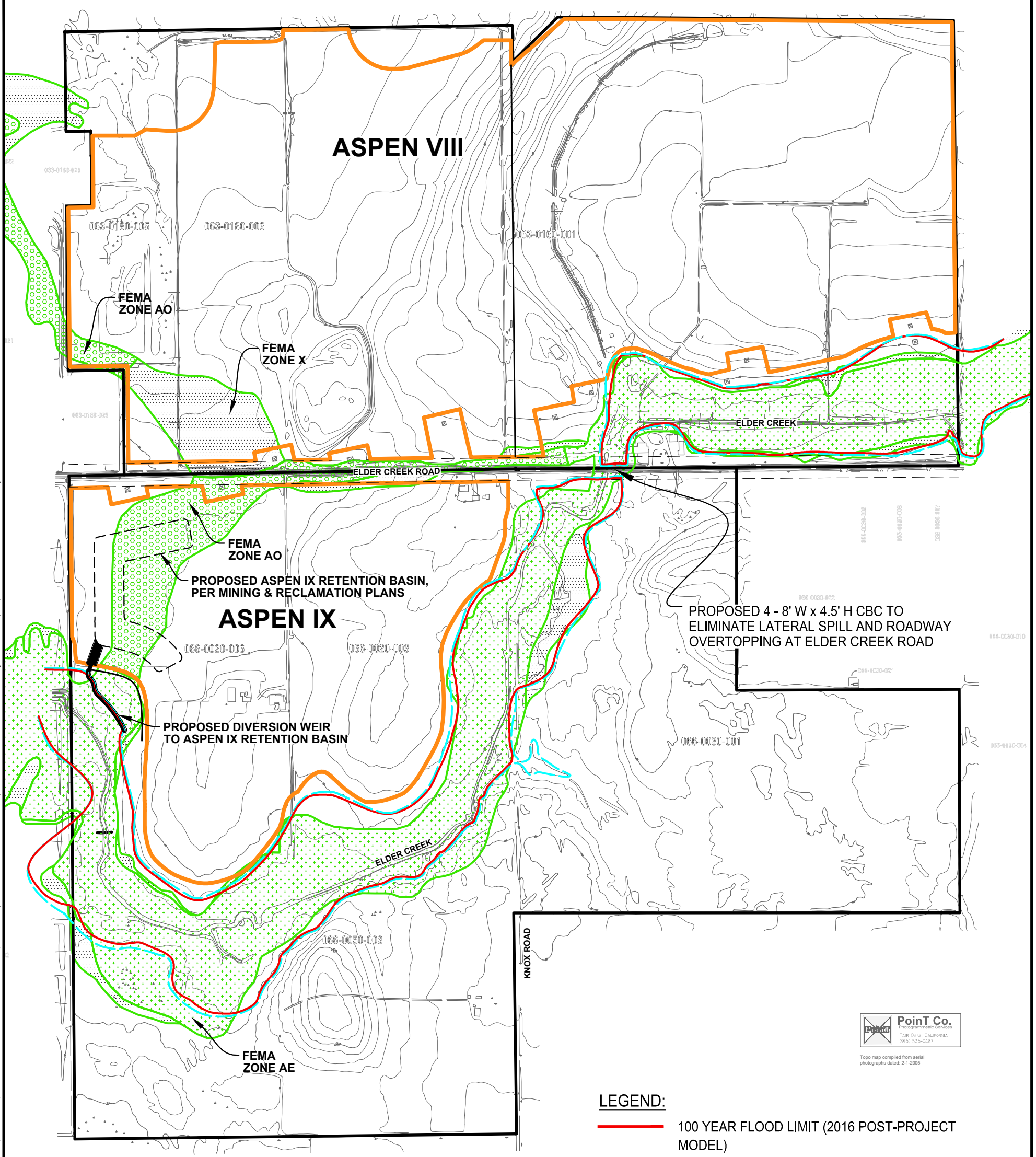
SECTION B-B

NTS

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-03 HYDRAULIC EVALUATION\EXHIBITS\ELDER CR WEIR\SHEETS\1390-03 OPT1 DIVERSION WEIR.dwg - WEIR DETAILS 8/12/2016 - 1:26PM Plotted by: Liz

DESIGNED ML DRAWN LE CHECKED ML DATE: 08/12/16 JOB No: 1390.03		**ASPEN VIII & IX** **ELDER CREEK DIVERSION WEIR** SACRAMENTO COUNTY CALIFORNIA	CUNNINGHAM ENGINEERING CECWEST.COM Project Planning ■ Civil Engineering ■ Landscape Architecture ■ Sacramento Office 2120 20th Street, Suite Three Sacramento, CA 95818 (916) 455-2026 ■ Davis Office 2940 Spafford Street, Suite 200 Davis, CA 95618 (530) 758-2026	SCALE NTS SHEET 2 OF 2

ATTACHMENT B2



LEGEND:

- 100 YEAR FLOOD LIMIT (2016 POST-PROJECT MODEL)
- 200 YEAR FLOOD LIMIT (2016 POST-PROJECT MODEL)
- FEMA FLOOD LIMIT (EFFECTIVE AUGUST 2012)
- PROPOSED MINING BOUNDARY
- FEMA ZONE AE
- FEMA ZONE AO
- FEMA ZONE X

DESIGNED ML DRAWN LE CHECKED ML DATE: 08/12/16 JOB No: 1390.03	0 300 600 SCALE: 1"=600'	**ASPEN VIII & IX** **PROPOSED FLOOD LIMITS AND MINING BOUNDARY** SACRAMENTO COUNTY CALIFORNIA	CUNNINGHAM ENGINEERING CECWEST.COM Project Planning ■ Civil Engineering ■ Landscape Architecture ■ Sacramento Office: 2120 20th Street, Suite Three, Sacramento, CA 95818, (916) 455-2026 ■ Davis Office: 2940 Spafford Street, Suite 200, Davis, CA 95618, (530) 758-2026	SCALE 1"=60' SHEET 1 OF 1

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-03 HYDRAULIC EVALUATION\EXHIBITS\FLOODPLAIN EVALUATION\1390-03-C2-FLOODPLAIN.dwg – XBT 8/12/2016 – 1:15PM Plotted by: Liz

ATTACHMENT C

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
December 11, 2014

VIA U.S. AND ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

References:
1. *Geotechnical Investigation for Slope Evaluation, Aspen VIII and IX Mining Projects, Elder Creek Road, Sacramento County, California*, Geocon Consultants, Inc., December 7, 2007.

Dear Mr. Lane:

In accordance with your request, we have prepared this correspondence summarizing the geotechnical aspects of the proposed change in conditions for future aggregate mining and reclamation at the Teichert Aspen VIII and IX sites located on Elder Creek Road between Bradshaw and Excelsior Roads in Sacramento County, California. The approximate site location is shown on the Vicinity Map, Figure 1.

PURPOSE AND SCOPE

The purpose of our services was to use existing project data to perform seepage and slope stability analyses, and provide associated geotechnical recommendations pertaining to site mining and reclamation as presently planned.

To prepare this report, we performed the following scope of services:

- Performed a review of existing/available geotechnical reports, geologic data, aerial photographs, and other literature pertaining to the site to aid in evaluating geologic and geotechnical conditions at the sites;
- Reviewed available reclamation plans for the sites;
- Used existing project geotechnical and laboratory testing data to perform seepage and slope stability analyses, and to provide associated geotechnical recommendations pertaining to site mining and reclamation as presently planned; and
- Prepared this geotechnical memorandum with our conclusions and recommendations regarding embankment and slope geometry, location, and construction.

3160 Gold Valley Drive, Suite 800 ■ Rancho Cordova, CA 95742-7515 ■ Telephone 916.852.9118 ■ Fax 916.852.9132

SITE AND PROJECT INFORMATION

The site includes Aspen VIII (Assessor's Parcel Number [APN] 063-0180-005, -006, and 063-0160-001) and Aspen IX (APNs 066-0020-006, 066-0030-001, and 066-0050-003) which are approximately 319 acres and 363 acres, respectively. Aspen VIII and IX are located north and south of Elder Creek Road, respectively, between Bradshaw and Excelsior Roads in Sacramento County, California. The site currently consists of fields for cattle grazing, three residences, buildings associated with grazing and agriculture, and high-voltage power line towers. Elder Creek traverses through the site from a northeasterly to southwesterly direction. Site conditions are depicted on the Site Plan, Figure 2.

Site topography generally slopes gently downward from east to west with surface elevations ranging from approximately 85 feet above mean sea level (MSL) along the east side of the site to approximately 65 feet along the west side of the site.

Teichert previously planned to mine the entire Aspen VIII and IX sites for gravel resources and construct an elevated earthen "structure" to contain a newly constructed, realigned Elder Creek. Geocon previously performed a geotechnical investigation and evaluated the seepage and slope stability conditions for the project (Geocon, 2007).

We understand that Teichert now plans to preserve the current natural alignment of Elder Creek on the Aspen VIII and IX sites. Current plans call for mining no closer than 150 feet from the edge of Elder Creek and no closer than 30 feet from the Federal Emergency Management Agency (FEMA) 200-year flood zone. The proposed inclination of the mining slopes is ¾H:1V and the proposed inclination of the reclamation slopes is no steeper than 2H:1V.

Teichert also plans to construct a raised embankment approximately 3 feet high and no closer than 3 feet from the 200-year flood zone which will serve as a safety feature adjacent to the final, reclaimed mine slope. The proposed mining area is depicted on Figure 2.

We understand that the post-reclamation end-use of the site may include agricultural and/or residential land use.

SOIL AND GEOLOGIC CONDITIONS

The site is underlain predominantly by consolidated Pliocene-Age alluvium of the Laguna Formation (CGS, 2011). The onsite soil consists of two characteristic layers: clayey overburden and underlying clayey gravel with cobbles. The upper layer (overburden) consists primarily of firm to very stiff sandy lean clay (CL) and variable occurrences of medium dense clayey sand (SC). During our prior investigation, we observed that overburden thickness ranged from 1 to 11 feet in our exploratory trenches (Geocon, 2007).

Soil below the overburden generally consists of medium dense to very dense clayey gravel (GC) with cobbles up to 8 inches. The gravel and cobble includes weathered to fresh metavolcanics and cemented sandstones and will be the aggregate source for these mining projects. The strata proposed for mining overlays variably weathered, fine-clastic deposits of sandstone, siltstone, mudstone, and claystone.

GROUNDWATER

Review of the most recent (Spring 2007) *Sacramento County Groundwater Elevation Map* (Sacramento County, 2009) indicates the average springtime groundwater elevation at the site was approximately 30 feet below MSL. Based on site elevation, the current depth to groundwater at the site predicted by this data is approximately 85 to 105 feet.

It should be noted that fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors. Depth to groundwater can also vary significantly due to localized pumping, irrigation practices, and seasonal fluctuations.

SEISMICITY

In order to determine the distance of closest known active faults to the site, we used the computer program *EQFAULT*, (Version 3, Blake, 2000). Principal references used within *EQFAULT* are Jennings (1975), Anderson (1984) and Wesnousky (1986). The results of the *EQFAULT* query indicate the Foothills Fault System, located 17½ miles to the east, is the closest source of potential ground motion at the site. The Great Valley Fault is the next closest, located 34½ miles to the west.

We used the USGS computer program *2008 Interactive Deaggregations* to estimate the PGA and modal (most probable) distance and magnitude associated with a 2% chance of exceedance in 50 years (2,475-year event). For an alluvial soil type, the USGS estimated PGA is 0.25g, the modal distance is 62.5 km and the modal magnitude is 6.8.

We used the online USGS application *Seismic Design Maps* to evaluate the site class modified, design-level Peak Ground Acceleration (PGA_M) for the site, for use in seismic slope stability analysis. The PGA_M for the site is 0.231g.

SEEPAGE AND SLOPE STABILITY ANALYSIS

The proposed mining/reclamation slopes will be separated (set back) from Elder Creek by a minimum of 150 feet. The proposed raised embankment (approximately 3 feet high) will be constructed at existing grade over the in-situ overburden materials. The subsequent mining and reclamation slopes will descend at slopes of ¾H:1V and no steeper than 2H:1V, respectively, from the "land side" toe of the embankment to the planned mining depth of approximately Elevation +10 feet MSL. We assumed 2H:1V side slopes for the embankment and an embankment top width of 12 feet. This configuration is shown on Figure 3, Typical Cross-Section.

We understand that the embankments and reclamation slope will be constructed with engineered fill derived from onsite overburden. The overburden consists of predominantly fine-grained soils (CL and ML). Below the overburden, dense gravel deposits are present above weathered sandstone, siltstone, mudstone, and claystone. Static groundwater is at approximately elevation -30 feet MSL, which is below the planned depth of mining.

Material Parameters

To select appropriate material parameters for our seepage and slope stability analyses, we used the information derived from our previous geotechnical investigation (Geocon, 2007) and drill hole and laboratory grain size distribution information obtained from Teichert, published correlations (e.g., Alyamani and Sen, 1993), engineering judgment, and experience with similar soils in the local area. The material parameters used in our analyses are summarized in Table 1.

TABLE 1
SOIL PARAMETERS FOR SEEPAGE AND SLOPE STABILITY ANALYSES

Material Type	Total Unit Weight (pcf)	Cohesion, C (psf)		Friction Angle, ϕ (degrees)		Permeability (ft/sec)	
		Total	Effective	Total	Effective	Vertical	Horizontal
Embankment/ Reclamation Fill	120	800	100	20	34	3.28×10^{-7}	3.28×10^{-6}
Overburden	120	200	150	28	30	3.28×10^{-6}	3.28×10^{-5}
Gravels	135	50	50	32	40	3.6×10^{-3}	3.6×10^{-2}

Notes: pcf = pounds per cubic foot psf = pounds per square foot

We assumed a generally flat soil layer stratigraphy consistent with the depositional and erosional geology of the site.

Seismic Forces for Dynamic (Seismic) Stability Analysis

We analyzed dynamic (seismic) slope stability using a pseudo-static approach in which the earthquake load is simulated by an "equivalent" static horizontal acceleration acting on the mass of the slope. This methodology is generally considered to be conservative and is most often used in current practice.

We calculated the seismic coefficient using the procedures presented in *Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California* (CGS 2008). In this procedure, the seismic coefficient is equal to a portion of the design-level PGA_M for a soft rock site condition without the risk coefficient ($PGA_M/1.5$). Assuming a 15-cm displacement threshold, a $PGA_M/1.5$ of 0.23g, a modal distance of 62.5 km, and a modal magnitude of 6.8, the calculated seismic coefficient is 0.06.

Seepage Analysis and Results

The proposed mining/reclamation slopes will be separated (set back) from Elder Creek by a minimum of 150 feet, as depicted on Figure 3. To model seepage conditions, we used the computer program *SEEP/W, Version 7* (Geo-Slope International). In our analyses, we considered the initial condition for the site to be the average low-flow condition in the creek assuming constant head conditions year-round. We used a low-flow water elevation of 64 feet MSL. We modeled the seepage front over a 100-year time period to mimic steady-state conditions. We then modeled a transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. Our seepage analysis results are presented graphically on Figures 4 and 5.

The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).

Slope Stability Analysis and Results

We analyzed stability of the proposed final reclamation slopes using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for both the steady-state (low-flow) and 200-year flood conditions.

SLOPE/W uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety (FOS) against deep-seated failure. For our analyses, Spencer's Method with a circular failure mechanism was used. Spencer's Method satisfies both moment and force equilibrium. The computer program searches for the critical failure surface based on user-provided input parameters. The critical failure surface for each analysis is shown on computer-generated output. The FOS is shown on each figure directly above the failure surface. For a circular failure search, a grid of search midpoints and radii are specified, and the computer searches for the critical failure surface. The critical failure surface is shown as the hatched area on each figure.

The results of our slope stability analysis (FOS) under the different conditions of analysis (e.g. low-flow, 200-year flood, static and seismic) are summarized in Table 2. Graphical representations of the potential critical failure surfaces and parameters used for each stability analysis are presented on Figures 6 through 9.

TABLE 2
SLOPE STABILITY ANALYSIS RESULTS

Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Steady-State Low-Flow Conditions	1.7	1.5
200-Year Flood Event (30-day duration)	1.7	1.5

CONCLUSIONS AND RECOMMENDATIONS

From a geotechnical viewpoint, in our opinion, the currently proposed mining and reclamation plan is not expected to adversely impact seepage and/or slope stability conditions for the following reasons:

- The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes under low-flow or 200-year flood conditions, even with low-flow conditions sustained indefinitely (100 years).
- The results of our slope stability analyses for a 2:1 reclamation slope indicate FOS that are above the commonly required minimum FOS of 1.5 for long-term static stability and FOS of 1.1 for pseudo-static (seismic) stability. Therefore, the proposed reclamation slopes for the project appear to be appropriate for the proposed end use of the site from a static and seismic viewpoint provided the recommendations contained in this report are incorporated into the design and construction of the project. Our slope stability analysis results are presented in Figures 6 through 9.

Embankment and Reclamation Slope Recommendations

- Based on the soils encountered during prior investigations and the results of our slope stability analyses, properly constructed and compacted reclamation slopes should be constructed at an inclination of 2H:1V or flatter.
- To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment, the full length of the embankment should be provided with an embankment-width keyway. The keyway should have a minimum embedment depth of 3 feet into firm, competent, undisturbed soil. The actual depth of the keyway should be evaluated by a Geocon representative during construction. Keyway backslopes should be no flatter than 1:1.

- For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, then we recommend that a keyway be cut into the quarry pit bottom at the toe of the reclamation fill slope. In general, the keyway should be at least 20 feet wide and extend at least 3 feet into competent, undisturbed soil. The reclamation fill should be benched into the adjacent native materials as the fill is placed. Benches should roughly parallel the slope contours and extend at least 3 feet into competent, undisturbed material. Although not anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered in the field.
- To reduce potential for seepage along pipe penetrations (if present), we recommend providing concrete cut-off collars at pipe penetrations through the embankment. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized such that they are 12 to 18 inches larger than the nominal outside diameter of the pipe. Thickness should be at least 6 inches. Water-tight filler should be used between collars and pipes.
- Due to the fine-grained composition of the onsite soil to be used in embankment and reclamation slope construction, surficial erosion, rutting, and localized sloughing should be expected. These occurrences should be considered on-going maintenance issues and should be diligently addressed. Erosion control measures should be evaluated and determined by the project civil engineer.

FURTHER GEOTECHNICAL SERVICES

Plan Review

We should review the reclamation plans prior to final submittal to confirm that our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

Testing and Observation Services

The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for other's interpretation of our recommendations or the future performance of the projects.

LIST OF REFERENCES

1. Alyamani, M.S. and Z. Sen, 1993, *Determination of Hydraulic Conductivity from Complete Grain-Size Distribution Curves*, Groundwater, Vol. 31, No. 4, July-Aug., pp. 551-555.

2. Blake, T.F., 2000, EQFAULT, *A Computer Program for the Deterministic Prediction of Peak Horizontal Acceleration from Digitized California Faults*, Version 2.20.

3. California Geological Survey, 2008, *Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A*, revised and re-adopted September 11, 2008.

4. CGS, 2011, *Preliminary Geologic Map of the Sacramento 30' x 60' Quadrangle, California*, Gutierrez, C.I. (compiler), scale 1:100,000.

5. Cunningham Engineering, Topographic Base Map (provided electronically), undated.

6. Geocon Consultants, Inc., *Geotechnical Investigation for Slope Evaluation, Aspen VIII and IX Mining Projects, Elder Creek Road, Sacramento County, California*, Project No. S9304-06-01, December 7, 2007.

7. Geocon Consultants, Inc., *Geotechnical Investigation for Slope Evaluation, Morrison Creek Realignment Project, Sacramento County, California,* Project No. S9324-06-01, February 6, 2008.

8. Jennings, C.W. and W.A. Bryant, 2010, *Fault Activity Map of California*, California Geological Survey, Geologic Data Map No. 6.

9. Sacramento County, 2009, *Sacramento County, Groundwater Elevations, Spring 2007*, prepared by County Department of Water Resources, dated March 2009.

10. United States Geological Survey, *2008 Interactive Deaggregations*, http://geohazards.usgs.gov/deaggint/2008/.

11. Unpublished reports, aerial photographs, and maps on file with Geocon.

LIMITATIONS

The recommendations of this report pertain only to the site investigated, are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation, and assume that the post-mining use of the site will be for agriculture and/or residential development. If any variations or undesirable conditions are encountered during construction, or if the proposed construction or post-reclamation end-use will differ from that anticipated herein, we should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the projects and incorporated into the plans and specifications and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The recommendations contained in this report are preliminary until verified during construction by representatives of our firm. Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

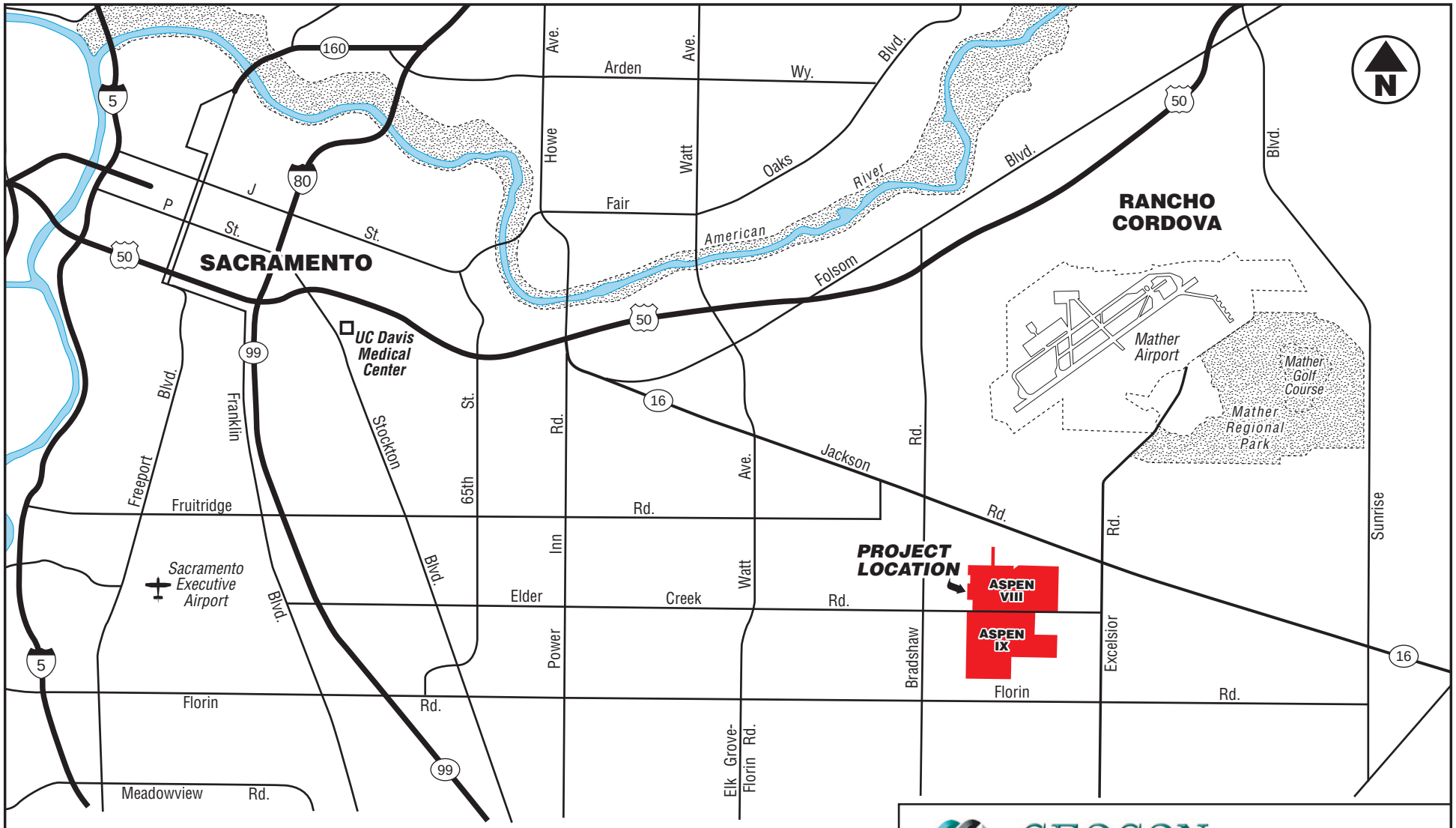
PROFESSIONAL GEOLOGIST
JOHN C. PFEIFFER
No. 2372
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

John C. Pfeiffer, PG, CEG
Senior Geologist

Jeremy J. Zorne, PE, GE
Senior Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
Jeremy Jacob Zorne
No. C60936
CIVIL
STATE OF CALIFORNIA

Attachments: Figure 1, Vicinity Map
Figure 2, Site Plan
Figure 3, Typical Cross-Section
Figure 4, Seepage at Low Flow
Figure 5, Seepage at 200-Year Flood
Figure 6, Static Slope Stability at Low-Flow
Figure 7, Seismic Slope Stability at Low-Flow
Figure 8, Static Slope Stability at 200-Year Flood
Figure 9, Seismic Slope Stability at 200-Year Flood



0 1 2
Scale in Miles

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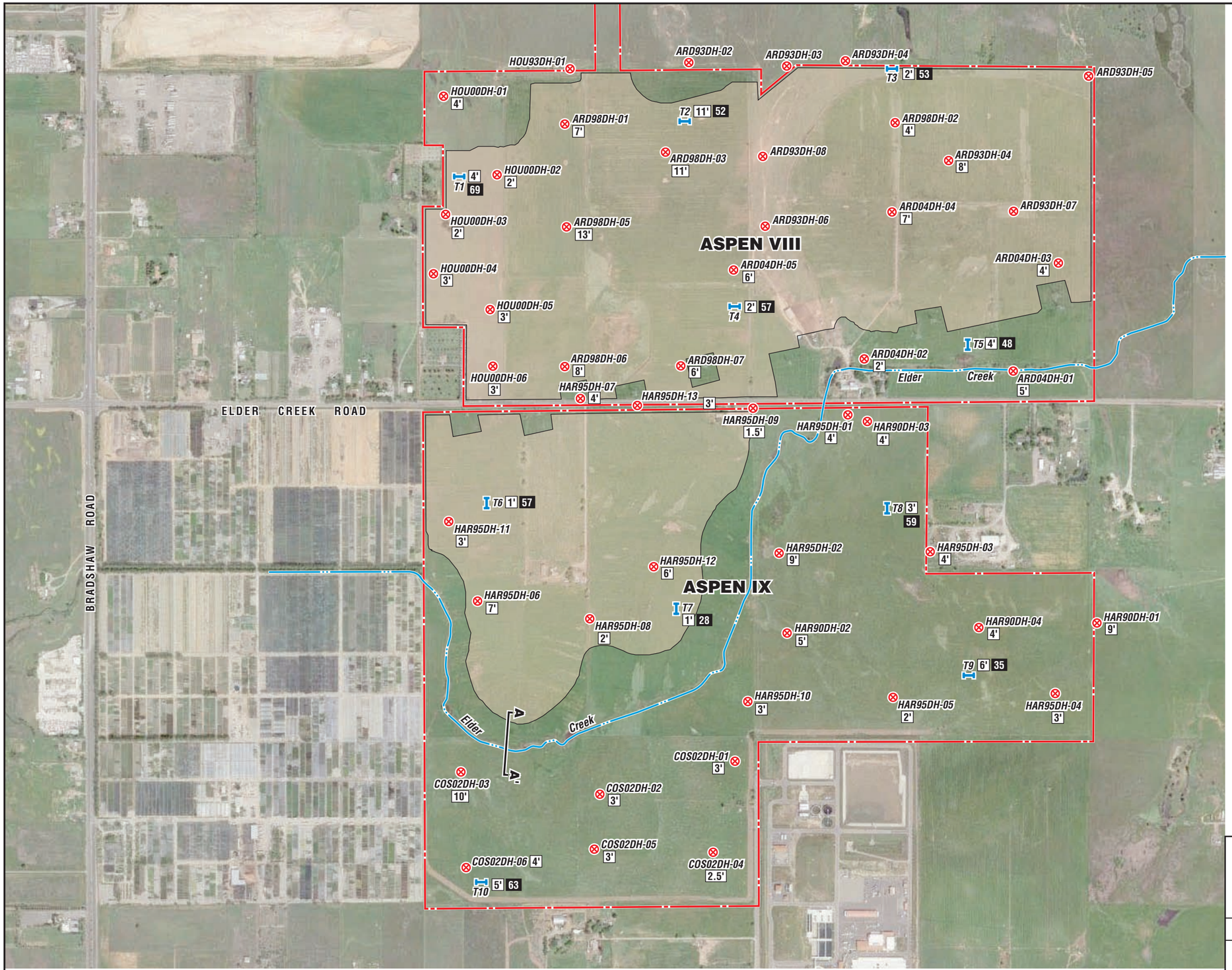
Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

VICINITY MAP

S9304-05-02	December 2014	Figure 1



Aerial Photo: Google Earth, 2014

LEGEND:

- Approximate Project Boundary
- Proposed Mining Area
- T1 — Approximate Exploratory Trench Location (Geocon, 2007)
- HAR95-DH-03 — Approximate Exploratory Boring Location (Others)
- 5' — Overburden Thickness
- 63 — % Fines (Silt & Clay) in Overburden
- A — A' — Approximate Cross-Section Location (See Figure 3)

0 800
Scale in Feet

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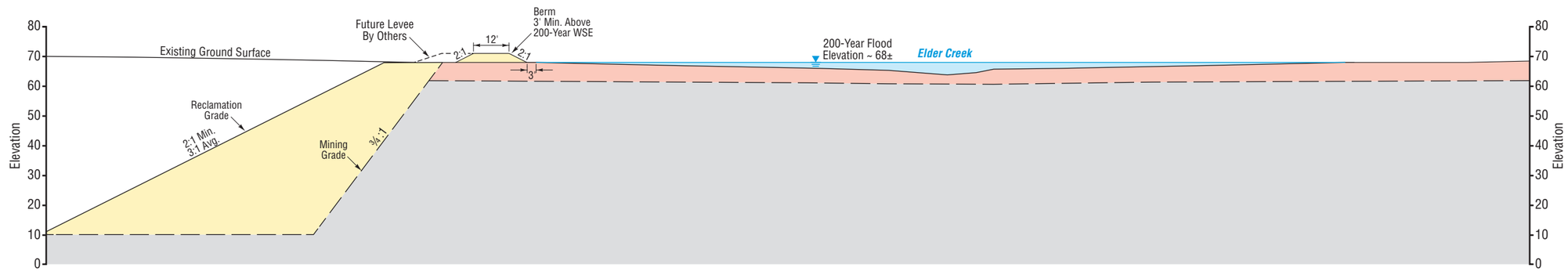
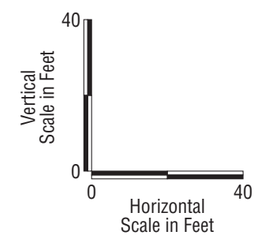
SITE PLAN

S9304-05-02	December 2014	Figure 2



LEGEND:

- EMBANKMENT/RECLAMATION FILL (Reclaimed Overburden)
- LAGUNA FORMATION: OVERBURDEN – Interbedded Sandy SILT, lean CLAY, Silty/Clayey SAND
- LAGUNA FORMATION: GRAVEL DEPOSITS – Clayey GRAVEL, Silty GRAVEL
- WSE Water Surface Elevation



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

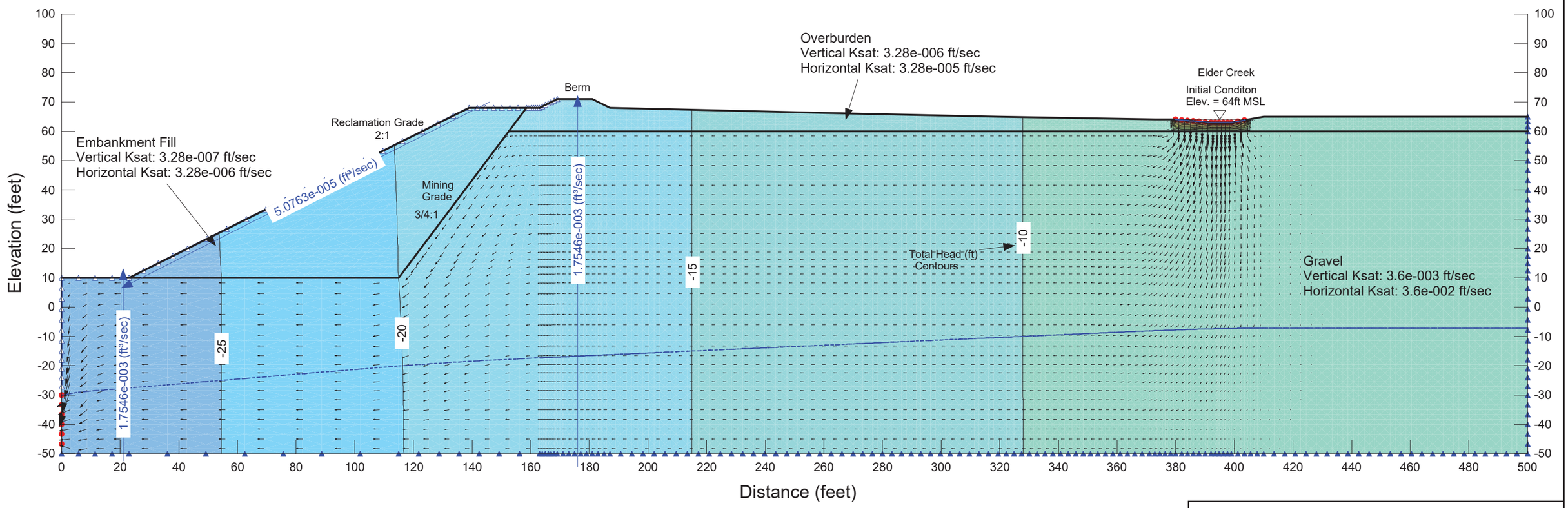
TYPICAL CROSS-SECTION

S9304-05-02	December 2014	Figure 3

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:53:36 AM

Analysis: Low-Flow Channel
Method: Transient
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

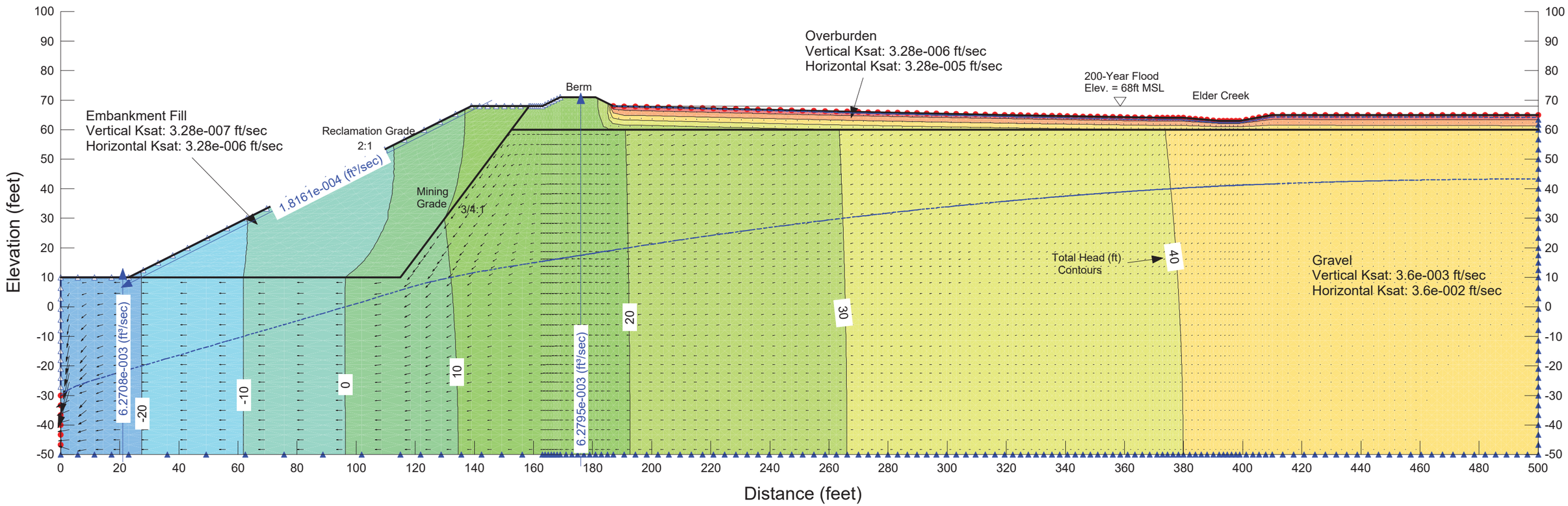
Seepage at Low Flow

S9304-05-02	December 2014	Figure 4

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:56:10 AM

Analysis: 200-Year Flood
Method: Transient
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Hyd K Fn: 1 Vol WC Fn: 1 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Embankment Fill: Hyd K Fn: 2 Vol WC Fn: 2 Ky/Kx Ratio: 0.1 Direction of Kx: 90
Description: Gravels: Hyd K Fn: 3 Vol WC Fn: 3 Ky/Kx Ratio: 0.1 Direction of Kx: 90



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

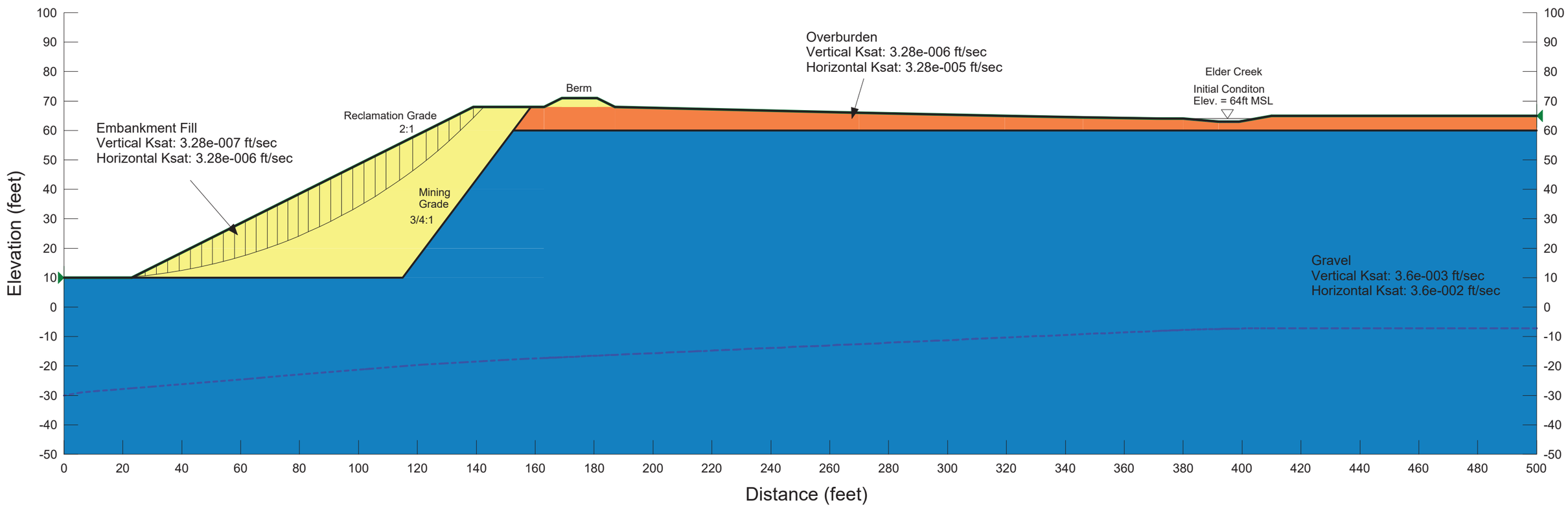
Seepage at 200-Year Flood

S9304-05-02	December 2014	Figure 5

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:20:32 AM

Analysis: Low-Flow Channel
Method: Spencer
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

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Static Slope Stability at Low-Flow

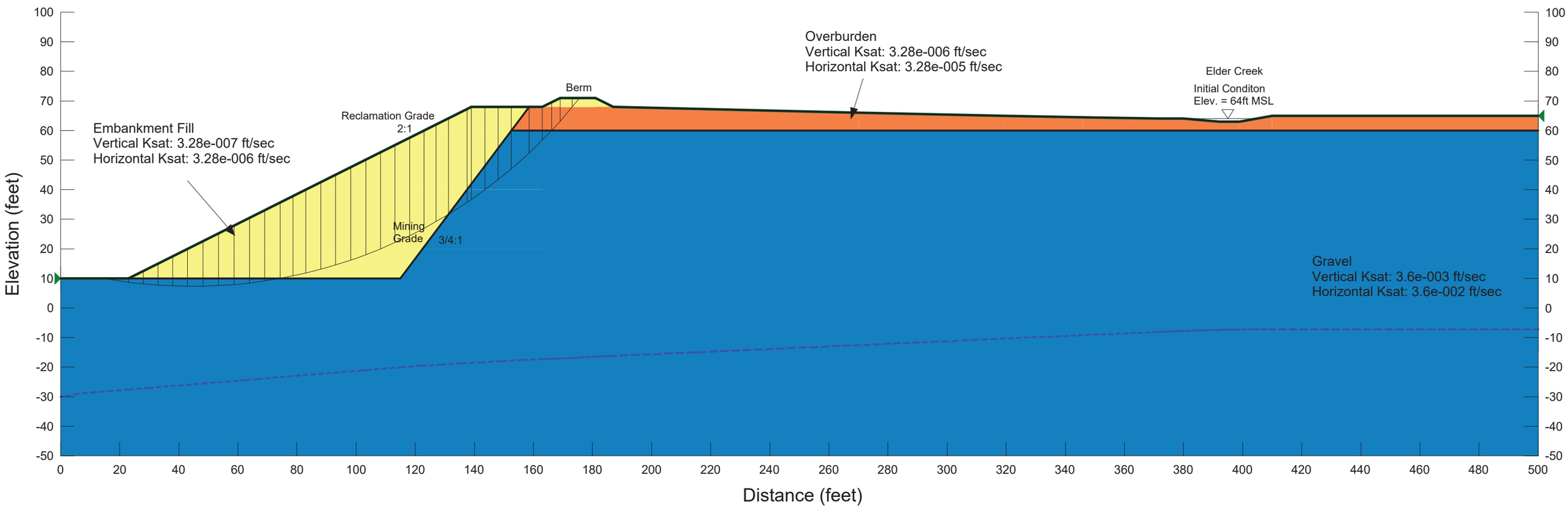
S9304-05-02	December 2014	Figure 6

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:30:35 AM

1.50

Analysis: Low-Flow Channel
Method: Spencer
Elapsed Time: 100 Years
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 200 Phi: 28
Description: Embankment Fill: Wt: 120 Cohesion: 800 Phi: 20
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 32



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Aspen VIII & IX

Elder Creek Road,
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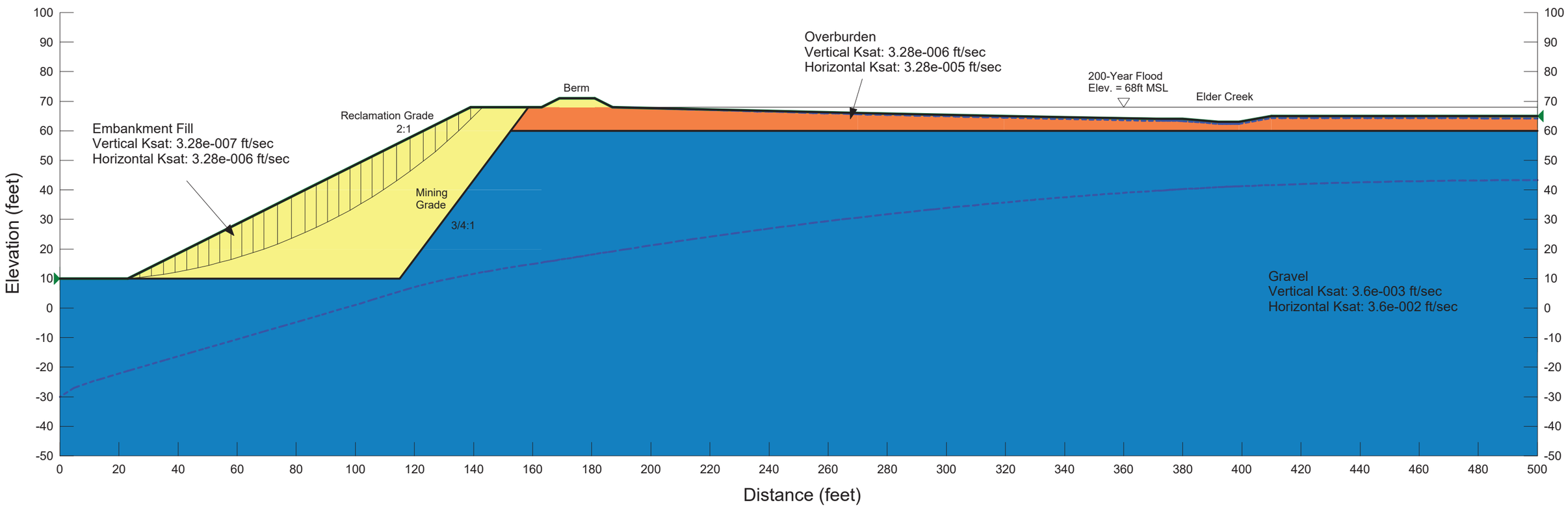
Seismic Slope Stability at Low-Flow

S9304-05-02	December 2014	Figure 7

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:33:27 AM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

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Static Slope Stability at 200-Year Flood

S9304-05-02	December 2014	Figure 8

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 12/11/2014
Time: 10:49:20 AM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
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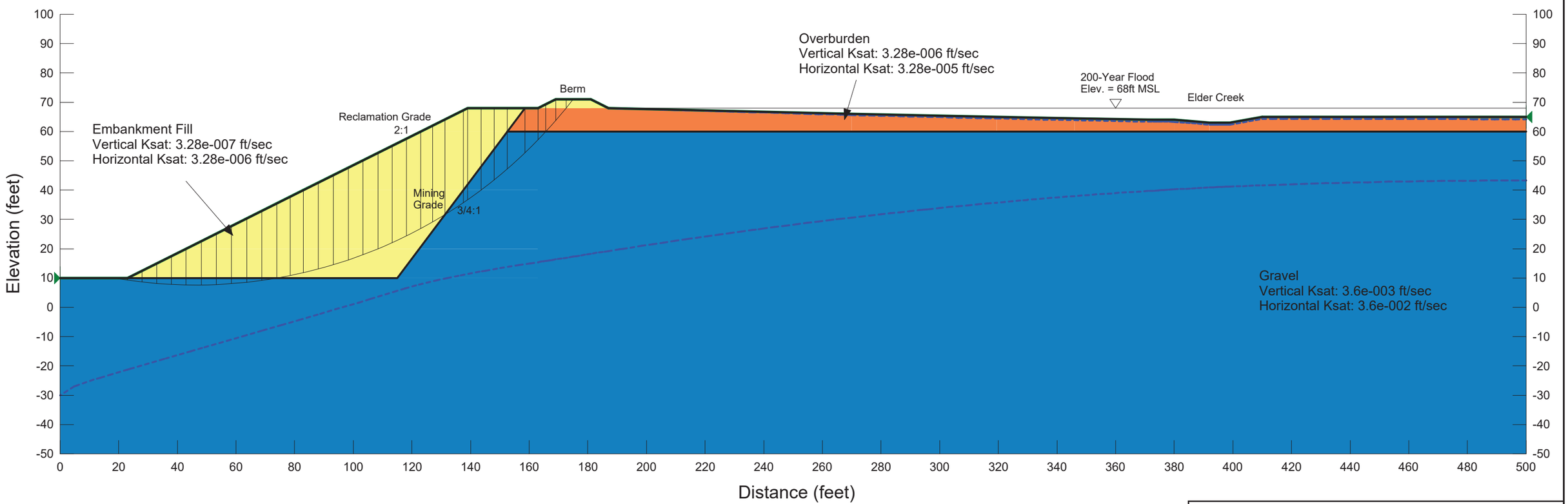
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 32



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

Seismic Slope Stability at 200-Year Flood

S9304-05-02	December 2014	Figure 9

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GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
July 7, 2016

VIA U.S. AND ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

Reference: 1. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), December 11, 2014.

Dear Mr. Lane:

In accordance with your request, we have prepared this correspondence summarizing the results of additional seepage and slope stability analyses for future aggregate mining and reclamation at the Teichert Aspen VIII and IX sites located on Elder Creek Road between Bradshaw and Excelsior Roads in Sacramento County, California.

In our previous study (referenced above), we analyzed seepage and slope stability for Elder Creek berm where the mining slope extends from the outside toe of the future berm, such that the new berm is founded on a full-width keyway underlain by undisturbed, native materials (Figure A, below). We understand that, in some locations, the limits of mining may be such that the mining slope is located below the approximate mid-point of the future berm such that the berm is underlain partially by reclamation fill and partially by undisturbed native materials (Figure B, below) or underlain fully by reclamation fill (Figure C, below).

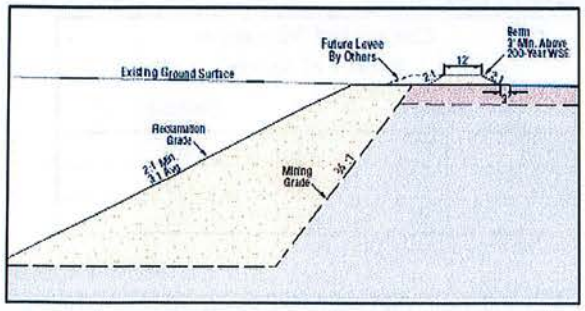


Figure A – Previously Analyzed Condition

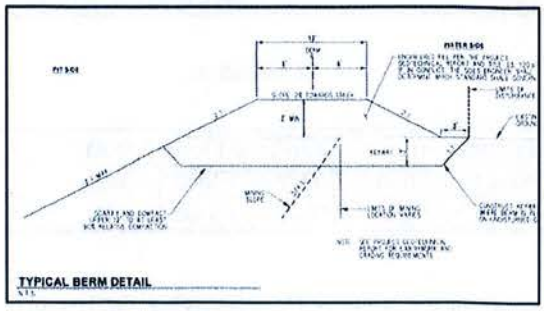


Figure B – New Condition 1

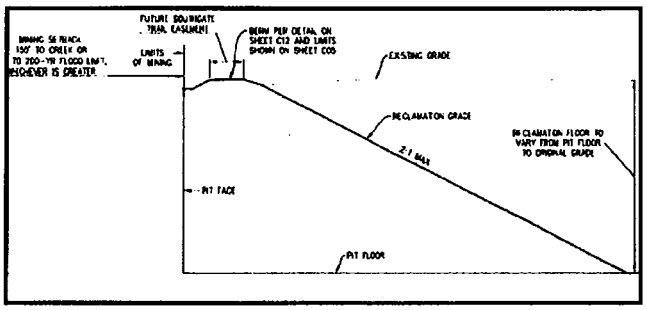


Figure C – New Condition 2

As requested, we have analyzed the new conditions to evaluate whether there is an appreciable reduction/decrease in slope stability resistance and/or adverse seepage.

Seepage Analysis and Results

To model seepage conditions, we used the computer program *SEEP/W, Version 7* (Geo-Slope International). In our analyses, we modeled the "worst case" transient 200-year flood event in the creek and floodplain channel using a high-flow duration of 30 days. The results of our analyses indicate that the seepage front does not intercept the proposed mining or reclamation slopes for both new conditions under low-flow or 200-year flood conditions. This result is consistent with our previous analysis. Our seepage analysis results are presented graphically on Figures 1 through 4.

Slope Stability Analysis and Results

We analyzed stability of the proposed final reclamation slopes using the computer program *SLOPE/W, Version 7.22* (Geo-Slope International) for static and seismic conditions for the "worst case" 200-year flood conditions. Similar to our previous analysis, Spencer's Method with a circular failure mechanism was used.

The results of our previous and new slope stability analyses are summarized in Table 2. Graphical representations of the potential critical failure surfaces and parameters used for each stability analysis are presented on Figures 1 and 2.

TABLE 2
SLOPE STABILITY ANALYSIS RESULTS

Condition	Calculated Minimum Factor of Safety	
	Static	Seismic
Previous Analysis (200-Year Flood Event)	1.7	1.5
New Condition 1 (200-Year Flood Event)	1.7	1.5
New Condition 2 (200-Year Flood Event)	1.7	1.5

Based on the results of our analyses, from a geotechnical viewpoint, the new conditions yield nearly identical seepage and slope stability results. In our opinion, similar to the previously analyzed condition, the new conditions are not expected to result in adverse seepage and/or slope stability conditions.

LIMITATIONS

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Jeremy J. Zorne, PE, GE
Senior Engineer

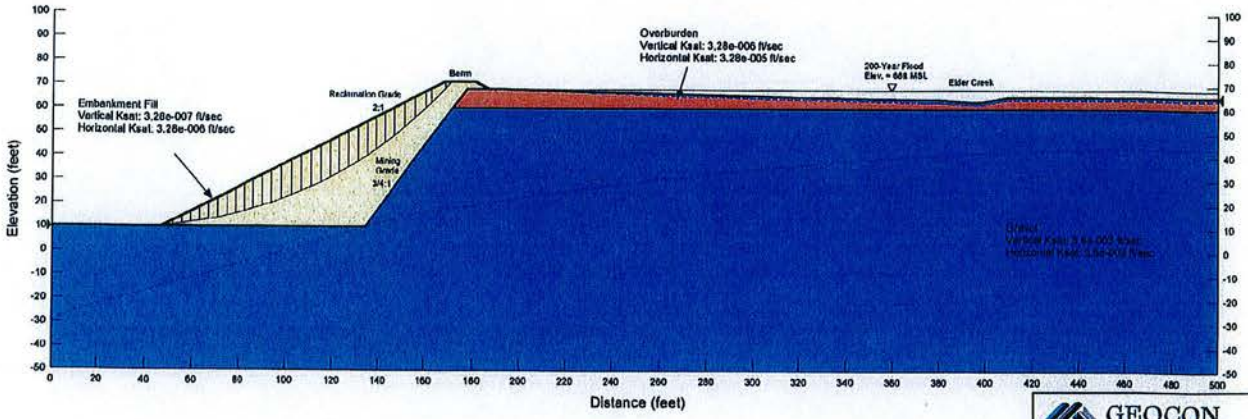
William Sanders, EIT
Senior Staff Engineer

Attachments: Figure 1, New Condition 1 – Seepage and Static Slope Stability
Figure 2, New Condition 1 – Seepage and Seismic Slope Stability
Figure 3, New Condition 2 – Seepage and Static Slope Stability
Figure 4, New Condition 2 – Seepage and Seismic Slope Stability

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 6/24/2016
Time: 2:44:37 PM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

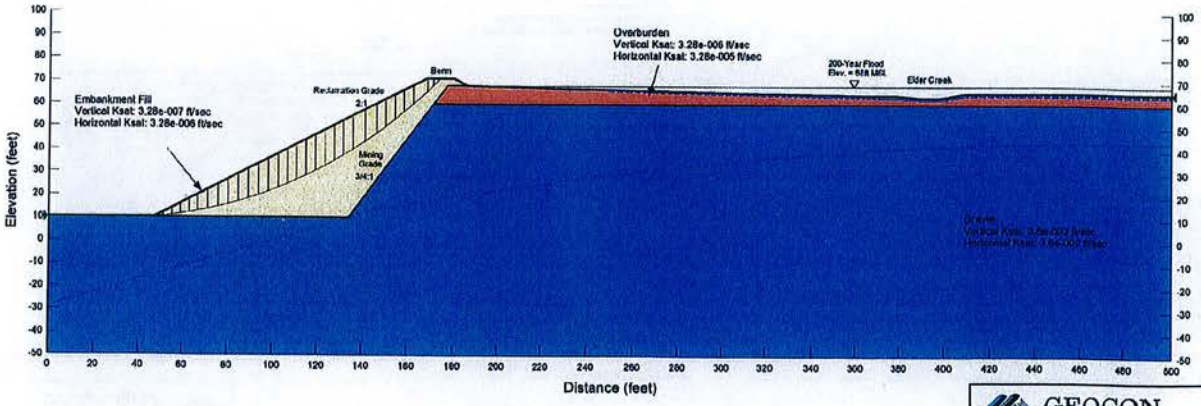
Elder Creek Road,
Sacramento County, California

New Condition 1
Seepage and Static Slope Stability

S9304-05-02	July 2016	Figure 1

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 6/24/2016
Time: 2:41:16 PM
1.45
Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

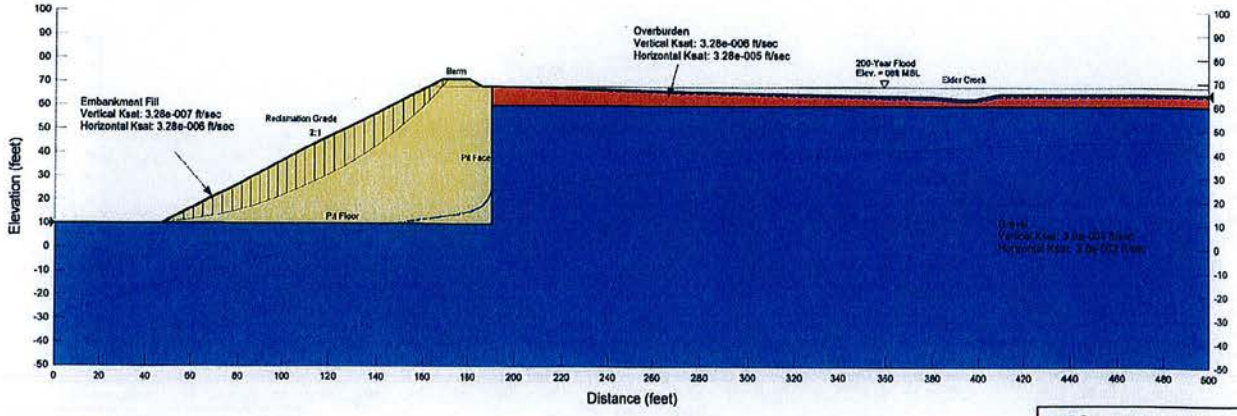
Elder Creek Road,
Sacramento County, California

New Condition 1
Seepage and Seismic Slope Stability

S9304-05-02	July 2016	Figure 2

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 7/8/2016
Time: 3:24:15 PM
1.67
Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 0

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

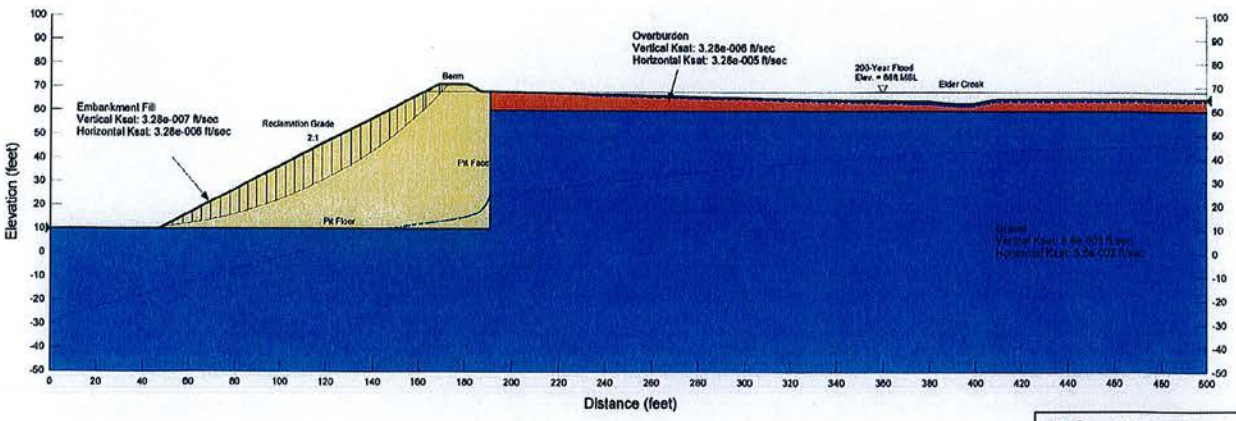
New Condition 2
Seepage and Static Slope Stability

S9304-05-02	July 2016	Figure 3

Project Name: Aspen 8 & 9
Project No.: S9304-05-02
Date: 7/6/2016
Time: 3:34:18 PM

Analysis: 200-Year Flood
Method: Spencer
Elapsed Time: 30 Days
Slip Surface Option: GridAndRadius
Horz Seismic Load: 6.e-002

Material Description & Parameters:
Description: Overburden: Wt: 120 Cohesion: 150 Phi: 30
Description: Embankment Fill: Wt: 120 Cohesion: 100 Phi: 34
Description: Gravels: Wt: 135 Cohesion: 50 Phi: 40



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Aspen VIII & IX

Elder Creek Road,
Sacramento County, California

New Condition 2
Seepage and Seismic Slope Stability

S9304-05-02	July 2016	Figure 4

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9304-05-02
July 25, 2016

VIA ELECTRONIC MAIL

Mr. John Lane
Teichert Aggregates
3500 American River Drive
Sacramento, California 95864-5808

Subject: GEOTECHNICAL MEMORANDUM
TEICHERT ASPEN VIII AND IX
ADDITIONAL SEEPAGE AND SLOPE STABILITY EVALUATION
SACRAMENTO COUNTY, CALIFORNIA

References:

1. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), December 11, 2014.
2. *Geotechnical Memorandum – Teichert Aspen VIII and IX – Additional Seepage and Slope Stability Evaluation, Sacramento County, California*, Geocon Consultants, Inc., (S9304-05-02), July 7, 2016.

Dear Mr. Lane:

Geocon previously prepared the referenced technical memoranda (Refs. 1 and 2) related to the geotechnical aspects of the planned mining and reclamation slopes for the future Teichert Aspen VIII and IX mining site adjacent to Elder creek in Sacramento County, California.

Our previous analyses and recommendations were associated solely with the slopes related to proposed mining and reclamation adjacent to Elder Creek. We understand that the remainder of the planned reclamation perimeter slopes away from the creek will be constructed using compacted overburden soil from the project at an inclination of 2H:1V (horizontal to vertical) or flatter, which is typical of nearly all of the reclamation slopes for the aggregate mining quarries in the area. Based on the past performance of these slopes, and our experience analyzing stability of similar slopes, these slopes should perform satisfactorily from a global stability perspective without special measures beyond typical periodic maintenance.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

REGISTERED PROFESSIONAL ENGINEER
JEREMY J. ZORNE
No. 2698
GEOTECHNICAL
STATE OF CALIFORNIA

Jeremy J. Zorne, PE, GE
Senior Engineer

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Biological Resources Assessment

Aspen VIII & IX Project
Sacramento County, California

Prepared for:

County of Sacramento
Planning and Environmental Review
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By:

Teichert Materials
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Sacramento, CA 95864
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~~December 2014~~
Revised: June 2015

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Attachment A Special-Status Species Known or Potentially Known to Occur in the Project Vicinity
Attachment B Aspen VIII & IX Rare Plant Survey Report
Attachment C Aspen VIII & IX Arborist Report

1.0 INTRODUCTION

Teichert Materials (Teichert) conducted a biological resources assessment on approximately 682 acres of its Aspen VIII and IX Property (Property). Teichert proposes to mine approximately 357acres of the Property for aggregate (sand and gravel) resources (Project). Upon the completion of mining operations, the site will be reclaimed to open space annual grassland and/or irrigated pasture suitable for grazing. This report discusses the biological resources present on and potentially affected by the proposed Project. In addition, this report includes a summary of the applicable laws and regulations related to biological resources and the resource agencies responsible for their implementation.

Field surveys were conducted to identify existing biological resources present on the site and to determine if habitats present could support any special-status species. In addition, sensitive habitat areas (i.e., wetlands, riparian vegetation, trees, etc.) have been mapped and quantified using global positioning system (GPS) technology and aerial interpretation. Potential significant impacts that may occur to these resources as a result of the proposed Project are identified and mitigation measures are suggested to reduce impacts to less than significant.

1.1 PROJECT SITE LOCATION AND SETTING

The Property is located approximately 2 miles south of Mather Field and one-half mile east of Bradshaw Road in unincorporated Sacramento County (Figure 1). The site is located within a portion of the *Rio de Los Americanos Land Grant*, in Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series *Carmichael, California* quadrangle. Aspen VIII (Sacramento Co. Assessor's Parcel Numbers [APNs] 063-0180-005,-006 and 063-0160-001) consist of approximately 319 acres and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) includes approximately 363 acres (Figure 2). The approximate center of the study area is located near Elder Creek Road at 38° 30' 39" North and 121° 19' 03" West within the Elder Creek Watershed. Elder Creek Road bisects the Property, with Aspen VIII to the north and Aspen IX to the south (Figures 2 and 3).

Existing habitat includes annual grasslands and irrigated pastures scattered with wetlands and other waters, including Elder Creek (Figure 3). The majority of the site is used as rangeland for livestock and irrigated pasture for forage production, interspersed with three separate rural residential homes. Current surrounding land uses include annual grasslands and grazing, rural residential homes, Bellevue and Arlington Cemeteries (a.k.a. Quiet Haven Memorial Park), a nursery facility (Village Nurseries), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

1.2 PROJECT DESCRIPTION

Teichert is proposing to mine existing aggregate material (sand and gravel) on approximately 357 acres of the Property (Figure 4). The proposed Project will consist of aggregate removal and conveyance, as well as reclamation for agricultural (i.e., grazing and forage production) purposes (Teichert 2015a). The

Project is an extension of mining on Teichert's 'Aspen' properties, which have continuously supplied aggregate resources to Teichert's materials processing operations since the 1950s.

A timetable of 10 to 25 years is proposed to complete the Project, including all reclamation requirements. In general, mining will begin at the northern border of Aspen VIII and progress in a southerly direction toward Aspen IX. Two separate mine pits are proposed as part of the Project (Areas A and B) (Figure 4). The two areas are separated from Aspen IX by Elder Creek Road. Sequential activities in each area of operations include: removal of topsoil; removal of overburden; removal of aggregate material by scrapers, loaders, dozers and excavators; transport of material to Teichert's processing plant using an electrical conveyor system; and reclamation concurrent with mining.

Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will extend into the neighboring Aspen V-South Property to the north, before eventually tying into an existing conveyor system on a permitted mining area on Aspen V-South. As mining progresses southward, a conveyor tunnel will be constructed underneath Elder Creek Road to transport aggregate material mined from Area B (Aspen IX) (Figure 4). Once mining operations are completed, the conveyor line will be removed and its footprint reclaimed in accordance with the proposed reclamation plan for the Project. In addition to mining activities, Teichert proposes to improve an existing culvert that connects Elder Creek between the Aspen VIII and IX Properties from underneath Elder Creek Road (Figure 4). All ancillary elements and construction activities, including conveyor between Aspen VIII and Aspen V-South, tunnel under Elder Creek Road, and culvert replacement in Elder Creek, have been included as part of the Project (Figure 4).

1.3 PRESERVATION

The proposed Project would preserve approximately 90.63 acres, including 5.313 acres (or 8,368 linear feet) of Elder Creek (Figure 4). This preserve is intended to protect the entire stretch of Elder Creek on the Project Site. Much of Elder Creek is presently lacking riparian vegetation due to historic grazing pressures. Native trees have been proposed to be planted along a portion of the Preserve to mitigate for impacts to oaks and other trees as part of the Project (Teichert 2015c). Fencing of the preserve to restrict grazing, combined with additional planting of riparian vegetation, is intended to further protect and enhance existing conditions along Elder Creek.

1.4 RECLAMATION

The proposed end use for the Project Site after reclamation is open space annual grassland and/or irrigated pasture suitable for grazing (2015a). To achieve this end, overburden and topsoil will be placed and graded to provide an appropriate growing medium for the establishment of a protective vegetative cover and future forage use. Slopes will be reclaimed to no steeper than two feet horizontal to one foot vertical (2:1), with rounded edges in order to mimic surrounding landforms, and then seeded to prevent erosion. After reclamation slopes have been constructed, the pit floor will be completed and seeded

with an appropriate grassland or pasture seed mix selected for forage value. Reclamation of all mined areas will feature a total of approximately 66.3 acres of grassland slopes surrounding approximately 260.8 acres of annual grassland and/or irrigated pasture habitat within the reclaimed floor (Figure 5). Other areas, totaling approximately 32.7 acres, will also be restored back to grasslands (i.e., former stockpile areas, berms, future pads for road right-of-ways, etc.). In addition, approximately 14.2 acres of stormwater retention pond areas will be created on the pit floor to collect surface runoff, provide supplementary water sources for cattle, and protect surrounding land.

A Reclamation Plan (Plan) has been prepared for the Project pursuant to the California State Surface Mining and Reclamation Act (SMARA) of 1975 and associated regulations (updated January 2012) and the Sacramento County Code (Teichert 2015a). Included in the Plan are detailed descriptions of existing site conditions (including soils and hydrology), site-specific plans for soils removal/handling and erosion-control, protocols for vegetation establishment and protection (including noxious/invasive weed management), and specific monitoring and performance standards for revegetation success. The revegetation methods outlined in the Plan are intended to optimize the grazing quality of the Project Site and the aesthetic value of the area, while also providing foraging habitat for raptors and other species. In order to ensure long-term beneficial use of the site as proposed, a grazing management plan is also included in the Plan.

2.0 REGULATORY OVERVIEW

This section provides a brief summary of the federal, state, and local policies and regulations that are relevant to addressing the biological resources identified at the Project Site. Regulated or sensitive resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, and locally protected resources, such as native oak trees.

2.1 FEDERAL REGULATIONS

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS). In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction. Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.2 Federal Clean Water Act, Section 404

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into Waters of the United States (Waters of the U.S.) under Section 404 of the CWA. The definition of "Waters of the U.S." includes all navigable waters; interstate waters and wetlands; all intrastate waters and wetlands that could affect interstate or foreign commerce; impoundments of the above-listed waters; tributaries of the above-listed waters; territorial seas; and wetlands adjacent to the above-listed waters. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.37b).

As part of the wetland delineation and verification process, the USACE will determine whether wetlands and other features in a Project Site are considered Waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters, the proponent must seek a permit from the USACE. The USACE can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). The EPA also has authority over wetlands and may override a USACE permit.

2.1.2.1 Federal Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any person applying for a Section 404 permit for activities resulting in a discharge into Waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board (RWQCB). The goal of this program is to protect Waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the Clean Water Act, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by the Corps under Section 404 (above).

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds. The MBTA makes it unlawful to take any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit (i.e., rehabilitation, scientific collecting, etc.).

The list of migratory birds (50 CFR 10.13) includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species.

2.2 STATE REGULATIONS

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA pertains to state-listed endangered and threatened species. Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in

Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

CESA requires state agencies to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. CESA allows CDFW to authorize exceptions to the state's prohibition against “take” of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish and Game Code Section 2081).

2.2.1.2 Fully Protected Species

California Fish and Game Code Sections 4700 (mammals), Section 3511 (birds), Section 5050 (reptiles and amphibians), and Section 5515 (fish) designate certain species as “fully protected.” The State of California first began to designate species as “fully protected” prior to the creation of the CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Fully protected species, or parts thereof (e.g., feathers, wings, talons), may not be taken or possessed by any individual at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW may issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.1.3 Migratory Bird Species and Birds of Prey (Raptors)

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. These stipulations are similar to the federal MBTA and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.1.4 Native Plant Protection Act

The Native Plant Protection Act (NPPA) prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the CDFW. The NPPA is administered by the CDFW and set forth in California Fish and Game Code Sections 1900-1913. The CESA (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

2.2.1.5 California Streambed Alteration Notification/Agreement

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement (SAA) be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or

substantially change the bed, channel, or bank of any river, stream, or lake." CDFW must be notified prior to any such activities and will review the proposed action(s). If necessary, the CDFW will propose measures to protect affected fish and wildlife resources. The SAA is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the CDFW and the Applicant. Often, projects that require a SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

2.2.2 Porter-Cologne Water Quality Act

The State Water Resources Control Board (SWRCB) and the local RWQCB have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)).

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the RWQCB. (Water Code 13260(a)). The RWQCB will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the WDR program, the RWQCB also regulates discharges to "isolated" water features which are not considered Waters of the U.S. under the Federal CWA. Porter-Cologne also requires compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

2.2.3 Species of Special Concern

Species of Special Concern (SSC) is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. SSC are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under FESA, CESA, or the Fish and Game Code, but may be considered under CEQA Guidelines Section 15380.

2.2.4 California Rare Plant Ranks

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2014), which provides a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks (CRPRs). The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The California Rare Plant

Ranks are currently recognized in the California Natural Diversity Database (CNDDB). The following definitions of the CNPS California Rare Plant Ranks include:

- CRPR 1A – presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B – rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – presumed extirpated in California, but more common elsewhere;
- CRPR 2B – rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 – a review list of plants about which more information is needed; and
- CRPR 4 – a watch list of plants of limited distribution.

CRPR List 1A and 2A are presumed extirpated in California. In general, CRPR List 3 and 4 plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA Section 15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.5 California Natural Diversity Data Base

The CDFW administers the California Natural Diversity Data Base (CNDDB), which maintains a list of special-interest plants, animals, and natural communities that occur within California. These particular species, natural communities, or habitat types are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat (e.g., development, off-road vehicles) to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these species or communities afforded by these CNDDB listings. However, these species or communities may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources, including species not protected on a federal or state list but may be considered rare or endangered if the species meets certain specified criteria (CEQA Guidelines Section 15380). These criteria follow the definitions in FESA, CESA, and Sections 1900-1913 of the Fish and Game Code, which deal with rare or endangered plants and animals. Section 15380 allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., SSC) would occur. The public agency that takes the lead on a project (having review and approval authority over the project) is known as the Lead Agency. Other agencies involved in subsequent approvals or responsible for implementing mitigation identified in the environmental documents are called Responsible Agencies.

2.2.6.1 CEQA Significance Criteria

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local content. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Other impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 LOCAL REGULATIONS

2.3.1 Sacramento County Tree Preservation and Protection Ordinance

Sacramento County outlines requirements for the protection of oak trees in County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any “tree,” as defined, within the urban area of the unincorporated area of Sacramento County, or any property,

public or private. The ordinance defines "trees" as follows:

> "Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground (dbh)."

2.3.2 Sacramento County General Plan

The County's Conservation Element of the General Plan contains goals and policies that provide direction regarding the conservation, maintenance, development, and utilization of natural resources. The Conservation Element addresses water resources, mineral resources, material recycling, soil resources, vegetation and wildlife, aquatic resources, terrestrial resources, and cultural resources. Most of these resources are protected and addressed in various federal, state, and local regulations and policies.

The General Plan does expand on the protection of other resources, including other native trees and riparian habitats. Specifically, Sacramento General Plan Policies CO-138 and CO-139 build on Sacramento County's Tree Preservation and Protection Ordinance by requiring that other native trees (e.g., California sycamore and California black walnut) also be protected or otherwise mitigated for in accordance with existing tree replacement policies and standards for native oaks. Sacramento General Plan Policy CO-140 further expands on tree protections by addressing tree canopy and other mitigation requirements for native oak woodlands, oak savannah and mixed riparian areas. Impacts to non-native tree canopy are addressed in the Urban Forest Management section of the General Plan under policies CO-145 and CO-146, which require mitigation for loss of non-native tree canopy as a result of development. Onsite mitigation for losses to tree canopy shall be carried out through the creation of mitigation areas equivalent to the acreage of canopy removed, with new tree canopy calculated using the 15-year shade values for tree species. If new tree canopy cannot be created onsite, a contribution may be made to the Greenprint fund in an amount proportional to the impacted tree canopy.

2.3.3 South Sacramento Habitat Conservation Plan

The South Sacramento Habitat Conservation Plan (SSHCP) is a regional approach to addressing development, habitat conservation, and agricultural lands within the south Sacramento County region, including the cities of Galt and Rancho Cordova. The specific geographic scope of the SSHCP includes U.S. Highway 50 to the north, Interstate-5 to the west, the Sacramento county line with El Dorado and Amador counties to the east, and San Joaquin County to the south. The SSHCP Study Area excludes the City of Sacramento, the City of Folsom and the Folsom Sphere of Influence, the City of Elk Grove, the Sacramento-San Joaquin Delta, and the Sacramento community of Rancho Murieta.

The SSHCP is currently in preparation and is undergoing environmental review (a working draft was released in 2010). The SSHCP will consolidate and enhance wetlands (primarily vernal pools) and upland habitats to provide ecologically viable conservation areas. It is also intended to minimize regulatory

hurdles and facilitate the permitting process for development projects. The SSHCP will cover 30 different species of plants and wildlife, including 10 that are state and/or federally-listed as threatened or endangered. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to adoption of the SSHCP. Sacramento County is partnering with the incorporated cities of Rancho Cordova, Galt, and Elk Grove, as well as the Sacramento Regional Sanitation District, Sacramento County Connector JPA (Joint Powers Authority), and Sacramento Water Agency to further advance the regional planning goals of the SSHCP.

2.3.4 Swainson's Hawk Mitigation Fee Program

During the environmental review process, the County Department of Planning and Environmental Review (PER) will determine whether a project impacts Swainson's hawk foraging habitat. If impact is determined, several options for mitigation will be suggested in the final environmental document. The Swainson's Hawk Mitigation program, administered by the Sacramento County Department of Planning and Community Development, is one of those options. The Ordinance (Chapter 16.130) was adopted by the Board of Supervisors in 1997. It allows projects which impact less than 40 acres of foraging habitat to pay a per-acre fee for those impacts. Projects impacting 40 acres or more of foraging habitat must provide land acceptable to the CDFW and the County. Land can be provided via fee title or conservation easement.

3.0 METHODS

The analysis presented in this document utilizes previously conducted wetland delineations, biological assessments, various published documents, personal communication with expert biologists, and recent on-site field surveys of the Project Site. The distribution of special-status species were primarily derived from the CNDDB records and various field survey efforts. The following provides a summary of existing documents related to the Project and describes the methodology for describing habitat communities and ascertaining likelihood of species occurrence.

3.1 WETLAND DELINEATION

A delineation of wetlands and other Waters on the Property was originally prepared by Foothill Associates in 2006. Following a site visit with the USACE in March 2009, ECORP Consulting, Inc. (ECORP) revised the delineation in November 2009 and March 2010. The USACE issued a preliminary jurisdictional determination (PJD) for the site on 28 June 2010. In April 2014, ECORP re-delineated portions of the site and submitted an updated delineation. Based on this recent delineation, the USACE issued a PJD on 03 June 2014. Areas outside the Property and within 250 feet were assessed by aerial determinations.

3.2 PRE-FIELD SURVEY INVESTIGATIONS AND LITERATURE REVIEW

A comprehensive literature review, based on the professional experience of contributing biologists within the region and elsewhere in California, has been conducted for the Project Site in order to develop the most accurate list of potentially-occurring special-status plant and animal species. In addition, using the Rarefind 5.0 (CDFW 2014) software program, a standard nine-quadrangle California Natural Diversity Data Base (CNDDB) report was generated for the study area (i.e., query of the U.S. Department of the Interior, Geological Survey 7.5-minute topographic quadrangle in which the study area is found as well as the immediate eight surrounding topographic quadrangles). The CNDDB contains extensive records for special-status species, as well as sensitive natural communities, which have been reported to the CDFW by a variety of sources, including researchers, landowners, field biologists and the public. Furthermore, because the CNDDB does not provide a comprehensive inventory of all sensitive species statewide, other sources of information on special-status species in California were also reviewed to determine if any special-status species not identified in the Rarefind 5.0 report have the potential to occur on the study area. These additional resources include:

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered species having the potential to occur in the study area; generated on 15 March 2013 (USFWS 2013) and 07 April 2014 (USFWS 2014);

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status species that may occur in the study area; generated on various dates between March 2013 (CNPS 2013) and August 2014 (CNPS 2014); and

eBird Data Base (http://ebird.org) (eBird 2014).

3.3 SPECIAL-STATUS SPECIES OCCURRENCE POTENTIAL

The potential for special-status plants and animals depends largely on the presence of specific habitat types on the Project Site. Habitat types identified in previous documents and recent field assessments were evaluated with known habitat requirements for each special-status species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- Known to Occur – Taxon was observed at the Project Site during recent surveys.
- Likely to Occur – Taxon previously reported within or immediately adjacent to the site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project Site.
- Could Occur – Suitable habitat is available at the site; however, there is little to no other indicators that the taxon might be present.
- Unlikely to Occur – Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the Project area.

A list of all special-status plant and animal species known or potentially known to occur within the Project vicinity is shown in Attachment A (Table A-1). For each species identified to have reasonable potential to occur (i.e., 'could occur') on the Project Site, additional biological data were provided to assist in field surveys and potential impact analyses. Information gathered included specific habitat requirements, known distribution, and regional occurrence(s).

3.4 FIELD SURVEY METHODS

Field surveys were conducted to document existing conditions of the site and assess the potential for habitats on-site to support special-status species (as listed in Table A-1). Surveys focused on rare plants (Teichert 2015b), but also included incidental observations of wildlife use and nesting species. Field surveys for special-status plants were conducted over a two-year period from March 2013 through August 2014 in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001), the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996), and the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009). The survey study area was also extended outside the Project Site boundary to ensure all areas within 250-feet of the proposed mining footprint (i.e., proposed limits of disturbance) were examined to address potential indirect impacts to biological resources.

Specific survey dates were 25 March, 22 April, 06 and 27 May, and 20 June of 2013; and 14 March, 14, 23 and 24 April, 01 and 23 May, 19 June, and 14 July of 2014. The survey dates were established to focus on the range of flowering and identification periods for rare plants. Over the course of the 2-year survey period, Teichert's biologist B. Baba walked meandering transects across the entire Project Site.

Teichert's biologist J. Greer also accompanied B. Baba on some of the 2014 surveys. Survey transects were spaced at 15- to 50-foot intervals, depending upon the existing terrain, habitat types, vegetation cover, and structural complexity. Special attention was given where the habitat type was determined to be suitable and most likely to support special-status species (e.g., wetlands). Many areas consisted of irrigated pastures dominated by various pasture species and thus provided limited or no suitable habitat for most special-status plants.

3.5 ACCOMPANYING DOCUMENTS

3.5.1 *Special-Status Plant Species Survey Report, Teichert – Aspen VIII & IX (2014)*

A rare plant survey report was prepared for the Project Site, including a 250-foot setback area, by Teichert's biologist B. Baba (Teichert 2015b). The survey consisted of identifying all habitat types and vegetation communities, conducting protocol-level rare plant surveys, and compiling and inventory of all plant species observed at the site. Rare plants identified at the site were mapped using a GPS unit with sub-meter accuracy. Details of the rare survey methodology and data can be found in Attachment B of this document.

3.5.2 *Arborist Report, Teichert – Aspen VIII & IX (2014)*

An arborist survey of the Project Site was conducted by Teichert's biologist B. Baba and J. Greer (ISA Cert. #WE-10104A) on 23 April, 01 May, and 07 October 2014 (Teichert 2015c). The tree survey consisted of identifying, measuring, and mapping all trees 4 inches dbh or larger within and adjacent to (i.e., 150 feet) of the Project Site boundaries. Each tree was then assigned a unique identification number and evaluated for potential impacts as a result of the proposed Project. Details of the tree survey methodology and data can be found in Attachment C of this document.

4.0 EXISTING CONDITIONS

The Project Site consists of approximately 683 acres of land, including the conveyor alignment proposed in Aspen V-South. The majority of the site is utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Three separate rural residential houses and associated farm buildings also occur on the Project Site. Surrounding land uses include additional rangeland and rural residential homes, agricultural cropland, a nursery facility (Village Nurseries), two cemeteries (Arlington Memorial Cemetery and Bellevue Cemetery), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

4.1 CLIMATE, TOPOGRAPHY, AND WATERSHED

Sacramento, as with the rest of California's Central Valley, is typical of a Mediterranean-type climate with hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 38°F in December to a high of 92°F in July (usclimatedata.com). Average annual precipitation is approximately 18.51 inches, with January usually the wettest month (usclimatedata.com).

The majority of the Project Site consists of historically leveled fields for both dryland grazing and irrigated pasture. Much of the remaining areas are characterized by relatively flat to rolling topography supporting comparatively undisturbed annual grasslands. The elevation of the site ranges from approximately 60 to 85 feet above mean sea level (MSL).

The Project Site is located within boundaries of the Morrison Creek and Elder Creek Watersheds (Figure 6). The Morrison Creek watershed encompasses approximately 200 acres in both Aspen VIII and IX, while the Elder Creek Watershed includes approximately 483 acres. Although Morrison Creek itself does not traverse the Project Site, its southern watershed boundary lies within the western portion of Aspen VIII and along the northwestern portion of Aspen IX before transitioning into the Elder Creek watershed to the south. Elder Creek occurs on both Aspen VIII and IX, whereby it enters Aspen VIII on the southeast and exits Aspen IX on the west (Figures 2 and 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized. Elder Creek originates near the intersection of Kiefer Boulevard and Eagles Nest Road and eventually discharges into Morrison Creek near Brookfield Drive in the City of Sacramento, approximately 8 miles west of the Project Site. Historically, Elder Creek was probably an ephemeral to intermittent watercourse, seasonally supported by winter precipitation and runoff from the surrounding uplands. Today, however, the majority of Elder Creek can be characterized as a semi-perennial creek fed primarily by runoff from ranches, residential areas, and irrigated pasture lands. Within the Project Site, Elder Creek is bordered by irrigated pastures, which are supported by a groundwater release and recycling system that provides year-round irrigation to fields. In this system, groundwater is first supplied to pastures during the early summer months and allowed to sheet across fields. This water eventually drains into a network of surrounding ditches and irrigation ponds for capture and reutilization, while excess irrigation runoff flows to Elder Creek.

4.2 SOILS

Natural Resources Conservation Service (NRCS) soil surveys for Sacramento County identifies six soil types within in the Project Site (NRCS 1993). The most predominant soil component is Red Bluff-Xerarents complex, 0 to 2 percent slopes, which is distributed throughout much the proposed mining area (Figure 7). Red Bluff loam, 0 to 2 percent slopes is the second-most predominant soil type on the Project Site (Figure 7). Other soil types include San Joaquin silt loam, 0 to 3 percent slopes; Kimball silt loam, 0 to 2 percent slopes; San Joaquin silt loam, leveled; and Hedge loam, 0 to 2 percent slopes (Figure 7). Detailed summaries of these soil types have been described in the original wetland delineation report prepared by Foothill Associates (2006).

4.3 HABITAT COMMUNITIES/VEGETATION

Presently, both annual grasslands and irrigated pastures dominate the landscape on the Project Site (Figure 3). Elder Creek appears on the USGS 7.5-minute series Carmichael and Elk Grove, California quadrangles as a solid blue line feature (perennial drainage) and traverses the Project area in a northeast to southwest direction (Figure 3). In addition, other wetland features are present at the site, including vernal pools, seasonal wetlands and swales, ephemeral drainages, freshwater marshes, ditches, and ponds (Figure 3). Scattered areas of riparian woodland habitat also exist along some of these wetlands (i.e., Elder Creek, ponds and ditches) (Figure 3). Other features on the Project Site include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the site.

4.3.1 Irrigated Pasture

Irrigated pastures, totaling 331 acres north of Elder Creek, are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures (further discussed in Section 4.3.3.5). Common plant species occurring in irrigated pastures include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

4.3.2 Annual Grassland

Annual grasslands on the Project Site are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and includes grazing by cattle (Figure 3). Annual grasslands that maintain a natural topography and have not been leveled are generally located south of Elder Creek, within the southern and eastern portions of Aspen IX. Similar landscapes are also present near the northwestern corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft-chess brome (*Bromus*

hordeaceus), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes (further discussed in Sections 4.3.3.2 and 4.3.3.3.

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist (i.e., roads, ditches, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulensis*) occurs within the western section of Aspen VIII near an existing cemetery.

4.3.3 Wetlands and Waters of the U.S.

A delineation of wetlands and other Waters of the U.S. for the Project Site was prepared by Foothill Associates in 2006. ECORP revised the delineation in November 2009 and March 2010 and again in March 2014 (ECORP 2009, ECORP 2010, ECORP 2014) as part of continued work on the Project (Figure 3). The USACE issued a preliminary jurisdictional determination (PJD) on 03 June 2014. Table 1 summarizes acreages of Waters by wetland type.

TABLE 1. WETLANDS AND WATERS OF THE U.S

Wetland Type	Aspen VIII (acres)	Aspen IX (acres)	Conveyor (acres)	Totals
Perennial Stream	2.351	3.064	----	5.415
Vernal Pool	0.988	6.243	0.029	7.260
Seasonal Wetland	2.195	3.486	0.060	5.741
Seasonal Swale	0.299	0.959	----	1.258
Freshwater Marsh	2.017	2.735	----	4.752
Ephemeral Stream	0.001	0.005	----	0.006
Pond	0.920	----	----	0.920
Ditch	1.756	0.688	----	2.444
Totals	**10.527**	**17.180**	**0.089**	**27.796**

The Project Site includes a total of 27.796 acres of wetlands, including a perennial stream, vernal pools, seasonal wetlands, seasonal swales, freshwater marshes, ephemeral streams, ponds, and ditches. Each

of the aquatic vegetation communities/Waters, including associated common plant species, are summarized below.

4.3.3.1 Perennial Stream (Elder Creek)

A total of 5.415 acres of perennial stream have been delineated on the Project Site (Figure 3). This includes approximately 8,470 lineal feet of Elder Creek. The creek is often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (*Paspalum distichum*), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is rather limited throughout much of the creek, probably due to present and past grazing pressures. Trees consisting of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*) are scattered along portions of Elder Creek, particularly within the Aspen VIII site. This area of the creek also supports dense stands of Himalayan blackberry (*Rubus armeniacus*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted that this creek is hydrologically sustained from late-spring through summer by groundwater pumping and irrigation runoff from adjacent pastures.

4.3.3.2 Vernal Pools

Vernal pools are characterized as shallow depressions underlain by an impermeable geomorphic layer that captures and stores seasonal rainfall in its basin, losing water primarily through evaporation rather than drainage. Numerous pools, totaling 7.260 acres, occur throughout the undisturbed grassland areas of the Project Site (Figure 3). These vernal pools vary in maximum water depth between a few inches to 20 inches deep, and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Vernal pool habitat supports breeding and foraging habitat for many aquatic invertebrates such as flatworms (Phylum Platyhelminthes), snails (*Helisoma* spp. and *Physa* spp.), dragonflies and damselflies (Order Odonata), predaceous diving beetles (Family Dytiscidae), aquatic beetles (Family Hydrophilidae), and various crustaceans (branchiopods, ostracods, copepods). These habitats also provide feeding areas and resting sites for migratory birds. The vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool

tadpole shrimp (*Lepidurus packardi*), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the Project Site and adjacent areas (C. Rogers, pers. observ.).

4.3.3.3 Seasonal Wetlands, Swales, and Ephemeral Drainage

The Project Site also supports numerous seasonal wetlands, swales, and ephemeral drainages, totaling 7.004 acres (Figure 3). Some of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other instances, seasonal wetlands and swales are associated within irrigated pastures and affected by summer irrigation, remaining saturated or inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatsedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean beardgrass, and waxy mannagrass.

4.3.3.4 Freshwater Marsh

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the Project Site (Figure 3). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

4.3.3.5 Ditches and Ponds

A network of ditches (2.444 acres) and ponds (0.920 acre) are scattered throughout irrigated pastures (Figure 3). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall

fescue, dallis grass, mannagrass, and annual beard grass. One ditch in Aspen VIII was dominated by Sanford's arrowhead (*Sagittaria sanfordii*) (Teichert 2015b).

Ponds on site are relatively deep, and thus tend to lack vegetation. Pond levels may also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

4.3.4 Riparian Woodland

Riparian woodland vegetation is limited to patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Figure 3). Most of these species consists of Fremont cottonwood, willows, Himalayan blackberry, and California wild rose. Most of Elder Creek lacks riparian woodland vegetation, probably due to past and present grazing pressures. Existing ditches also lack riparian woodland species due to routine maintenance activities.

4.3.5 Ruderal

Ruderal vegetation is frequently associated with various equipment storage areas and access roads. In addition, disposal areas along ditches from maintaining them are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), and soft-chess brome.

5.0 SPECIAL-STATUS SPECIES AND SPECIES ACCOUNTS

Federal and State endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the Project Site. In addition, State resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents (i.e., CRPR plants and SSC animals), have identified additional species as sensitive and occurring in the vicinity of the Project Site. Such species are referred to collectively as "special-status species." As provided in Attachment A (Table A-1), a list of special-status species known or potentially known to occur in the local region was compiled from records found in the literature review and database records in the CNDDB and CNPS Online Inventory. The table also contains specific information for each of the special-status species, including federal and State designations, biological and distribution information, survey (blooming or activity) period, and likelihood of occurrence on the Project Site. Figures 8 and 9 include the results of special-status species locations from the USGS 7.5-minute series *Carmichael, California* quadrangle and eight surrounding quadrangles. Sections 5.1 and 5.2 below further describe those species with potential to occur on the Project Site based on the presence of suitable habitat.

5.1 PLANTS

A number of special-status plants have been documented in the CNDDB to occur in the vicinity of the site, and habitat communities on-site represent potentially suitable habitat for a number of other regionally occurring special-status plants (Table A-1, Figure 8). Nine of those species were considered to have potential to occur on the Project Site. These include dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* subsp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*). One species was found during protocol-level plant surveys: Sanford's Arrowhead (Attachment A).

Dwarf Downingia (*Downingia pusilla*)

Dwarf downingia is not listed pursuant to either the federal or California Endangered Species Acts (ESAs); however, it is listed as a CRPR 2B species by the CNPS. Dwarf downingia is known from vernal pools and other seasonal wetlands. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively 'flashy' hydrology (CNDDB 2014). The species will also frequently occupy ephemeral drainages and swales and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes (Baba pers. obs.). Flowering typically occurs between March and May.

In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north, generally below 500 feet elevation. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern

Sacramento Valley. Dwarf downingia, like some other members of the annual vernal pool flora, is also known from disjunct localities in Chile. There is one known occurrence of dwarf downingia within 5 miles of the Project Site (CNDDB Occurrence No. 54), approximately 4.9 miles to the south of the Project Site (CNDDB 2014). This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is till presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014 (Teichert 2015b), dwarf downingia is not expected to occur at the Project Site at this time.

Boggs Lake Hedge-Hyssop (*Gratiola heterosepala*)

Boggs Lake hedge-hyssop is listed as threatened by the California ESA. The CNPS also includes Boggs Lake hedge-hyssop as a CRPR 1B plant. The species blooms between April and June. The species occurs over a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. Boggs Lake hedge-hyssop has been reported to grow in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau. There are six known occurrences of Boggs Lake hedge-hyssop within 5 miles of the Project Site (CNDDB 2014). The nearest known location is approximately 2.5 miles northwest of the site, at Mather Field (CNDDB Occurrence No. 84; CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014 (Teichert 2015b), Boggs Lake hedge-hyssop is not expected to occur at the Project Site at this time.

Hogwallow Starfish (*Hesperevax caulescens*)

Hogwallow starfish is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 4 species by the CNPS. Hogwallow starfish is typically associated with shallow vernal pools and seasonally saturated clay flats. The species has also been found from a fallow (formerly irrigated) pasture (LSA 2009).

Hogwallow starfish has a wide distribution throughout the Central valley and adjacent foothills from Tehama County south to Kern County. It has also been recorded in San Luis Obispo County. Flowering typically occurs between March and June. CRPR List 4 plants are not tracked by the CDFW, thus occurrence records for hogwallow starfish are not included in the CNDDB. A previous survey conducted by ECORP Consulting did identify a population of hogwallow starfish at the Piliken Ranch near Sloughhouse in eastern Sacramento County (ECORP 2007), approximately 10 miles southeast of the Project Site. This population was recorded growing in a rocky, sparsely vegetated upland area. B. Baba revisited this location in 2009 but only observed dwarf evax (*Hesperevax acaulis*). Some of the shallow vernal pools and seasonal wetlands at the Project Site are considered potential habitat for the species. Based on negative findings of protocol-level rare plant surveys conducted in March, April, May and June 2013 and 2014 (Teichert 2015b), hogwallow starfish is not expected to occur at the Project Site at this time.

Ahart's Dwarf Rush (*Juncus leiospermus* var. *ahartii*)

Ahart's dwarf rush is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to be restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions are more "flashy." In addition, this species is also known to occur on gopher mounds along the margins of these wetlands (CNDDB 2014). Flowering generally occurs from late-March through May.

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 90 to 300 feet (CNDDB 2014). Most occurrences are from Butte and Sacramento County. The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast from the Project Site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in shallow vernal pools and along vernal swales and still presumed extant (CNDDB 2014). Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site. Based on negative findings of protocol-level rare plant surveys conducted in March, April, and May 2013 and 2014 (2015b), Ahart's dwarf rush is not expected to occur at the Project Site at this time.

Legenere (*Legenere limosa*)

Legenere is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average

and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*). Flowering typically occurs from April to June.

This species' range includes the northern Central Valley from Shasta to San Joaquin County and the Inland Coast Range from Lake to Santa Clara County. Populations are reported from 78 occurrences, ranging in elevation from less than 950 meters (CNDDB 2014). The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties (Holland 1983; Platenkamp 1998; CNDDB 2014). The nearest known occurrence of Legenere is approximately 1.4 miles south of the Project Site (CNDDB Occurrence No. 29; CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the Project Site. Based on negative findings of protocol-level rare plant surveys conducted in April, May and June 2013 and 2014 (Teichert 2015b), Legenere is not expected to occur at the Project Site at this time.

Pincushion Navarretia (*Navarretia myersii* subsp. *myersii*)

Pincushion navarretia is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B species by the CNPS. Pincushion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils (CNPS 2014). Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations (Dittes and Guardino 2001). Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may be more 'flashy.' The species may be seen flowering from mid-April through May (Dittes and Guardino 2001, CNPS 2014).

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 60 and 1,100 feet elevation (CNDDB 2014). The nearest known location of this species is approximately 10.6 miles northeast of the Project Site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3; CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within the Project Site. Based on negative findings of protocol-level rare plant surveys conducted in April and May 2013 and 2014 (Teichert 2015b), pincushion navarretia is not expected to occur at the Project Site at this time.

Slender Orcutt Grass (*Orcuttia tenuis*)

Slender Orcutt grass is listed as threatened under the federal ESA and endangered under the California ESA. The CNPS also includes slender Orcutt grass as a CRPR 1B species. Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic origin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range (CNDDB 2014). The lowest reported elevation is 88 feet in Sacramento County and the highest is 5,760 feet in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region. The nearest documented occurrence of Slender Orcutt grass is approximately 2 miles south of the Project Site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek (CNDDB 2014). The population is till presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and May, June and July 2014 (Teichert 2015b), slender Orcutt grass is not expected to occur at the Project Site at this time.

Sacramento Orcutt Grass (*Orcuttia viscida*)

Sacramento Orcutt grass is listed as endangered under both the federal and California ESAs. The CNPS also includes Sacramento Orcutt grass as a CRPR 1B species. Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grow in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses. Flowering typically occurs in May and June.

Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences, most of which are still presumed extant (CNDDB 2014). The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south. The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the Project Site (CNDDB Occurrence No. 20); however, this

population is presumed extirpated (CNDDB 2014). This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery (CNDDB 2014). The nearest possible extant location is approximately 3.6 miles northeast of the Project Site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard (CNDDB 2014). The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX. Based on negative findings of protocol-level rare plant surveys conducted in May and June 2013 and 2014 (Teichert 2015b), Sacramento Orcutt grass is not expected to occur at the Project Site at this time.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is not listed pursuant to either the federal or California ESAs; however, it is listed as a CRPR 1B.2 species by the CNPS. Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Flowering typically occurs between May and August.

This species is widely distributed throughout the Central Valley between 0 and 2,200 feet. Sanford's arrowhead is documented from 93 occurrences and is presently known from Shasta to Kern County, with the majority of records occurring in Sacramento County (CNDDB 2014). A disjunct population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura counties). A nearby population of Sanford's arrowhead occurs approximately 1.8 miles northwest of the Project Site (CNDDB Occurrence No. 25) (CNDDB 2014). Sanford's arrowhead was recorded at the Project Site during protocol-level surveys conducted in May and July 2014 (Teichert 2015b). Large populations of this species (2,000+ individuals) were observed growing within an irrigation ditch in Aspen VIII, near the western portion of the property (Figure 10). This ditch is fed by irrigation runoff from irrigated pastures to the east, before eventually emptying into a large irrigation pond on the northern project boundary (Teichert 2015b).

5.2 ANIMALS

A number of special-status animals have been documented in the CNDDB within the USGS 7.5-minute series *Carmichael, California* topographic quadrangle as well as the immediate eight surrounding quadrangles, and the habitats and vegetation communities found on-site represent potentially suitable habitat for a number of other special-status animal species (Table A-1, Figure 9). A total of nine invertebrates, one amphibian, one reptile, and nine birds were considered to have potential to occur on the Project Site. These include the blennosperma vernal pool andrenid bee (*Andrena blennospermatis*), an andrenid bee (*Andrena subapasta*), vernal pool fairy shrimp, mid-valley fairy shrimp (*Branchinecta mesovallensis*), hairy water flea (*Dumontia oregonensis*), Ricksecker's hydrochara (*Hydrochara rickseckeri*), venal pool tadpole shrimp, California linderiella (*Linderiella occidentalis*), valley elderberry

longhorn beetle (*Desmocerus californicus dimorphus*), western spadefoot toad (*Spea hammondii*), western pond turtle(*Emys marmorata*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), Ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), yellow-billed magpie (*Pica nuttallii*), and tricolored blackbird (*Agelaius tricolor*). Five species were observed during various field surveys in 2013 and 2014: white-tailed kite (perched in willow tree), northern harrier (foraging), Swainson's hawk (flyover), yellow-billed magpie (foraging), and tricolored blackbird (nesting in Himalayan blackberries).

5.2.1 Invertebrates

Blennosperma Vernal Pool Andrenid Bee (*Andrena blennospermatis*)

The blennosperma vernal pool andrenid bee is not listed pursuant to either the federal or California ESAs; however, it is tracked by the CNDDB due to its restricted habitat. The species is a solitary, ground-nesting bee that inhabits upland areas near vernal pools and specializes on the flowers in the *Blennosperma* genus (yellow carpet) (Leong, et al. 1995). Presence of this bee is reported in scattered locations where *Blennosperma* is found, along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento and Tehama Counties, as well as near the base of the Coast Ranges in Contra Costa, Lake and Sonoma Counties (CNDDB 2014). The female bee collects and provisions *Blennosperma* pollen into ground nests, forming it into a ball onto which she lays a single egg. Bees are active through the bloom period of yellow carpet (late February through April), allowing a female to produce multiple ground nests. The next spring, adults emerge around the same time that *Blennosperma* begins blooming and the cycle repeats.

The blennosperma andrenid bee is dependent upon the presence of *Blennosperma* flowers, which occur in grasslands associated with vernal pools. The nearest occurrence for this species is approximately 10 miles to the southeast of the study area (CNDDB Element Occurrence No. 08), in a vernal pool complex near Sloughhouse (CNDDB 2014,). *Blennosperma* plants were not identified through any of the comprehensive spring surveys in the vernal pool and grassland habitats of the study area (Teichert 2015b); therefore, the blennosperma vernal pool andrenid bee is not considered to occur at the Project Site at this time.

Andrenid Bee (*Andrena subapasta*)

Similar to other andrenid bees, *Andrena subapasta* is a solitary, ground-nesting bee that specializes on native flowers endemic to vernal pool grassland habitats. It is not listed pursuant to federal or California ESAs, but is tracked by the CNDDB, as very little is known about this species. Records exist from the Sacramento Valley and foothill regions in Sacramento, San Joaquin, Placer and El Dorado Counties (CNDDB 2014). It is known to forage on a variety of native forbs, and has been observed to collect pollen from the flowers of sandwort (*Minuartia californica*), Johnny-tuck (*Triphysaria eriantha*) and California goldfields (*Lasthenia* spp.) (Rogers, pers. obs.; CNDDB 2014).

The nearest occurrence for this species is more than 5 miles north of the study area and is from 1954 (CNDDB Element Occurrence No. 03), in what is now a developed area of Fair Oaks near the American River (CNDDB 2014). The annual grassland habitat surrounding vernal pools within the study area may provide suitable habitat for *A. subapasta*, as several pools were noted to contain *Lasthenia fremontii* and *L. glaberrima* and other native flowering forb species during spring plant surveys (Teichert 2015b). Therefore, *A. subapasta* could occur within the study area.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The vernal pool fairy shrimp is listed as threatened under the federal ESA. This species is usually found in vernal pools, but can also occur in association with other ephemeral wetlands including alkali pools, seasonal swales, and rock outcrops. Vernal pool fairy shrimp act as filter-feeders and are present in seasonal pools during the wet stage, hatching from cysts as soon as ponding occurs. Vernal pool fairy shrimp develop rapidly into adults, reaching sexual maturity in as little as 18 days (Helm 1998); although, Rogers (pers. obs.) observed this species reaching maturity in as little as 6 days under high temperatures. Maturation and reproduction rates of vernal pool crustaceans are controlled by water temperature and can vary greatly (C. Rogers, pers. obs.). Three to six hatches may occur within a season if rainfall patterns and conditions are favorable (Gallagher 1996; Helm 1998). Cysts typically remain dormant until the next rainy season, but can last in vernal pool substrate for many years. The species is an important food source for many other vernal pool animals, from aquatic beetles to toads and ducks.

The vernal pool fairy shrimp is distributed throughout the Central Valley, as well as at a small number of locations in the central Coast Ranges from Monterey County south to Santa Barbara County and in the South Coast Mountains in Riverside County (CNDDB 2014). There are 26 records for this species within 5 miles of the Project Site, with the nearest record existing approximately 0.6 mile to the east of the study area (CNDDB Element Occurrence No. 228) within natural vernal pools surrounded by grazed grassland (CNDDB 2014). Vernal pool fairy shrimp have also been observed from reconnaissance level special-status shrimp surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pools and other seasonal wetlands and swales within the study area are considered to likely support vernal pool fairy shrimp.

Mid-valley Fairy Shrimp (*Branchinecta mesovallensis*)

The mid-valley fairy shrimp is not listed pursuant to the federal or California ESAs, but is tracked by the CNDDB. The species is closely related to the federally-listed vernal fairy shrimp and is limited to vernal pools, swales, and other ephemeral freshwater habitats in the Central Valley. Similar to the vernal pool fairy shrimp, the mid-valley fairy shrimp is a small, filter-feeding crustacean that experiences a rapid life cycle adapted to the filling and drying of its astatic seasonal wetland habitat, complete with the formation of cysts that are capable of lying dormant for many years until the return of appropriate hydrological conditions. Data from laboratory experiments indicate that the young of this species may have a higher tolerance for elevated water temperatures than other *Branchinecta* species (Helm 1998).

Mid-valley fairy shrimp have been found in habitats ranging from 0.001 to 0.5 acre in size, and typically utilize habitats shorter in duration than other *Branchinecta* species (Rogers, pers. obs.).

Records of this species are scattered from Sacramento, Solano, Contra Costa, Merced, Madera and Fresno Counties. There are eight known occurrences for this species within 5 miles of the study area. The nearest record is less than one mile to the northeast (CNDDB Element Occurrence No. 28), within a vernal pool/annual grassland complex south of Mather Regional Park and north of Jackson Road (CNDDB 2014). The vernal pools, swales, and other seasonal wetland habitats on site are considered suitable habitat for this species; thus, the species is considered to have potential to occur.

Hairy Water Flea (*Dumontia oregonensis*)

The hairy water flea is not listed pursuant to the federal or California ESAs, but is tracked by the CNDDB due to a restricted range and lack of specific habitat requirements. In general, the hairy water flea is described as a branchiopod crustacean found in vernal pools and similarly seasonally astatic wetlands. Three populations have been found in vernal pools in Jackson County, Oregon and two in California (Travis AFB, Solano County, and Sacramento County) (Santos-Flores and Dodson 2003; Van Damme & Dumont 2008; CNDDB, 2014; Rogers, pers. obs.). Vernal pools within the study area may provide suitable habitat for the hairy water flea. The only known record for this species in Sacramento County is located approximately one mile north of the study area (CNDDB Element Occurrence No. 01), from a vernal pool at Mather Field (CNDDB 2014). Therefore, the species is considered to have potential to occur at the Project Site.

Ricksecker's Hydrochara (*Hydrochara ricksecker*i)

Ricksecker's hydrochara is a relatively newly-discovered species and is currently not listed pursuant to the federal or California ESAs. Because there is very little information about this species and so few populations are known, it is tracked by the CNDDB. Ricksecker's hydrochara is entirely dependent upon vernal pool-type wetland ecosystems. Records suggest that this species occupies a variety of vernal pools, seasonal wetlands, and other ephemeral habitats below 1,000 feet, but may prefer deeper, long-lasting pools (Rogers, pers. obs.). Like the majority of Hydrophilid beetles, the Ricksecker's hydrochara is predatory in the larval stage and omnivorous as an adult. The larvae of this species will consume other insects, crustaceans, or amphibian larvae (Rogers, pers. obs.). Adults have been seen feeding on common frog-fruit (*Phyla nodiflora*), and dead insects and tadpoles (Rogers, pers. obs.).

This species was originally reported as endemic to the San Francisco Bay region, occurring in Alameda, Marin, San Mateo, and Sonoma Counties (Smetana, 1980). Recent collections have been made in Solano County at the Jepson Prairie Preserve, and from vernal pools in Sacramento, San Joaquin and Placer Counties (Rogers pers. obs.; CNDDB 2014). Larger vernal pools within the study area may provide suitable habitat for this species. The nearest occurrence record for this species is from an aquatic habitat located within a mile north of the study area at Mather Field (CNDDB Element No. 05; CNDDB 2014). Therefore, Ricksecker's hydrochara is considered to have potential to occur at the Project Site.

Venal Pool Tadpole Shrimp (*Lepidurus packardi*)

The vernal pool tadpole shrimp is listed as endangered by the federal ESA. This species inhabits a wide variety of seasonal wetlands, including vernal pools, ponded clay flats, alkaline pools, ephemeral stock ponds, and roadside ditches (Helm 1998; Rogers 2001; CNDDB 2014). Wetlands supporting vernal pool tadpole shrimp have included small (<25 square feet), clear, vegetated pools to highly turbid alkali scald pools to large (>100 acre) winter lakes (Helm 1998; Rogers 2001). These wetlands must dry out and be inundated again for their cysts to hatch. Most records are from larger, deeper vernal pools. Although maturation and reproduction rates of vernal pool crustaceans are controlled by water temperature and can vary greatly (Rogers, pers. obs.), it is estimated that the vernal pool tadpole shrimp take between 3 and 4 weeks to mature (Ahl 1991; King et. al. 1996). This species is relatively large in contrast to fairy shrimp, and covered in an oblong-shaped carapace that is molted as the crustacean grows. Due to their large size, the vernal pool tadpole shrimp is a favorite food source among a variety of animals, from frogs to herons. They are very active hunters, burrowing and swimming in pursuit of various prey items, such as rotifers, fairy shrimp, and tadpoles (C. Rogers, pers. obs.).

Vernal pool tadpole shrimp is a California Central Valley endemic species, with the majority of populations in the Sacramento Valley. There are 51 occurrences that have been recorded for this species within 5 miles of the study area (CNDDB 2014). The nearest record for this species is located approximately 0.5 mile to the north of the study area at Mather Field (CNDDB Element Occurrence No. 25), within natural vernal pools surrounded by annual grassland (CNDDB 2014). Vernal pools within the study area are considered suitable habitat for the vernal pool tadpole shrimp. Vernal pool tadpole shrimp have also been observed from reconnaissance level special-status shrimp surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pool habitats within the study area are considered to likely support this species.

California Fairy Shrimp (*Linderiella occidentalis*)

The California fairy shrimp is the most widely distributed fairy shrimp in California. The species is not currently listed pursuant to federal or California ESAs, but, given continued threats to habitat, is tracked by the CNDDB. This species has been found on most land forms, geologic formations, and soil types supporting vernal pools and other seasonal wetlands throughout California, but tends to occupy relatively deep pools (Eriksen & Belk 1999). Similar to the vernal pool fairy shrimp, the California fairy shrimp is a filter-feeding Branchiopod that hatches from cysts in large numbers within vernal pool habitats.

Within the Central Valley, records for California fairy shrimp come from Shasta, Tehama, Butte, Yuba, Placer, Sacramento, and San Joaquin Counties. There are 38 known occurrences for this species within 5 miles of the study area, with the majority of these occurrences located immediately north of the site at Mather Field (CNDDB 2014). The nearest record for this species exists 0.6 mile to the east of the study area (CNDDB Element Occurrence No. 258), within natural vernal pools surrounded by grazed grassland (CNDDB 2014). This species has also been observed from reconnaissance level special-status shrimp

surveys conducted on Aspen IX by C. Rogers (EcoAnalysts 2006). Therefore, vernal pool and seasonal wetland habitats within the study area are considered to likely support California fairy shrimp.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle (VELB) is listed as threatened by the federal ESA. The VELB is entirely dependent upon its host plant, elderberry (i.e., *Sambucus* spp.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. The VELB life cycle consists of four stages: egg, larva, pupa, and adult. Eggs are typically deposited within the bark crevices of live elderberry shrubs. Upon hatching, the larvae bore through the bark where they tunnel and feed in the pith of the stem for up to 2 years. Prior to pupating, the larvae bore back out of the stem (thereby creating the "exit hole") and then return into the stem to enter the pupil stage. Exit holes are more frequently found in trunks or branches between 2 and 7 inches in diameter, or at least 1.0 inch or greater in diameter at ground level (USFWS 1984). Between March and early June, about the same time the elderberries flower, VELB adults emerge from the exit holes. Adults feed on the leaves of elderberry shrubs and possibly the flowers. The life span of adults is unknown, but they are presumed to die after reproducing.

This taxon occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. At the time the VELB was federally listed, it was known from less than 10 locations along the American and Merced Rivers, and along Putah Creek (USFWS 1980). The known range now extends from southern Shasta County to Fresno County and across the Central Valley, with approximately 204 records (mostly based on exit holes) in existence (CNDDB 2014). The nearest occurrence record for this taxon is approximately 5.6 miles north of the Project Site (CNDDB Element Occurrence No. 01; CNDDB 2014). This occurrence is described as being located on elderberry shrubs within dense riparian habitat along the American River Parkway from River Bend Park up to the lower southeast shore of Lake Natoma. Considering the relatively close proximity of nearby populations and wide geographical range of elderberry shrubs, the VELB could be expected to occur within the study area. Focused surveys for elderberry shrubs were conducted on the Project Site as part of a rare plant survey, carried out over a two year period from March 2013 through August 2014 (Teichert 2015b). No elderberry shrubs were present on the Project Site (Teichert 2015b); therefore, the species is considered to have no potential to occur within the study area due to a lack of required habitat.

5.2.2 Amphibians

Western Spadefoot Toad (*Spea hammondii*)

The western spadefoot is not listed pursuant to the federal or California ESAs, but is designated by the CDFW as a California Species of Special Concern. The species primarily occurs in lowland habitats below 3,000 feet in elevation within or adjacent to washes, floodplains of rivers, alluvial fans, playas, and alkali flats. However, it also occurs in the foothills and mountains at a few locations at elevations up to 4,500

feet (Stebbins 1985, Morey 1988). Associated vegetative communities, where it occurs, include annual and perennial grasslands, open chaparral, pine-oak woodland, and lower montane conifer and mixed conifer forest with open areas comprised of short grasses and sandy or gravelly soil. Western spadefoot toads breed from February to May in temporary pools and drainages that form following winter or spring rains. Their eggs and larvae have been observed in a variety of temporary wetlands (CNDDB 2014). They have also been found in altered wetlands including vernal pools that have been disturbed by activities such as earthmoving, disking, intensive livestock use, and off-road vehicle use, and man-made wetlands such as artificial ponds, livestock ponds, sedimentation and flood control ponds, irrigation and roadside ditches, roadside puddles, tire ruts, and borrow pits (Fisher and Shaffer 1996, CNDDB 2014).

The species occurs in Sacramento County, but is largely localized to the southeastern portion of the County (south of Rancho Murieta) (CNDDB 2014). There are four records for this species within 5 miles of the study area. The nearest known occurrence to the Project Site is less than 4 miles away and near the intersection of Zinfandel Drive and Kiefer Boulevard (CNDDB Element Occurrence No. 167; CNDDB 2014). Western spadefoot was found in three vernal pools at this location, surrounded by annual grassland within Mather Field. Given potentially suitable breeding sites (e.g., vernal pools) and surrounding upland, it is considered to have potential for occurring within the Project Site.

5.2.3 Reptiles

Western Pond Turtle (*Emys marmorata*)

Western pond turtle is not listed pursuant to either the federal or California ESAs, but is designated by the CDFW as a California Species of Special Concern. This species is discontinuously distributed from western Washington State south to northwestern Baja California, but exists at numerous localities in the Central Valley of California. It occurs in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow moving streams (Jennings and Hayes 1994). Although primarily aquatic, the western pond turtle will leave its aquatic habitats to reproduce, aestivate, or overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops appears to be the preferred aquatic habitat of the species. Although adults are habitat generalists, hatchlings and juveniles require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western pond turtles are typically active between March and November. Mating generally occurs from late April to early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, within substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet of the aquatic habitat. However, sites have been documented as far as 1,310 feet from aquatic habitat. Nests are typically located on a slope that is unshaded and at least partly south-facing. The slope of nest sites ranges up to 60˚, but is typically less than 25˚.

The pond within the northern portion of the Project Site may provide suitable seasonal or perennial aquatic habitat for western pond turtle. Furthermore, individuals may occasionally occur in Elder Creek. Most of the upland habitat within the study area is unsuitable for nesting given that it is in active agricultural use (including flood irrigation) each year. However, nesting may occur in small areas that are relatively undisturbed. This species has occasionally been observed at locations hydrologically connected to the lower Elder Creek watershed (Bumgardner pers. obs.) and occasionally in the adjacent Morrison Creek watershed (i.e., south of Mather Airport) (CNDDB 2014). There are two records within 5 miles of the project area, with the nearest occurrence located approximately one mile to the northwest of the site in Morrison Creek, below the confluence with the Mather Field drain (CNDDB Element Occurrence No. 433; CNDDB 2014). Therefore, it is considered to have potential to occur within the Project Site.

5.2.4 Birds

White-tailed Kite (*Elanus leucurus*)

White-tailed kite is not listed pursuant to either the federal or California ESAs. However, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. The species is a common resident in the Central Valley as well as most of the California coast (Dunk 1995). In northern California, white-tailed kites typically nest from March through June. Nesting occurs in large, dense-topped trees within riparian, oak woodland, savannah, and agricultural communities that are near suitable foraging areas (i.e., open grassland, oak savannah, emergent wetlands, and some row and field crops). The species has been observed regularly in small numbers throughout Sacramento County (Bumgardner pers. obs.).

A total of six occurrences exist within 5 miles of the study area for this species, with one occurrence recorded within the study area along Elder Creek (CNDDB Element Occurrence No. 27; CNDDB 2014). This occurrence is described as a nest located in a tree between pastures and fields. In addition, there are several eBird records for the species within 2 miles or less from the Project Site (eBird 2014). Therefore, white-tailed kite is considered to have potential for nesting within or immediately adjacent to the study area.

Northern Harrier (*Circus cyaneus*)

Northern harrier (*Circus cyaneus*) is not listed in accordance with either the federal or California ESAs. However, it is designated as a California Species of Special Concern by the CDFW (when nesting). It occurs from sea level to the mid-elevations of the Sierra Nevada where there is grassland, open rangeland, desert flats, or fresh or saltwater marsh. The species nests from April to September with peak activity occurring June through July. Nests are typically located on the ground in grassland, weedy fields, grain fields, or emergent marsh.

No nesting occurrences of this species in Sacramento County have been reported in the CNDDB; the nearest occurrence is at the Beale Air Force Base, approximately 40 miles to the north of the study area (CNDDB 2014). However, it has been observed to occur in small numbers throughout Sacramento County during the nesting season and there are multiple eBird records from June and July in Sacramento County (Bumgardner pers. obs.; eBird 2014). The species was also recently observed nesting in a grain field approximately one mile northwest of the site, just north of Morrison Creek (Baba and Bumgardner, pers. observ. 2015). Consequently, the species is considered to have potential to nest within the study area, particularly in fallow pastures with tall grass.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species pursuant to the California ESA. The species nests in western North America (i.e., Canada, western United States, and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (England et al. 1997). In California, the nesting season for Swainson's hawk ranges from mid-March to late August. In the Central Valley, Swainson's hawks are known to nest within tall trees in a variety of wooded communities including, but not limited to, riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas.

Swainson's Hawks have an unusual raptor diet, in that they are predominantly insectivorous, feeding on grasshoppers, dragonflies and crickets. During the breeding season, insects become less important and larger prey, such as rabbits, rodents and small reptiles, are incorporated as the main source of protein. Foraging habitat includes open grassland, savannah, low-cover row and field crops, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), passerine birds, and grasshoppers (*Melanopulus* spp.). The species is an opportunistic forager and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for the species. According to a recent study by Swolgaard, et al. (2008), the most frequently used foraging habitats within the Sacramento-San Joaquin Delta region are irrigated hay fields, ruderal areas, and dryland grain fields, with the heaviest usage immediately after mowing, likely due to a temporal increase in prey availability due to the loss of vegetative cover. The least frequently used habitats were oak woodland, irrigated field crops, urban environments, and riparian and lacustrine areas. Habitat loss and degradation are often cited as likely factors contributing to declines in Swainson's hawk populations in California. Threats include loss of riparian forest as nesting substrate, together with similar losses of grassland and other open habitats (such as a vernal pool/seasonal wetland complexes), as well as conversion of field crops to unsuitable foraging cover (such as cotton, vineyard and orchard).

Tall trees along the boundaries of the study area provide potential nesting habitat for Swainson's hawk, and the annual grasslands and irrigated pastures provide potential foraging habitat for the species. The grazed, annual grassland habitat within the study area is considered to be of the highest foraging habitat

quality, as the vegetative cover here is maintained at relatively short levels (Swolgaard, et al. 2008). Though neither foraging Swainson's Hawks nor nests have been reported within the study area, nine nests have been reported to the CNDDB within 5 miles of the site, with the nearest record located approximately 2 miles southeast of the study area near Bradshaw Road (CNDDB Element Occurrence 2244; CNDDB 2014). This record is described as an active nest in a 40-foot tall native tree surrounded by fallow land. Therefore, the species is considered to have potential for nesting within or immediately adjacent to the study area.

Ferruginous Hawk (*Buteo regalis*)

The winter distribution of ferruginous hawks historically included Kansas, Colorado, California, and Nevada south to New Mexico. Wintering ferruginous hawk is not listed in accordance with either the federal or California ESAs, but is currently tracked by the CNDDB. The historic nesting distribution of the ferruginous hawk in North America included eastern Washington, southern Saskatchewan, southwestern Manitoba, and western North Dakota south to eastern Oregon, Nevada, northern and southeastern Arizona, northern and southwestern New Mexico, northwestern Texas, western Oklahoma, western Kansas, western Nebraska, and rarely northeastern California. Currently, ferruginous hawks occupy much of their former breeding distribution. However, they are now gone from southwestern Manitoba, southeastern Arizona, southwestern New Mexico, and northwestern Texas. Historically, a few pairs of ferruginous hawks were known to nest in extreme northeastern California in Modoc County (Grinnell and Miller, 1944), and a few pairs still nest in this region of the State (particularly the Fall River Valley of Shasta County). Ferruginous hawks begin to migrate into California in August or September and return to their breeding habitat in late February or early March. Expansive, open grassland is the primary wintering habitat of the species. The wintering distribution of the ferruginous hawk in California extends from the Oregon state line to the Mexican border, west of the Colorado Desert and east of the northern humid coastal belt. Though no ferruginous hawks have been reported within the study area, there are multiple winter eBird records for the species in Sacramento County (eBird 2014). Though most CNDDB occurrence records are from the far eastern portions of the County, records of this species exist within 5 miles of the Project Site (near Mather Airport). The nearest occurrence is located approximately one mile north of the study area, within annual grassland at Mather Field (CNDDB Element Occurrence No. 31; CNDDB 2014). Consequently, the species is considered to have potential to winter at the Project Site.

Merlin (*Falco columbarius*)

Merlin is not listed in accordance with either the federal or California ESAs, but the wintering distribution of this species is currently tracked by the CNDDB. The species breeds in Canada and Alaska and occurs in California as an uncommon migrant and winter resident (August through April). Suitable foraging habitat includes a wide range of open environments including sea coast estuaries, desert, open grasslands, and semi-open woodlands within which it can hunt from low perches. It feeds primarily on small birds (e.g., horned lark [*Eremophila alpestris*]). Consequently, the irrigated pastures and annual grasslands provide potential foraging habitat for the species.

There are no CNDDB records for this species in the vicinity of the study area, with the nearest record reported approximately 8.5 miles southeast at the Sacramento Regional Wastewater Treatment Plant Bufferlands, near Laguna Creek (CNDDB Element Occurrence No. 20; CNDDB 2014). This occurrence is described as open habitat, dominated by annual grassland and seasonal wetlands, interspersed with vernal pools and some riparian vegetation. In addition, there are multiple winter eBird records for the species in Sacramento County (eBird 2014). The nearest eBird records are from the Rosemont area of Sacramento County (less than 4 miles from the Project Site). Therefore, it is considered to have a potential for wintering within the Project Site.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is not listed pursuant to either the federal or California ESAs. However, it is designated as a California Species of Special Concern by the CDFW. It is a year-round resident in annual and perennial grasslands or other vegetation communities that support sparse or non-existent tree or shrub canopies, such as rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Haug et al. 1993). The species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 2012). It has even been observed wintering in boulder piles (Bumgardner pers. obs.). The breeding season extends from approximately February 1 through August 31 (CBOC 1993; CDFG 2012).

Though no occurrences of this species have been recorded within the study area, multiple occurrences have been recorded in the CNDDB and eBird for the vicinity of the Project Site (CNDDB 2014, eBird 2014). The nearest of these occurrences is at Mather Field, approximately one mile north of the study area (CNDDB Element Occurrence No. 487), and is described as being grazed annual grassland with 16 active burrows and several individual birds observed over three different dates (CNDDB 2014). Though use of much of the study area for active agricultural operations (particularly irrigated grassland) precludes occupation by burrowing owls, California ground squirrel burrows are present within the site at scattered locations and could provide suitable roosting or nesting habitat for individuals. In addition, most of the study area (even the irrigated grasslands) is suitable as foraging habitat for the species. Consequently, it is considered to have potential to occur within the Project Site.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is not listed pursuant to either the federal or California ESAs, but is considered a California Species of Special Concern by the CDFW (when nesting). The species generally occurs in a variety of open grassland, oak savannah, shrubland, and other similar habitats where it feeds primarily on large insects (e.g., grasshoppers). However, the species may also occasionally take small reptiles, birds, and mammals. It nests in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas,

and open woodlands (Yosef 1996). It has even been observed nesting in cattails (Bumgardner pers. obs.). Nesting typically occurs during March to June with young becoming independent during July or August. The nest is generally well-concealed on a stable branch in a densely-foliaged shrub or tree. Nest territories have been found to range in size from 11 to 40 acres (Miller 1931). In areas of year-round residence (such as much of lowland California) members of a pair are known to defend adjoining territories during the non-breeding season and then defend a single nesting territory comprised of the adjoining winter territories during the breeding season (Lefranc 1997).

The nearest CNDDB record for this species is in Alameda County (CNDDB 2014). Though no nesting occurrences of loggerhead shrike have been reported within the vicinity of the study area (CNDDB 2014), it has been observed nesting elsewhere in Sacramento County (Bumgardner pers. obs.). In addition, there are eBird records for the species for the peak nesting season in the County (eBird 2014). The nearest of these records are from the Rancho Cordova Golf Course (less than 2 miles from the Project Site) and areas immediately west of Sunrise Boulevard (eBird 2014). Clumps of landscape trees, as well as that of riparian scrub habitat along Elder Creek, may provide suitable nesting habitat, especially considering that existing annual grassland provides ideal foraging conditions. Therefore, it is considered to potentially nest within the Project Site.

Yellow-Billed Magpie (*Pica nuttallii*)

Yellow-billed magpie is not listed in accordance with either the federal or California ESAs, but is currently tracked by the CNDDB (when nesting or communally roosting). This endemic species is a year-long resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. It builds large, bulky nests in trees in a variety of open woodland habitats, typically near grasslands, pastures, or croplands. Nesting occurs from February through July (CDFG 2005). It has shown to be particularly susceptible to West Nile Virus, which may have been the cause of death for thousands of individuals during the last decade.

Large trees along Elder Creek and associated with nearby residences provide potential nest and roost sites for the species. Though no occurrences of yellow-billed magpie are known from within the study area, there are many eBird records for the species from throughout Sacramento County. The nearest of these records is from the intersection of Elder Creek Road and Excelsior Road (less than one mile from the study area) (eBird 2014). Several yellow-billed magpies were observed to be foraging in the understory of landscape trees along Elder Creek Road during the 2014 rare plant surveys. Therefore, it could nest within the study area.

Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird (*Agelaius tricolor*) is listed as an endangered species pursuant to the California ESA. It was emergency listed by the California Fish and Game Commission on December 3, 2014. The emergency listing provides the full protection of the California ESA to the species immediately. This unheralded step (i.e., first emergency listing by the Commission) was considered necessary due to the

species precipitous decline (41% since 2011) and provides time for the Commission to consider a formal listing petition sometime in spring 2015. The emergency listing is valid for six months and can be renewed for six months if necessary. The basis for an emergency listing under California Fish and Game Code section 2076.5 is an "emergency posing a significant threat to the continued existence of the species."

The tricolored blackbird has one of the smallest ranges of any bird species in North America. Almost the entire population occurs year-round in cismontane California, with the Central Valley supporting the largest populations. However, small numbers occur in transmontane California (i.e., deserts and Great Basin), Oregon, western Nevada, Washington, and northern Baja California. Tricolored blackbird is not migratory over most of its range, but leaves northeastern California in fall and winter. Flocks become nomadic in fall seeking food. In winter flocks become more widespread from Marin to Santa Cruz counties and in the Sacramento River Delta. The breeding season for this species generally extends from mid-April into late July. Prospecting (i.e., searching for and visiting potential nest sites) typically occurs between early April and early June in the Sacramento area. Nesting colonies vary in size from about 50 nests to over 20,000 nests. Historically, tricolored blackbirds were found nesting in large to very large colonies (some estimated at over 100,000 nests) in areas with cattail or tule marsh habitats. However, with the decline in such habitats, the species now also nests in thickets of willow, Himalayan blackberry, grain fields, and tall herbs (especially species with spines or stinging hairs such as milk thistle and stinging nettle respectively). Foraging habitats are generally associated with open grassland, fields, and farm lands that provide high densities of prey species such as grasshoppers and butterfly larvae during the nesting seasons. Such foraging habitats are typically within 3 miles or less of the nesting colony. The species has been recorded as a nesting species in the CNDDB (2014) at several locations close to the Project Site. The nearest of these locations is less than 900 feet east of the eastern boundary of Aspen VIII. In addition, there are four existing colonies associated with small Himalayan blackberry stands located in the central and southeastern portions of Aspen VIII (Figure 10). As such, the species is known to nest on and immediately adjacent to the project site.

5.3 BIRDS OF PREY (RAPTORS)

All raptors including those species that are not considered as special-status species are protected under Section 3503.5 of the California Fish and Game Code. This latter section of the California Fish and Game Code provides protection to the nests and eggs of such species as well as individuals. Raptor species that are not considered as "special-status species" by CDFW but that occur in the vicinity of the Project Site include American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) in the order Falconiformes, and great-horned owl (*Bubo virginianus*) and barn owl (*Tyto alba*) in the order Strigiformes (Bumgardner pers. obs.). It should be noted that American kestrel and barn owl are cavity or crevice nesters, whereas each of the other raptor species build stick nests. Nonetheless, suitable nesting locations for each of these species are limited to the larger trees in and immediately adjacent to the Project Site (typically with DBH larger than 15 inches). Though there is no evidence of nesting by raptors on the Project Site, nests are known from throughout this portion of Sacramento County. Consequently, given the presence of suitable nesting structure

within and immediately adjacent to the Project Site and known occurrences of other nesting raptors within the site vicinity, these species are considered to have potential for nesting at the site.

6.0 POTENTIAL IMPACTS TO BIOLOGICAL RESOURCES AND RECOMMENDED MITIGATION MEASURES

This section of the document addresses changes in the existing environmental baseline for biological resources (i.e., impacts) that may result from implementation of the Project and are considered significant consistent with Section 15065 and Appendix G of the CEQA Guidelines. Figure 10 shows the locations of sensitive species identified at the site, the various habitat communities, as well as the proposed boundaries of the mining and limits of disturbance. Also depicted in Figure 10 is the proposed area of preservation, totaling 90.63 acres, including Elder Creek. Figure 5 illustrates existing features upon completion of reclamation. Mitigation measures are provided to avoid, minimize, or otherwise compensate for the identified impacts where such measures are available.

It should be noted that no potential impacts are associated with the following criteria:

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Consequently, impacts associated with the above criteria are not analyzed in this document.

6.1 WETLANDS AND WATERS OF THE U.S.

A total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. have been mapped within the Project Site (Table 2, Figures 3). The proposed Project will result in the loss of 5.282 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, pond, and ditch wetland habitats (Table 2, Figure 10).

TABLE 2. WETLAND IMPACTS SUMMARY

Wetland Type	Total Acres (Aspen VIII/IX)	Total Acres Impacted
Vernal Pool	7.260	0.597
Seasonal Wetland	5.741	1.500
Seasonal Swale	1.258	0.383
Freshwater Marsh	4.752	0.487
Perennial Stream	5.415	0.043
Ephemeral Stream	0.006	----
Pond	0.920	0.185
Ditch	2.444	2.178
Totals	**27.795**	**5.373**

Impacts to wetlands and other Waters of the U.S. that would occur with project implementation would result in a substantial adverse effect on federally jurisdictional Waters of the U.S., including wetlands, as defined by Section 404 of the CWA. These impacts would also constitute an adverse effect on waters of the State subject to the RWQCB jurisdiction. Additionally, these areas may be regulated by the CDFW and protected under the Sacramento County General Plan. Therefore, impacts to wetlands and other Waters are considered to be *significant.*

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-1 *Before conducting any grading, clearing, or excavation activity associated with the Project, Teichert shall obtain all necessary permits under Sections 401 and 404 of the CWA or the state's Porter-Cologne Act. Any wetlands or waters that would be lost or disturbed shall be replaced or created, restored, or enhanced on a "no-net-loss" basis in accordance with the USACE and the RWQCB policies. Any wetland creation or restoration proposed shall be at an acreage and location and by methods agreeable to the USACE, the RWQCB, and the County, as determined during the Section 401 and Section 404 permitting process. Alternatively, Teichert may choose to purchase wetland mitigation credits from a wetland mitigation bank that is authorized by the USACE.*

MM-2 *Water quality concerns during construction will also be addressed in a Section 401 water quality certification from the RWQCB. A Storm Water Pollution Prevention Plan (SWPPP) will also be required during construction activities. SWPPPs are required in issuance of a National Pollutant Discharge Elimination System (NPDES) construction discharge permit by the U.S. Environmental Protection Agency. Implementation of Best Management Practices (BMPs) during construction is standard in SWPPPs and water quality certifications. Examples of BMPs include stockpiling of debris away from regulated wetlands and waterways; immediate removal of debris piles from the site during the rainy season; use of silt fencing and construction fencing around regulated waterways; and use of drip pans under work vehicles and containment of fuel waste throughout the site during construction.*

MM-3 *In addition, a Streambed Alteration Agreement will be obtained from CDFW, pursuant to Section 1602 of the CDFW Code, for the installation of the culvert under Elder Creek Road, and any other activities affecting the bed, bank, or associated riparian vegetation of the stream. Teichert will coordinate with CDFW in developing appropriate mitigation, and should abide by the conditions of any executed permits.*

6.2 SPECIAL-STATUS SPECIES

Implementation of the proposed Project would result in both temporary (with reclamation), direct, and/or indirect impacts on a number of special-status plant and animal species. A discussion of those

species is provided below.

6.2.1 Loss of Habitat for and Individuals of Sanford's Arrowhead

Sanford's arrowhead was identified at the site through protocol-level rare plant surveys performed in 2014 (Teichert 2015b). Colonies were observed growing in two irrigated ditches near the western portion of the Aspen VIII property (Figure 10). A large population (2,000+ plants) occurs within an irrigated ditch, extending approximately 2,779 lineal feet in a south to north direction. A few additional plants were identified in a connected ditch running east to west along the northern border of an adjacent cemetery. The majority of Sanford's arrowhead would be directly impacted by the proposed Project, including approximately 2,278 linear feet of irrigation ditch supporting the plants. Other portions of the ditch not proposed to be disturbed by the Project would also expect to be indirectly impacted, since irrigation to existing pastures would likely cease through implementation of the Project. For these reasons, Project-related impacts to Sanford's arrowhead would be considered *significant*.

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-4 *Because all current populations of Sanford's arrowhead are supported through irrigation and farming practices at the site, no preservation of Sanford's arrowhead is proposed. Instead, Teichert shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a preserved portion of Morrison Creek associated with the Granite Vineyard-Aspen III-South project area located approximately 1.5 miles west of the Project. Morrison Creek presently supports a similar hydrological regime to that where Sanford's arrowhead is currently growing and new occurrences of the species have been observed within a portion of the Morrison Creek channel approximately 2.5 miles northeast of the proposed transplant site (B. Baba, pers. obs.). The locations from which plugs are taken shall be selected randomly to assure the greatest potential genetic diversity of the source plants.*

MM-5 *Teichert shall monitor the transplanted Sanford's arrowhead to evaluate the efficacy of such transplantation as it relates to future mitigation efforts for this species. Monitoring shall occur for five consecutive years after transplantation and a final report submitted to Sacramento County PER and CDFW by October of the final year of monitoring. Teichert shall not be bound by any survivorship monitoring standards nor additional transplantation requirements given that all occupied habitat within Aspen VIII will be removed or impacted and no source material for additional transplantation will be available upon loss of the occupied onsite habitat.*

6.2.2 Impacts to and Loss of Habitat for Vernal Pool Invertebrates

An andrenid bee, vernal pool fairy shrimp, mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, vernal pool tadpole shrimp, and California linderiella occur in or utilize seasonally inundated depressions such as vernal pools, seasonal wetlands, and seasonal wetland swale. The vernal pool fairy shrimp, vernal pool tadpole shrimp, and California fairy shrimp have been observed from numerous vernal pools and seasonal wetlands at the Project Site (EcoAnalysts 2006). Based on these previous observations, Teichert has assumed that all suitable habitat (i.e., non-irrigated) for special-status vernal pool invertebrates within the affected area is occupied by vernal pool invertebrates.

Table 3 below summarizes the total acreage of habitat that the Project would affect, including potential indirect impacts. It should be noted that several seasonal wetlands are located in irrigated pastures and continuously affected by summer irrigation, remaining saturated or inundated for prolonged periods. These irrigated seasonal wetlands do not provide habitat for the special-status species invertebrates discussed above due to their extended hydroperiods.

TABLE 3. DIRECT AND INDIRECT EFFECTS ON SPECIAL-STATUS VERNAL POOL INVERTEBRATES

Potential Habitat	Total Acres (Aspen VIII/IX)	Direct Impacts (acres)	Indirect Impacts (acres)
Vernal Pool (non-irrigated)	*6.964	0.301	0.031
Seasonal Wetland (non-irrigated)	3.524	0.572	0.182
Seasonal Swale (non-irrigated)	0.362	0.021	0.047
Totals	**11.146**	**0.894**	**0.260**

*Note: 0.296 acre of vernal pools were field confirmed as irrigated based on recent observation with the USFWS

Implementation of the proposed Project would result in the loss of 0.894 acre of special-status vernal pool invertebrates, including the vernal pool fairy shrimp and vernal pool tadpole shrimp. There is also the potential for indirect loss of 0.260 acre of habitat. The direct and potential indirect impacts to 1.154 acres of habitat and potential mortality of these vernal pool invertebrates are considered to be *significant.*

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-6 *Teichert shall purchase vernal pool fairy shrimp and vernal pool tadpole shrimp conservation/mitigation credits from a USFWS-authorized conservation bank whose service area includes the Project. The purchase of conservation/mitigation credits shall be consistent with the requirements of the Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California (1-1-96-F-1). As such, preservation credits for vernal pool fairy shrimp and vernal pool tadpole*

shrimp shall be acquired at a compensation ratio of two vernal pool credits for every acre of suitable habitat directly or indirectly affected. Furthermore, creation credits for vernal pool fairy shrimp and vernal pool tadpole shrimp shall be acquired at a compensation ratio of one vernal pool credit for every acre of suitable habitat directly affected. All other provisions of the programmatic biological opinion also apply. Note that no compensation for seasonal wetlands created or affected by irrigation runoff is required given that these aquatic features are not considered suitable habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp. The final acreage of affected suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp will be determined by the USFWS in the agency's determination that the Project can be addressed by the programmatic biological opinion. The above compensation will also address other special-status vernal pool invertebrates that have been determined to have some potential to occur on the Project Site (e.g., an andrenid bee, the mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, and California fairy shrimp).

Alternatively, Teichert may participate in a regional planning/conservation process, such as the proposed SSHCP that provides a mechanism to mitigate all biological impacts based on a standardized formula. Preparation of the SSHCP, a regional conservation plan, is currently in progress pursuant to Section 10 of the federal Endangered Species Act and Section 2800 of the California Fish and Game Code (Natural Communities Conservation Act of 1991).

6.2.3 Loss of Habitat for and Disturbance to Western Spadefoot

Western spadefoot has a patchy and localized distribution in Sacramento County, but is known from similar habitats less than 4 miles away at the Mather Field Vernal Pool Complex. Aquatic sites on the Project Site that are potentially suitable as breeding sites for western spadefoot include vernal pools, seasonal wetlands, and ponds. There are a total of 19.936 acres of such aquatic sites on the property. The Project would result in the permanent loss of 3.034 acres of these aquatic sites. Thus, the Project would reduce the reproductive potential and recruitment from these aquatic sites for western spadefoot (if utilized by the species).

The Project Site also supports 308.5 acres of annual grassland that could be occupied by western spadefoot during the non-breeding season (note that irrigated pasture/hay is not considered to be suitable terrestrial habitat). The Project would result in the temporary loss of 96.2 acres of such habitat. This loss is considered temporary given that reclamation activities would eventually restore those acres, in addition to potentially providing more acres of annual grassland through the conversion of irrigated to non-irrigated grasslands.

Lastly, an unknown number of western spadefoots could be disturbed, killed, or injured during earth-moving activities associated with the Project. The loss of individuals would also reduce the reproductive potential and recruitment of the species in the Project vicinity. The loss of suitable western spadefoot habitat and individuals is considered to be *potentially significant*.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-7 *Teichert shall retain a qualified biologist to conduct focused surveys for western spadefoot in the potentially suitable aquatic sites on the Project Site (i.e., vernal pools, seasonal wetlands, and ponds) that could be directly affected by the Project. The surveys shall be conducted prior to each discrete phase of mining and include a minimum of three nighttime surveys for calling adults during the early breeding season and a minimum of three surveys for egg masses and larvae throughout the remainder of the breeding season (mid-February to mid-May). If no evidence of western spadefoot is found during the surveys, no further mitigation shall be required.*

If western spadefoot is found on the Project Site, Teichert shall purchase mitigation credits at a 1:1 compensation ratio for the total acreage of occupied western spadefoot aquatic habitat that would be permanently lost as a result of the Project. The mitigation credits shall be purchased from an authorized mitigation bank that includes the Project within its service area or is otherwise authorized by the CDFW to sell mitigation credits to Teichert for the Project.

6.2.4 Loss of Habitat for and Disturbance to Western Pond Turtle

Western pond turtle typically occurs in natural or semi-natural still or slow-moving aquatic sites. As such it sometimes appears in ponds, marshes, and slow-moving perennial drainages where there is water, basking sites, and food. The Project would result in the permanent loss of 0.676 acres of pond, marsh, and perennial drainage. However, this impact is considered to be *less-than-significant* given that reclamation on the Project Site would eventually create up to 14.2 acres of stormwater retention pond that could be occupied by the species and the entire reach of Elder Creek within the property will be within the proposed preservation area for the Project.

Given that the majority of western pond turtle nesting sites are located within 650 feet, and up to 1,310 feet, from aquatic habitat, much of the annual grassland within the Project Site is considered suitable nesting habitat. Thus, earth-moving activities within the Project Site could then result in the destruction of eggs or neonate turtles. It should be noted that neonate western pond turtles may overwinter in the nest, as individuals have almost never been observed in early fall (Holland 1985). They are believed to exit the nest during the following spring (Buskirk 1992). Therefore, a limited operating period (i.e., period when eggs or neonates could not be affected by ground disturbance) is not available for this species. The loss of eggs, neonates, or adults is considered to be *potentially significant.*

Mitigation Measures

The following mitigation measures would reduce the above potential impacts to a *less-than-significant* level.

MM-8 *Teichert shall retain a qualified biologist to conduct focused surveys for western pond turtle in the potentially suitable aquatic sites on the Project Site (i.e., ponds, marshes, and perennial drainages). The survey shall be conducted prior to each discrete phase of mining, be conducted no more than five days prior to the initiation of site preparation activities, and be focused on water bodies that are within 300 feet or less of the proposed activities. If western pond turtles are observed during the pre-construction survey, and a qualified wildlife biologist determines site preparation activities could harm the turtles, the biologist shall conduct salvage and relocation of the turtles downstream to suitable perennial aquatic habitat during the same day of their capture. The aquatic habitat to which the turtles are relocated shall be no less than one mile of the Project Site.*

MM-9 *All construction staff shall be aware of the potential to uncover western pond turtle nests during grading and earthmoving activities. Construction staff shall be advised, if turtle eggs are discovered during such activities, construction shall temporarily be halted and a qualified wildlife biologist contacted to salvage the eggs. Prior to arrival of the biologist, the outer boundaries of the egg scatter shall be flagged. The eggs shall then be covered with a small layer of sand or soil over the eggs (to prevent damage or overheating). The qualified wildlife biologist shall then salvage the eggs and transport them to a nearby wildlife rehabilitation center that has been approved in advance by the USFWS and CDFW. Release of any hatchling turtles from the wildlife rehabilitation center shall occur downstream within suitable perennial aquatic habitat that is no less than one mile downstream of the Project.*

6.2.5 Disturbance to Nesting White-tailed Kite or Swainson's Hawk

White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the Project Site. Though there is no evidence to suggest that either of these species have nested within the Project Site, it is possible that nests could be sited in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the Project, occur during the nesting season of these species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.25 miles of the Project Site could be adversely affected during mining-related vegetation removal or earthmoving associated with the Project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-10 *To avoid and minimize impacts to nesting white-tailed kite or Swainson's hawk, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting white-tailed kite and Swainson's hawk in all suitable trees that are within and out to 0.25 miles from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 0.25 miles of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 0.25 miles or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 0.25 miles of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest.

Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 500 feet of an active nest once nesting has begun. Note that no restrictions on mining-related vegetation removal or earthmoving are required in relation to active nests beyond 500 feet if nesting is initiated after active mining has begun.

6.2.6 Disturbance to Nesting Northern Harrier

Northern harrier is known to nest in grassland, weedy fields, grain fields, and emergent marsh. It is strongly suspected to nest in Sacramento County given the prevalence of sitings each year during the peak nesting season, and has recently been observed nesting in a nearby grain field northwest of the Project Site (Baba and Bumgardner, pers. observ. 2015). As such, it may nest in suitable habitat on the

Project Site (e.g., taller, denser grasses). Consequently, should mining-related vegetation removal or earth-moving associated with the Project occur during the nesting season of the species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-11 *To avoid and minimize impacts to nesting northern harrier, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for northern harrier in suitable nesting habitat within and out to 500 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 500 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 500 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 500 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 200 feet of an active nest once nesting has begun.

6.2.7 Disturbance to Other Nesting Raptors

Common raptors (i.e., species not designated as special-status species) that are known to nest near the Project Site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the Project vicinity, but some individuals (especially red-tailed hawk and great-horned owl) may occasionally nest in "stand alone" trees. Consequently, should tree removal, as proposed for the Project, occur during the nesting season of these species (i.e., early February to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nearby mining-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impacts to a *less-than-significant* level.

MM-12 *To avoid and minimize impacts to other nesting raptors, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates construction between February 15 and August 31, surveys shall be conducted for other nesting raptors (species not designated as special-status) in suitable nesting habitat within and out to 500 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 300 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 300 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could

occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 300 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 200 feet of an active nest once nesting has begun.

6.2.8 Disturbance to Nesting or Roosting Burrowing Owl

Burrowing owl has not been documented within the Project Site. Nonetheless, potentially suitable nesting and roosting habitat for burrowing owl is provided by California ground squirrel burrows that are scattered throughout the Project Site and the species is known from other locations in the Project vicinity. As such, the species is could occur on the Project Site.

If burrowing owl occurs on the Project Site, individuals could be subject to entombment and mortality during mining-related vegetation removal or earthmoving. Adults may be able to escape such impacts, but eggs and juveniles could still be lost since they are unable to leave the nest burrow. Even if adults are not lost directly due to ground-disturbing activities, individuals could abandon eggs or juveniles in the nest burrow due to adjacent disturbances. This impact is considered to be *potentially significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-13 *A pre-construction burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading conducted between January 1 and February 14 that is associated with implementation of MM-12).*

The pre-construction survey shall be conducted by a qualified biologist within 500 feet or less of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the CDFG Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugia showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the Project Site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to CDFW within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found

during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, Teichert may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, Teichert may backfill the burrows. If passive relocation is utilized, Teichert shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the Project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the CDFG Staff Report on Burrowing Owl Mitigation (2012). Teichert shall be responsible for reporting all observations of burrowing owl to the CNDDB within ten (10) days of sighting.

6.2.9 Disturbance to Nesting Birds Protected Under the Migratory Bird Treaty Act

Other nesting birds have not been documented within the Project Site, but are to be expected. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (particularly while nesting). Some of these species would nest in the onsite woody vegetation (i.e., trees and shrubs), but other species would nest on or near the ground (mostly in the non-irrigated, annual grassland). Consequently, should tree or other vegetation removal, as proposed for the Project, occur during the nesting season of these species (i.e., mid-February to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, mining-related vegetation removal or earthmoving could result in noise and visual changes that distract adjacent nesting individuals from being properly attentive to eggs or juveniles. Consequently, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-14 *Teichert shall rough grade all irrigated pasture/hay and non-irrigated, annual grassland within the mining boundary of the Project between September 1 and February 14 of the year in which mining starts to ensure that there is no available nesting habitat for species protected by the Migratory Bird Treaty Act in these onsite habitats (see restrictions associated with burrowing owl in MM-13).*

Alternatively, if mining-related vegetation removal or earthmoving is initiated between February 15 and August 31, a pre-construction nesting bird survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving.

The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving. The survey shall be conducted within all onsite habitats that could support nests and are within 120 feet or less of proposed mining-related vegetation removal or earthmoving. All active nests that are found during the survey shall be geo-referenced with a GPS unit and mapped on an appropriate scale map of the Project Site (no smaller than 1 inch = 40 feet). Data shall be collected for each active nest site and at a minimum shall include: (1) identification of nesting species; (2) description of nest site; (3) estimated nesting cycle status (i.e., time to nest completion, egg-laying, fledging, etc.); and (4) likelihood of nest failure from adjacent mining-related vegetation removal or earthmoving.

The results of the surveys, including negative findings, shall be submitted to CDFW within three days of their conclusion. If any active non-raptor bird nests are found onsite, Teichert shall develop and implement a plan for the protection of these nests, to be approved by CDFW, in a timely manner. The results of any protective measures instituted as a part of the protection and monitoring plan shall be provided to CDFW in electronic format within one week of implementation. Teichert shall be responsible for reporting all observations of threatened/endangered species or species of special concern to the CNDDB within ten (10) days of sighting.

All active nests found during the pre-construction survey shall be monitored at least twice per week to assess whether adjacent mining-related vegetation removal or earthmoving are adversely affecting the nest. If adverse effects are observed, all project-related activities within 120 feet of the nest shall be temporarily halted until fledging occurs (i.e., the juveniles are no longer dependent upon the nest).

No pre-construction nesting bird survey is required in areas within 120 feet of mining-related vegetation removal or earthmoving, if the activities are initiated prior to February 15 or after August 31.

6.2.10 Loss of Foraging Habitat for White-tailed Kite and Swainson's Hawk

White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the Project Site. Consequently, foraging habitat associated with nearby nest territories for these species may include the

Project Site. Swainson's hawk utilizes both annual grasslands and irrigated pasture/hay as suitable foraging habitat. Approximately 331.1 acres of the Project Site was dedicated to irrigated pasture/hay in 2015, while 308.5 acres of the Project Site supported non-irrigated annual grassland. Another 14.265 acres of seasonal wetlands (i.e., vernal pool, seasonal wetland, and seasonal swale) occur on the Project Site and are suitable Swainson's hawk/white-tailed kite foraging habitat later in the breeding season (i.e., after dry-down). The Project would impact a total of 371.2 acres of potential Swainson's hawk/white-tailed kite foraging habitat, including 95.8 acres of annual grassland, 273.0 acres of irrigated pasture, and 2.4 acres of seasonal wetlands/vernal pools. The proposed reclamation includes restoring 359.8 acres to annual grassland and/or irrigated pasture. Furthermore, the proposed Project will mitigate for vernal pool and seasonal wetland habitats through the requirements of 404 permits.

White-tailed kite is a rodent specialist with 95 percent of the diet consisting of small rodents (especially California vole [*Microtus californicus*]). This latter prey species is abundant in both non-irrigated annual grassland and irrigated pasture/hay. As such, there is near 100 percent overlap in the suitable foraging habitat for Swainson's hawk and white-tailed kite on the Project Site. Impacts associated with the loss of suitable foraging habitat for Swainson's hawk are therefore similar for white-tailed kite. These impacts are considered to be *significant*.

<u>Mitigation Measures</u>

The following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

MM-15 *Reclaim disturbed areas to suitable Swainson's hawk/white-tailed kite foraging habitat. Prior to commencing any site disturbing activities, Teichert will acquire temporary easement(s) over sufficient acreage to mitigate at a 1:1 ratio for the temporary loss of foraging habitat within a mining phase during the period between initial disturbance and final reclamation of that phase. The location of the temporary easement(s) and the management activities to be included therein shall be determined in coordination with Sacramento County PER and CDFW, and shall be based on the best available data for Swainson's hawk and white-tailed kite in Sacramento County. The acreage to be temporarily protected shall be, at a minimum, equal to that proposed to be disturbed for a particular phase(s). The temporary easement(s) for any given Project phase shall remain in place until onsite reclamation activities have fully reestablished, to the satisfaction of PER, suitable Swainson's hawk/white-tailed kite foraging habitat for the Project phase. If Teichert is unsuccessful in reestablishing suitable Swainson's hawk/white-tailed kite foraging habitat for any part of the Project, Teichert shall mitigate for the acreage that could not be re-established through one of the following approaches: (a) converting the temporary easement(s) to a permanent easement(s), (b) acquiring alternative lands to place into permanent easement(s) at a 1:1 ratio, (c) purchasing mitigation credits at a County-approved mitigation bank at a 1:1 ratio, or, (d) if the total acreage of Swainson's hawk/white-tailed kite foraging habitat that is permanently lost upon final reclamation is less than 40 acres, Teichert may choose to pay the per-acre impact fees as outlined in the Sacramento County Swainson's Hawk Mitigation Program. Teichert shall only be responsible for establishing a permanent easement(s)*

over acreage equal to the acreage on which suitable Swainson's hawk/white-tailed kite foraging habitat could not be reestablished upon final reclamation.

OR *Prior to commencing any site disturbing activities purchase permanent easement(s) over suitable Swainson's hawk foraging lands (1:1 ratio to account for any permanent loss of foraging habitat). The location of the easement(s) and the management activities to be included therein shall be determined in coordination with Sacramento County PER and CDFW, and shall be based on the best available data for Swainson's hawk and white-tailed kite in Sacramento County. Alternatively, Teichert may purchase credits for permanent loss of foraging habitat from an established mitigation bank authorized to sell Swainson's hawk foraging habitat credits and whose service area includes the Project. Any future projects occurring on Project Site shall be exempt from any additional mitigation pertaining to the loss of Swainson's hawk or white-tailed kite foraging habitat.*

6.2.11 Loss of Winter Foraging Habitat for Merlin and Ferruginous Hawk

Merlin and ferruginous hawk are known to winter throughout the Central Valley in small numbers (including in the vicinity of the Project Site). The loss of irrigated pasture/hay and non-irrigated annual grassland associated with the Project Site would result in a net decrease in the local foraging habitat for these species. Most of this net decrease in local foraging habitat would be temporary given that final reclamation associated with the Project would result in 359.8 acres of suitable habitat (i.e., annual grassland and/or irrigated pasture). In addition, merlin is a wide-ranging species and feeds primarily on various small avian species that tend to move over large areas (e.g., horned lark). Consequently, there is a substantial amount of suitable foraging habitat for the species within the Project vicinity and elsewhere each winter. Ferruginous hawk is also a wide-ranging species, and feeds mostly on small to medium-sized mammals (up to the size of black-tailed jackrabbit). There is also a substantial amount of suitable foraging habitat for this latter species within the Project vicinity and elsewhere each winter. Consequently, this impact is considered to be *less-than-significant*.

<u>Mitigation Measures</u>

No additional mitigation is required.

6.2.12 Disturbance to Nesting Loggerhead Shrike

Loggerhead shrike has not been documented nesting within the Project Site. However, it has been documented at nearby locations in Sacramento County during the nesting season. In addition, potentially suitable nesting and adjacent foraging habitat occurs on and immediately adjacent to the Project Site. Dense, woody vegetation (i.e., shrubs and trees) on the site could be used for nesting by the species, while the adjacent irrigated pasture/hay and non-irrigated annual grassland provides suitable foraging habitat. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the Project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances

associated with mining-related vegetation removal and earthmoving. This impact is considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

MM-16 *To avoid and minimize impacts to nesting loggerhead shrike, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 100 feet of an active nest once nesting has begun.

6.2.13 Disturbance to Nesting or Roosting Yellow-billed Magpie

Yellow-billed magpie has not been documented nesting or communally roosting within the Project Site. However, it has been documented at many locations throughout Sacramento County (as close as one mile from the Project Site). In addition, large trees along either Elder Creek or at nearby residences provide potential nest sites for the species. Therefore, the species could occur on the Project Site as a nesting species. Yellow-billed magpies prefer groves of trees (often near water) for communal roost

sites (typically in riparian woodland or forest). Given the lack of such habitat on or adjacent to the Project Site, the species is considered to have no potential to be impacted by the Project while communally roosting. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances. This impact is considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

MM-17 *To avoid and minimize impacts to nesting yellow-billed magpie, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 100 feet of an active nest once nesting has begun.

6.2.14 Disturbance to Nesting Tricolored Blackbird

Tricolored blackbird nests as a colonial species at scattered locations throughout Sacramento County where there is suitable nesting habitat (e.g., stands of cattail, tule, willow, California blackberry, Himalayan berry, wild rose, grain fields, milk thistle, stinging nettle, etc., that provide protection from

nest predators) adjacent to large open expanses of non-irrigated, annual grassland; irrigated pasture/hay; or alfalfa that support large numbers of prey species (e.g., grasshopper, butterfly larvae, etc.). The species is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the Project Site. It also has been documented nesting approximately 900 feet east of the eastern boundary of Aspen VIII and several other locations within 4 miles or less of the Project Site. Because tricolored blackbirds vacate nest sites at the end of the breeding season, adults are unlikely to be substantially disturbed from ground disturbing activities associated with the Project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to disturbances associated with mining-related vegetation removal and earthmoving. This impacts are considered to be *significant*.

Mitigation Measures

The following mitigation measure would reduce the above impact to a *less-than-significant* level.

MM-18 *To avoid and minimize impacts to nesting tricolored blackbird, Teichert shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.*

Alternatively if Teichert initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the Project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the Project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within 3 days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within less than 150 feet of an active nest colony once prospecting or nesting has begun.

6.3 PROTECTED TREES AND TREE CANOPY

The Aspen VIII and IX Arborist Report (Teichert 2015c, Attachment C) identifies a total of 102 trees, representing 17 species, within the Project boundaries or that could potentially be affected (i.e., dripline) by the proposed Project. A total of 3 valley oak and 9 California black walnut, representing 22.3 and 156.3 inches in diameter at breast height (dbh), respectively, were found to be of sufficient size to be protected by the Sacramento County Tree Ordinance (Chapter 19.12) and are proposed for construction removal.

In addition to native trees, the Sacramento County General Plan affords protections to mixed riparian and non-native tree canopy. A total of 1.814 acres of tree canopy, excluding invasive species (as identified and listed by the California Invasive Plant Council as 'Moderate' [Cal-IPC 2006]), were mapped within the survey study area. The majority of canopy consists of non-native, ornamental landscape trees (i.e., Modesto Ash, mulberry, red gum, etc.), with a small portion (0.469 acre) representing native mixed riparian forest. Approximately 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the Project. The native mixed riparian canopy is dominated by Goodding's black willow and Fremont cottonwood trees, occasionally intermixed with valley oak or Northern California black walnut. Moreover, riparian areas were observed to host dense thickets of Himalayan blackberry and edible fig, both of which are classified as invasive weeds and were therefore excluded from canopy totals. Impacts to native trees (valley oak and California black walnut) and tree canopy are considered to be significant.

<u>Mitigation Measures</u>

Implementation of the following mitigation measures would reduce project-related impacts to protected trees and tree canopy to a *less-than-significant* level.

MM-19 *All potentially impacted native trees currently protected by Sacramento County's Tree Preservation Ordinance and policy CO-139 of the Sacramento County General Plan (i.e., locally native oaks and black walnuts) will be compensated for via the planting of one replacement seedling for every inch of trunk diameter removed within the preserved portions of Elder Creek. To mitigate for potential losses to native and non-native tree canopy, the resulting mitigation planting area shall meet or exceed the acreage of tree canopy removed. Teichert shall prepare a detailed tree mitigation planting plan to the Sacramento County PER prior to the removal of any trees on site. The tree mitigation plan shall illustrate planting locations and provide detailed descriptions on planting densities, species type, maintenance activities, and performance standards.*

MM-20 *In order to ensure no net loss of mixed riparian forest, project impacts to riparian canopy will be compensated for via the provision of native tree mitigation plantings (as described in MM-19) contiguous with Elder Creek, such that the tree mitigation planting areas meet or exceed the acreage of riparian canopy removed as a result of the Project*.

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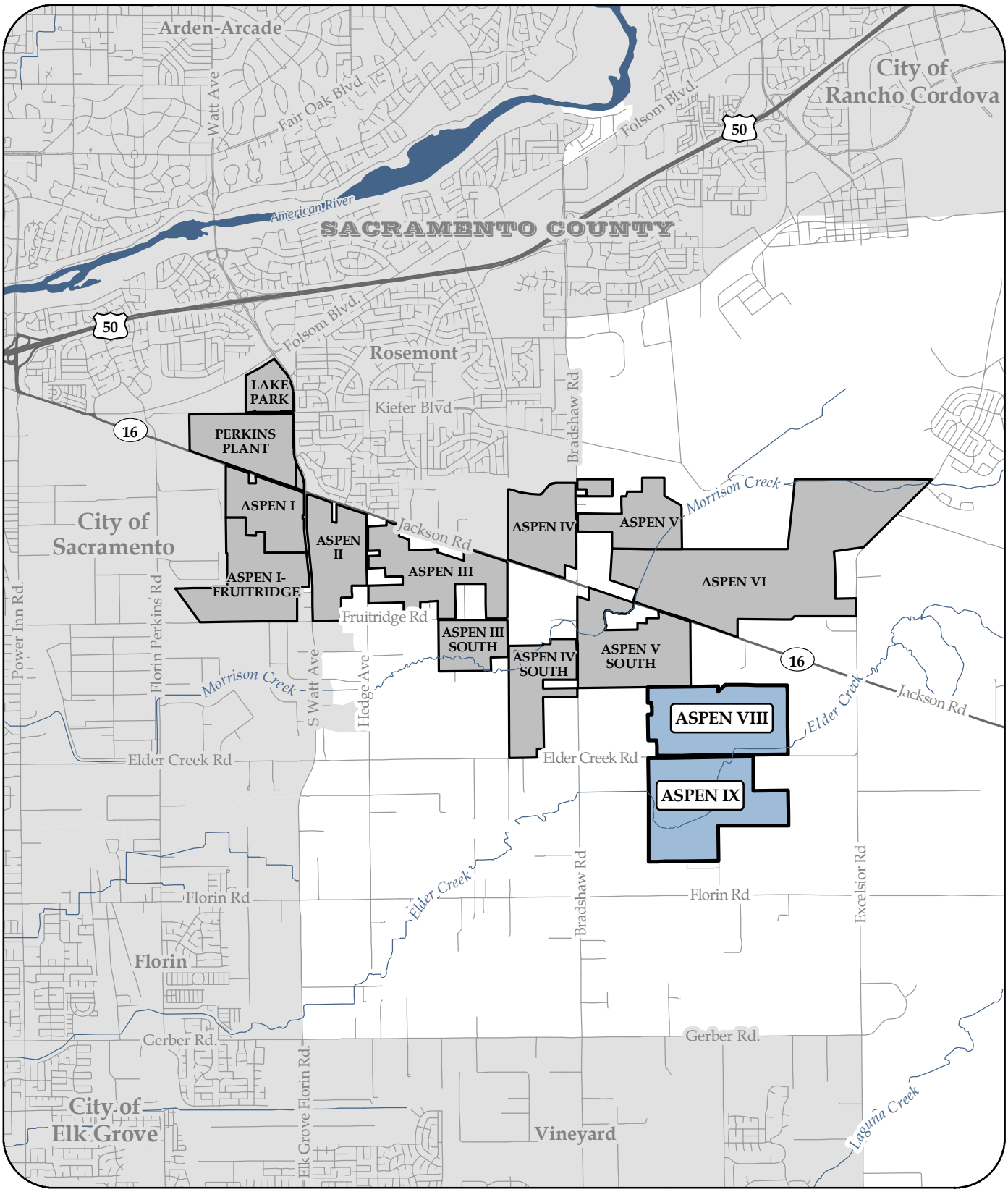

TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 1

SITE VICINITY

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

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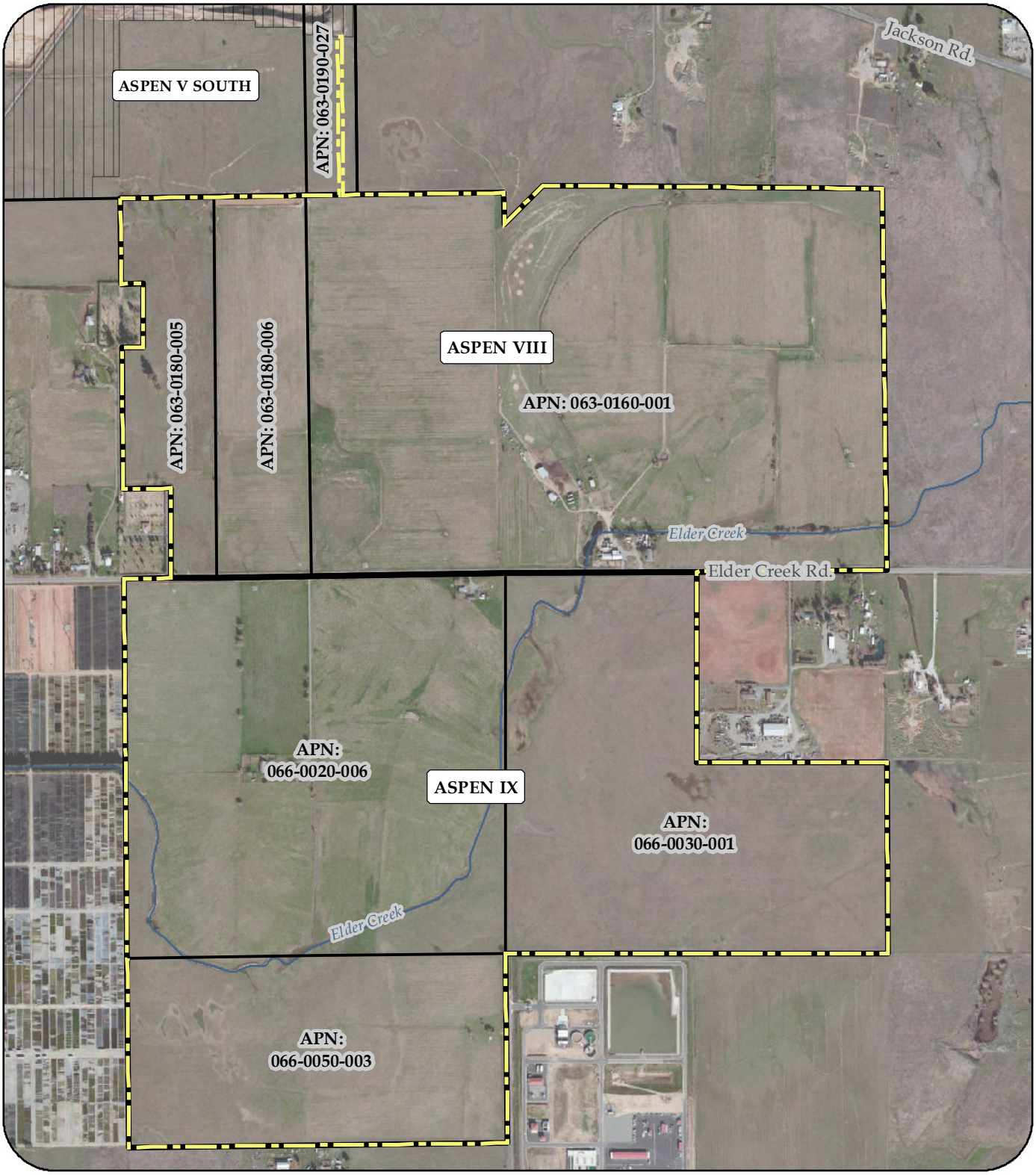


TEICHERT MATERIALS

LEGEND:

- Project Parcel Boundaries
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

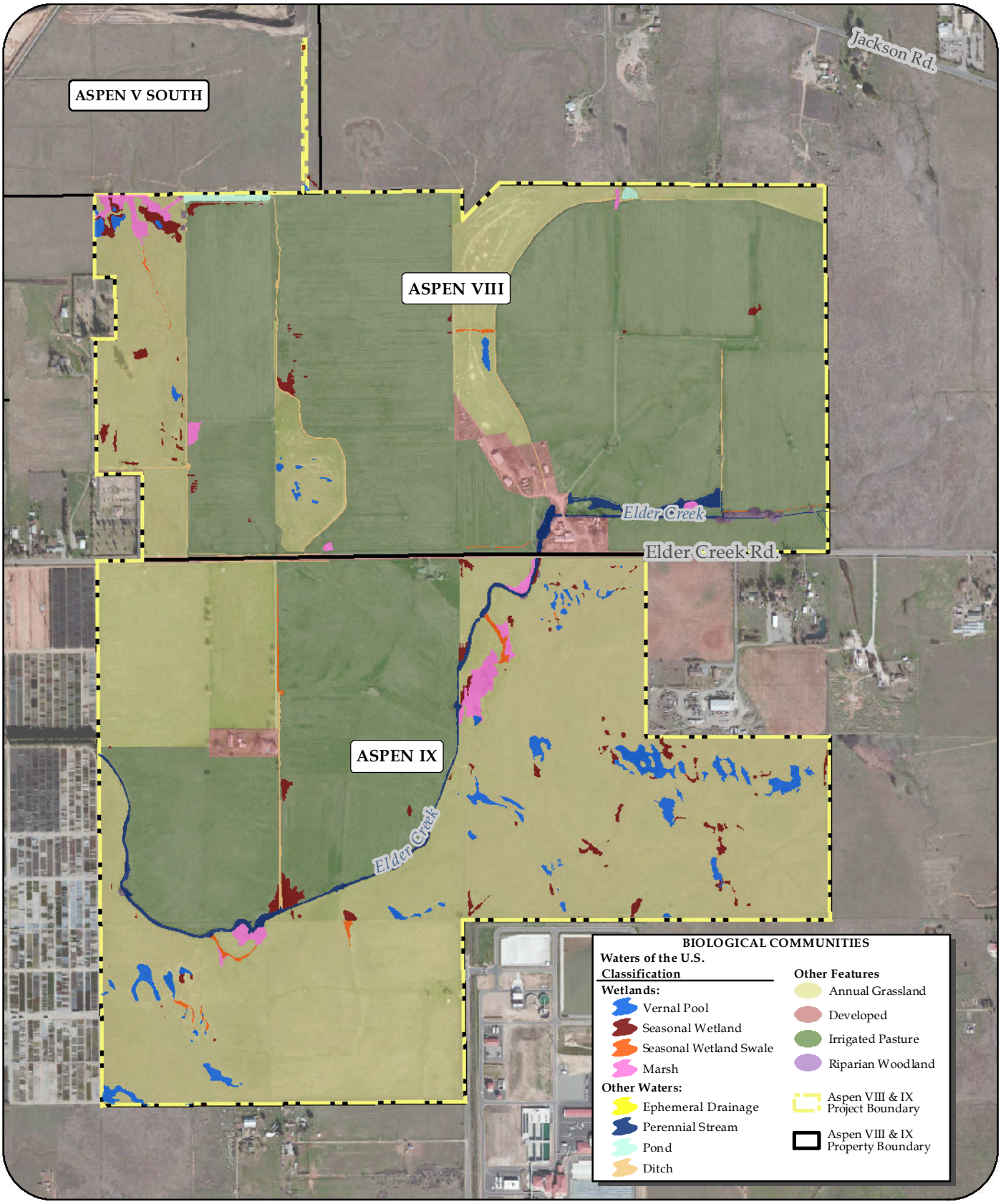
FIGURE 2

PROJECT SITE MAP

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 10/22/2014 AS8_AS9_BRA_Fig2_Site_201410.mxd



TEICHERT MATERIALS

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

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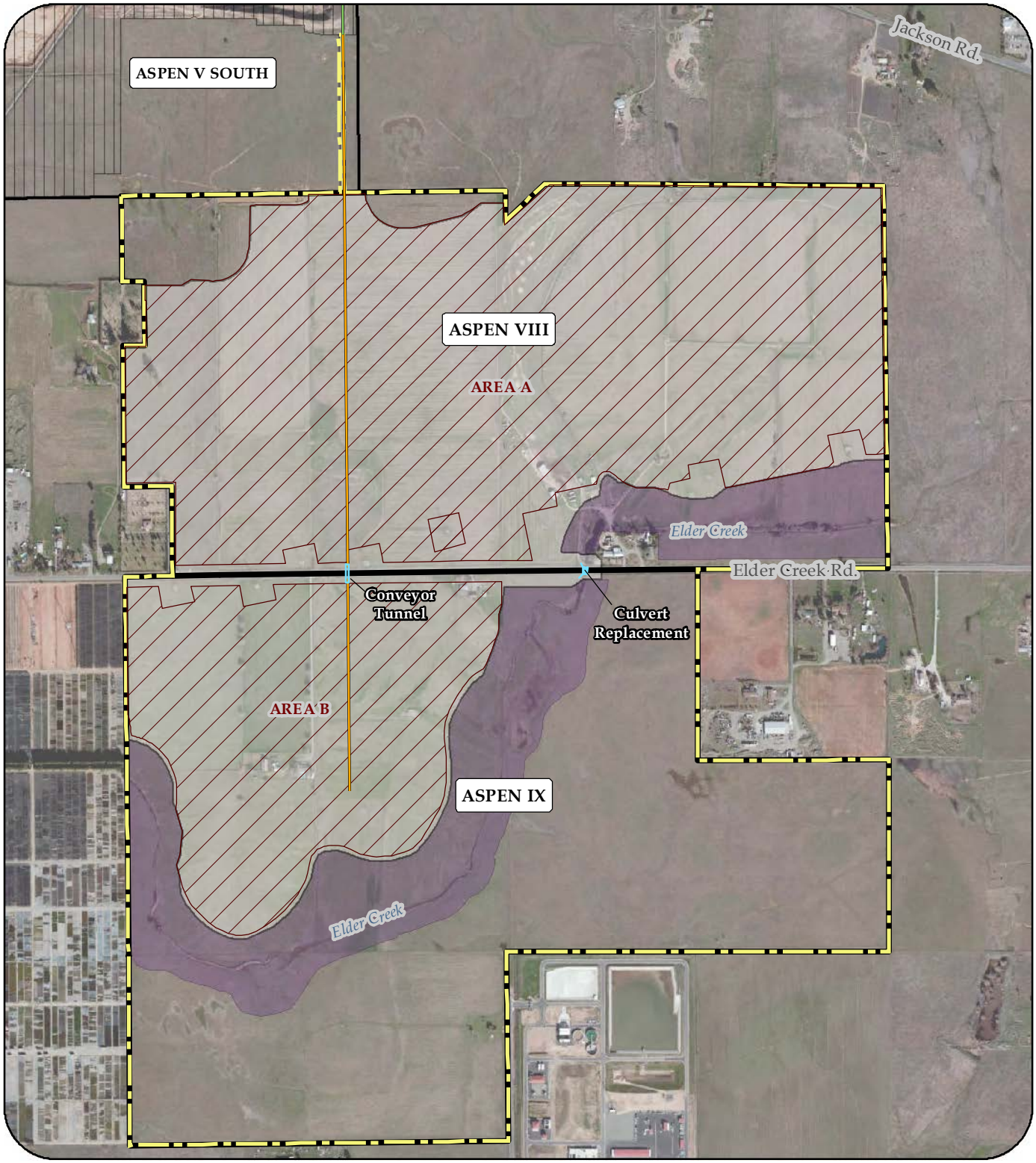
FIGURE 3
EXISTING HABITATS AND WETLAND COMMUNITIES
BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 10/25/2014 AS8_AS9_BRA_Fig3_Bio_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Proposed Mining Boundary
- Proposed Preserve Boundary
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

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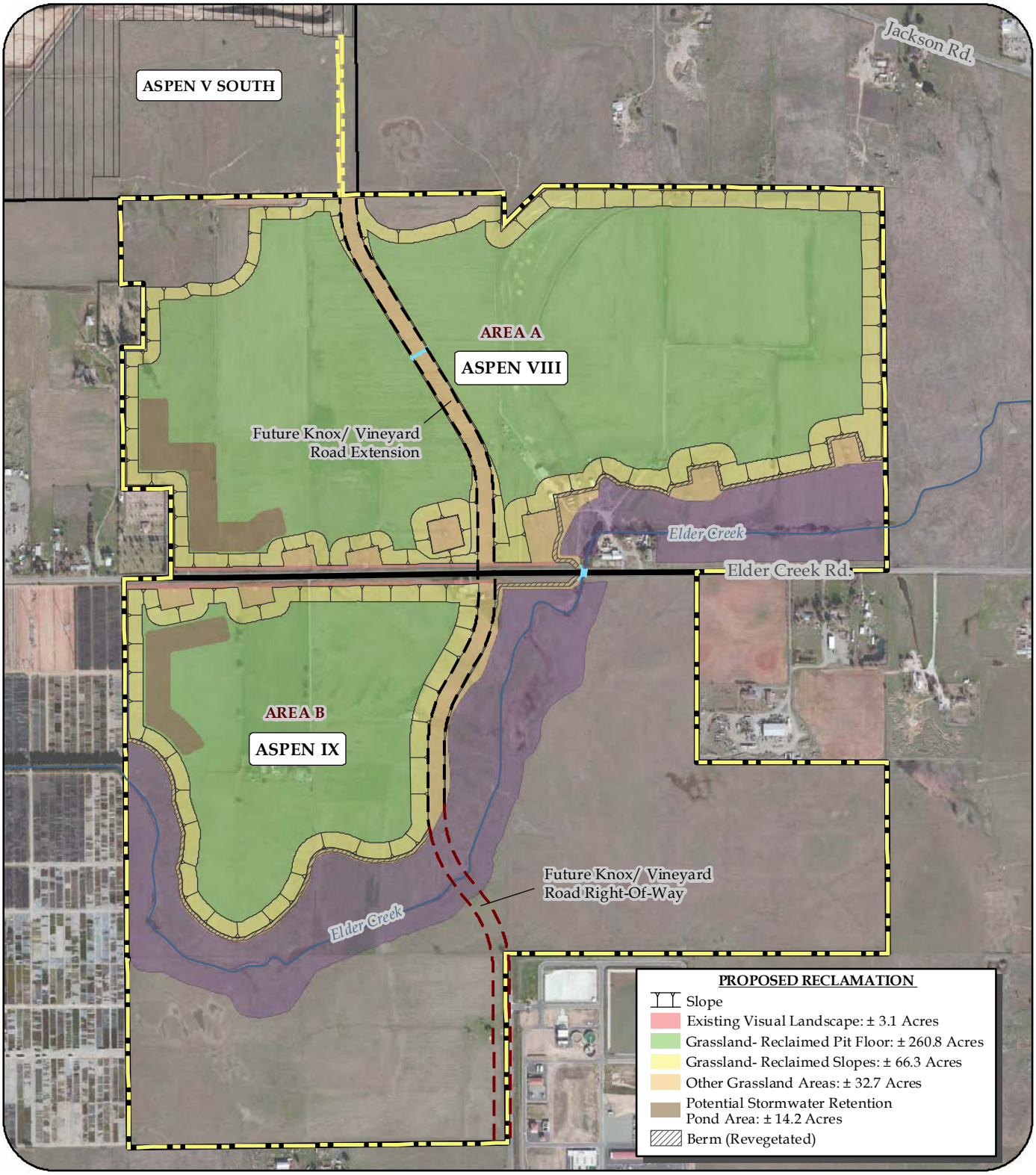
FIGURE 4

PROPOSED MINING AREAS AND PRESERVE

BIOLOGICAL RESOURCES ASSESSMENT ASPEN VIII & IX TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/11/2015 AS8_AS9_BRA_Fig4_MiningAreas_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Culverts
- Future Knox/ Vineyard Road Extension
- Future Knox/ Vineyard Road Right-Of-Way
- Preserve Boundary
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

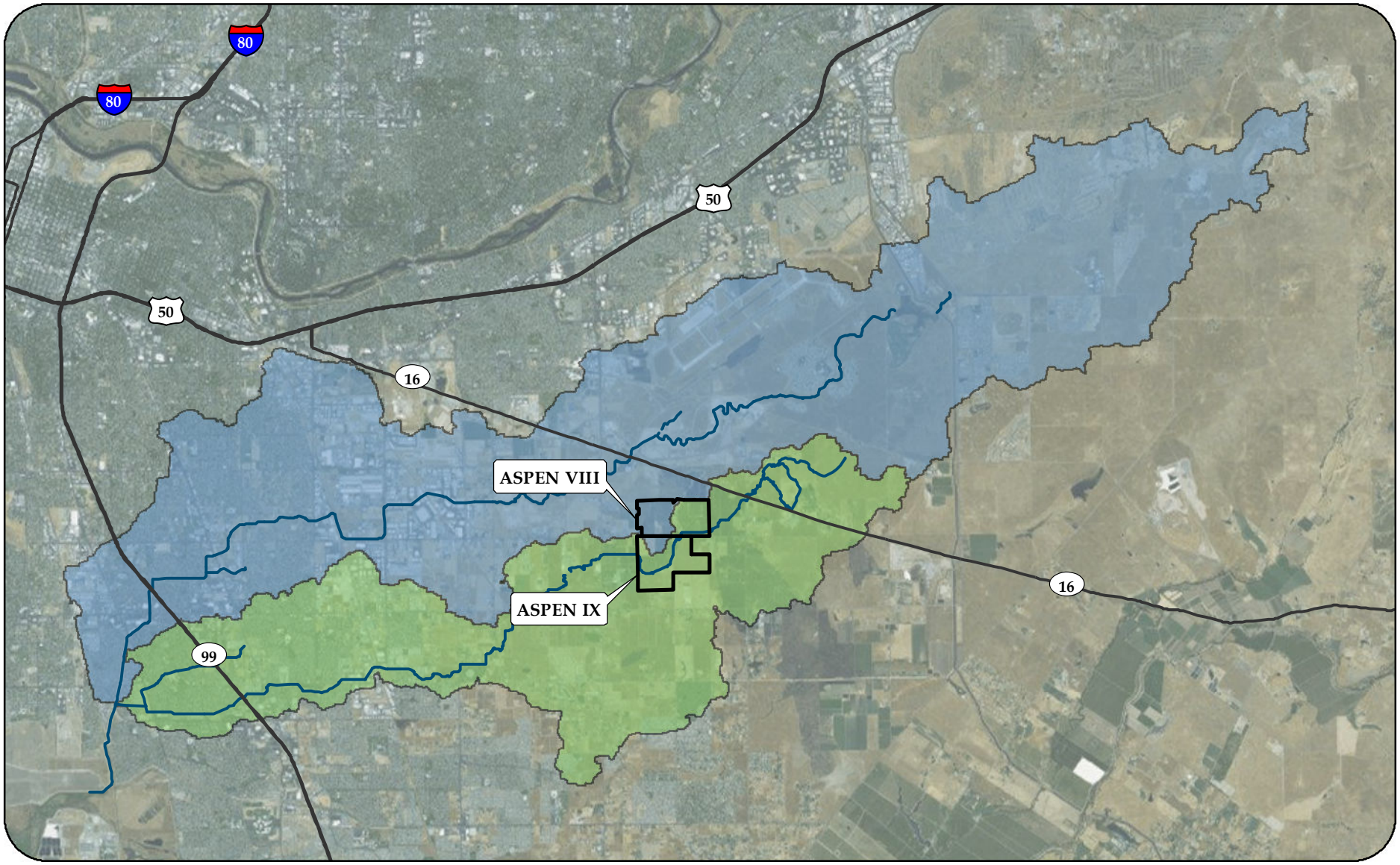
FIGURE 5

PROPOSED RECLAMATION PLAN

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/15/2015 AS8_AS9_BRA_Fig5_ProposedRec_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek & Elder Creek
- Morrison Creek Watershed
- Elder Creek Watershed
- Aspen VIII & IX Property Boundaries

SOURCE:

- Watersheds Provided by Foothill & Associates (2010)
- Aerial Photography Provided by ESRI Basemaps & Affliates (Feb. 2012)

0 1 2 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 6
MORRISON CREEK/ELDER CREEK WATERSHED MAP
BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/22/2014 AS8_AS9_BRA_Fig6_Watershed_201410.mxd

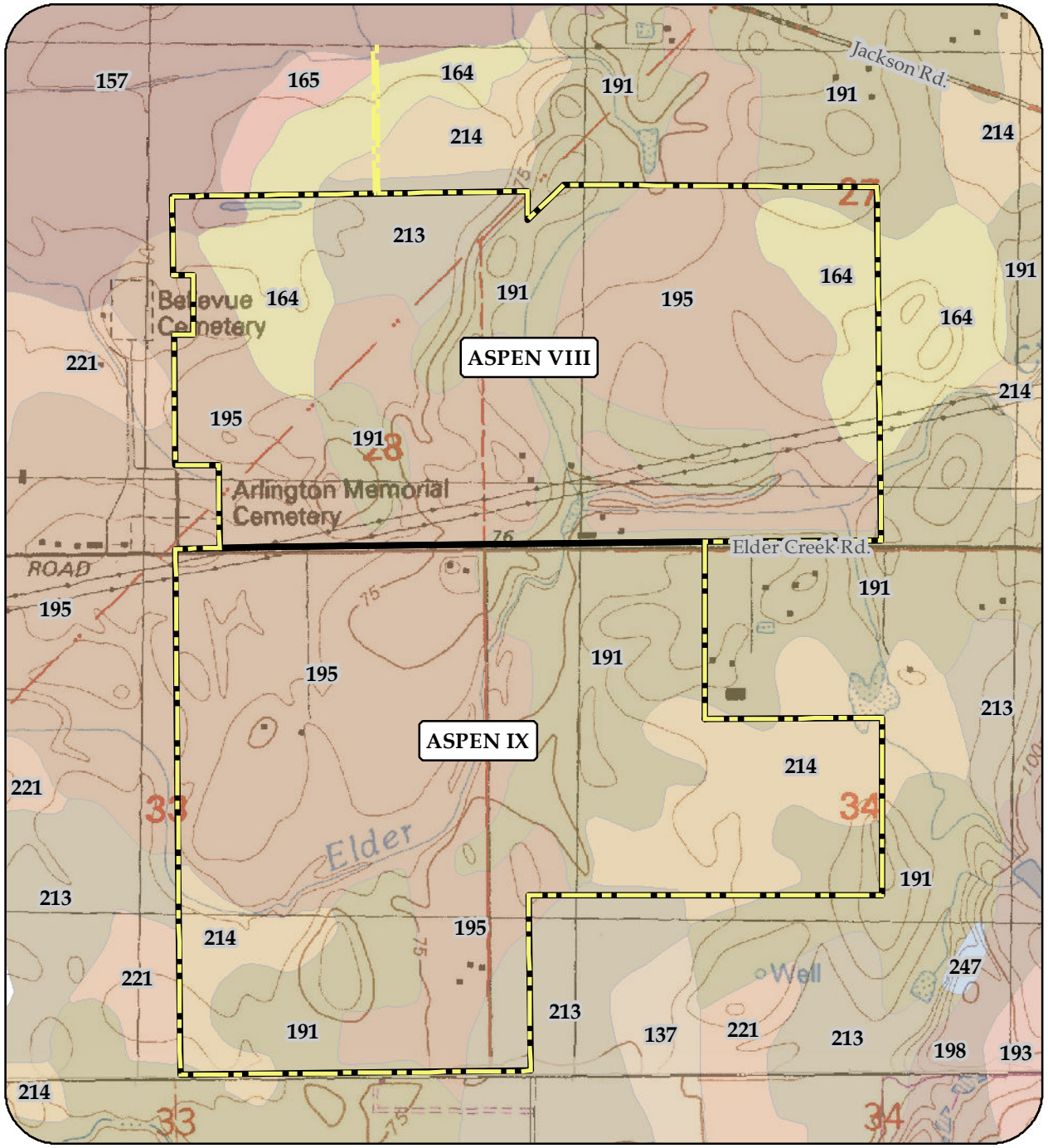


FIGURE 7

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- 137- Durixeralfs, 0 to 1 percent slopes
- 157- Hedge loam, 0 to 2 percent slopes
- 164- Kimball silt loam, 0 to 2 percent slopes
- 165- Kimball silt loam, 2 to 8 percent slopes
- 191- Red Bluff loam, 0 to 2 percent slopes
- 193- Red Bluff-Redding complex, 0 to 5 percent slopes
- 195- Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 198- Redding gravelly loam, 0 to 8 percent slopes
- 214- San Joaquin silt loam, 0 to 3 percent slopes
- 213- San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 221- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes
- 247- Water
- Project Boundary
- Aspen VIII & IX Property Boundaries

0 600 1,200 Feet

SOURCE:

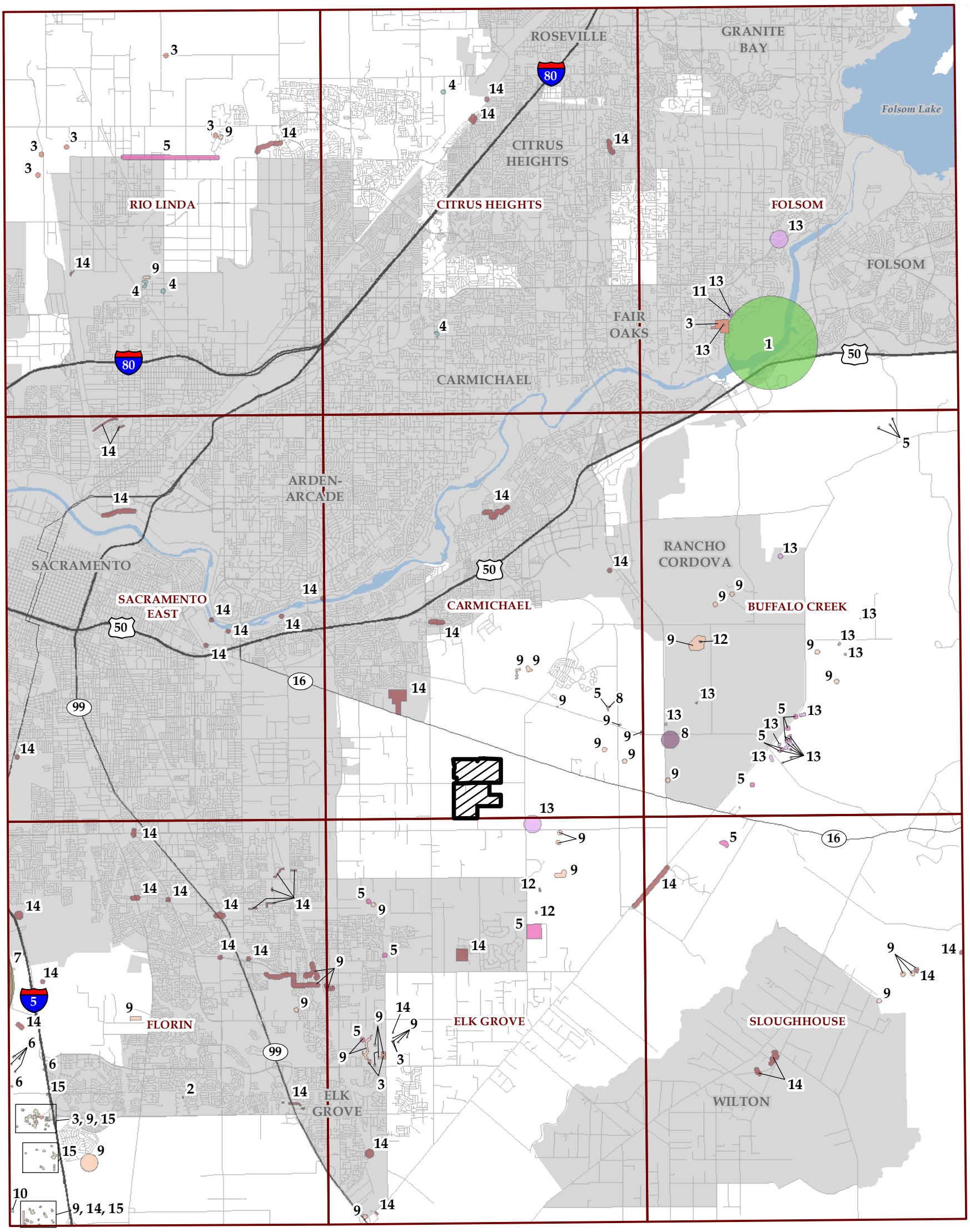
Soil Survey Provided by NRCS (Nov. 26, 2013)
USGS 7.5' Quads: Carmichael & Elk Grove
Property Boundary Provided by RFE Engineering (Mar. 2014)

DISCLAIMER:

The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 10/22/2014 AS8_AS9_BRA_Fig7_Soils_201410.mxd



CNDDB RARE PLANT SPECIES:

1 - Clarkia biloba ssp. brandegeeae
2 - Cuscuta obtusiflora var. glandulosa
3 - Downingia pusilla
4 - Fritillaria agrestis
5 - Gratiola heterosepala
6 - Hibiscus lasiocarpos var. occidentalis
7 - Juglans hindsii
8 - Juncus leiospermus var. ahartii
9 - Legenere limosa
10 - Lepidium latipes var. heckardii
11 - Navarretia myersii ssp. myersii
12 - Orcuttia tenuis
13 - Orcuttia viscida
14 - Sagittaria sanfordii
15 - Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

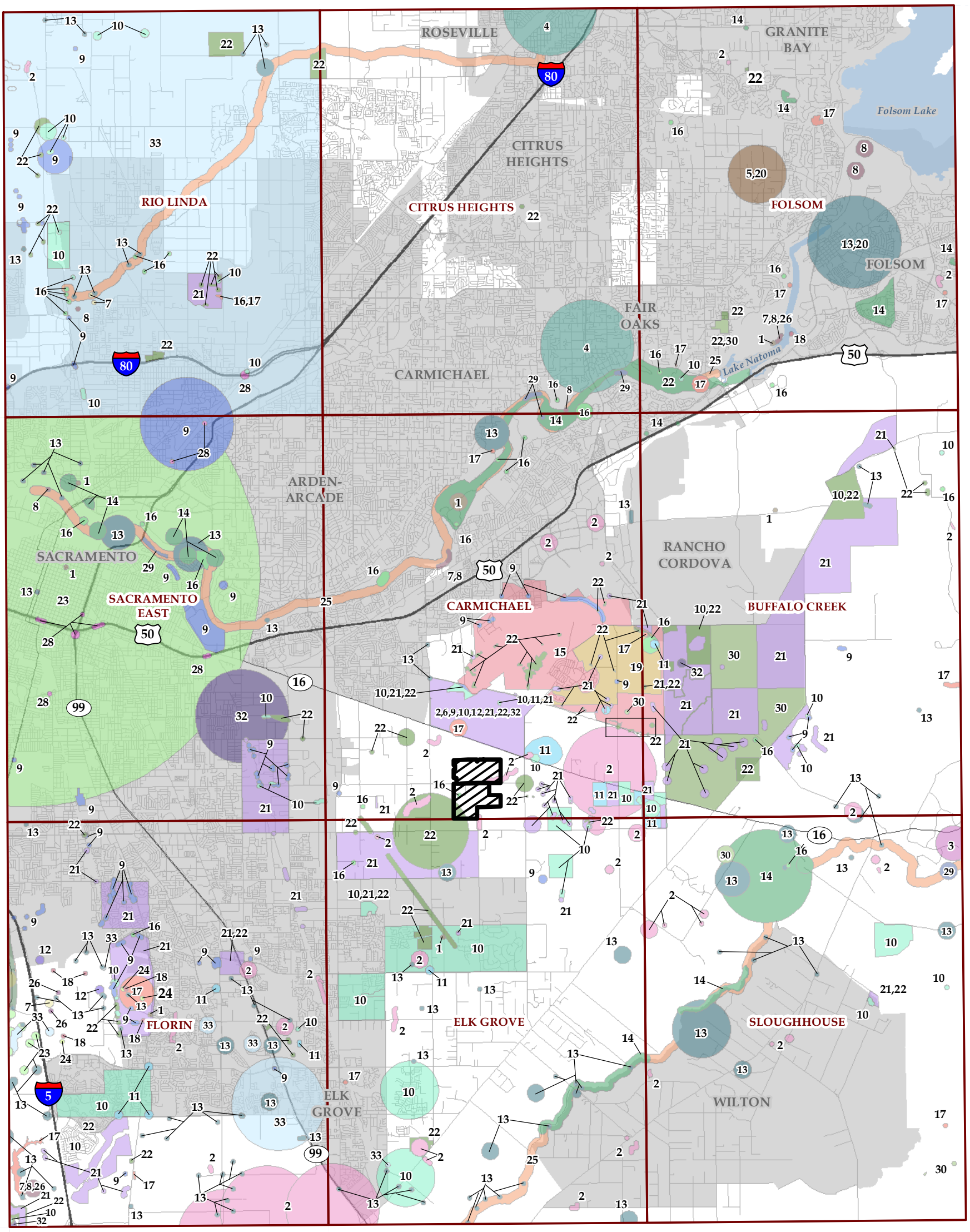
FIGURE 8

CNDDB RARE PLANT LOCATIONS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/24/2014 AS8_AS9_BRA_Fig8_CNDDB_Plants_201410.mxd



CNDDB RARE ANIMAL SPECIES:

1- Accipiter cooperii
2 - Agelaius tricolor
3 - Andrena blennospermatis
4 - Andrena subapasta
5 - Antrozous pallidus
6 - Aquila chrysaetos
7 - Ardea alba
8 - Ardea herodias
9 - Athene cunicularia
10 - Branchinecta lynchi
11 - Branchinecta mesovallensis
12 - Buteo regalis
13 - Buteo swainsoni
14 - Desmocerus californicus dimorphus
15 - Dumontia oregonensis
16 - Elanus leucurus
17 - Emys marmorata
18 - Falco columbarius
19 - Hydrochara ricksecker
20 - Lasionycteris noctivagans
21 - Lepidurus packardi
22 - Linderiella occidentalis
23 - Melospiza melodia
24 - Nycticorax nycticorax
25 - Oncorhynchus mykiss irideus
26 - Phalacrocorax auritus
27 - Pogonichthys macrolepidotus
28 - Progne subis
29 - Riparia riparia
30 - Spea hammondii
31 - Spirinchus thaleichthys
32 - Taxidea taxus
33 - Thamnophis gigas
34 - Xanthocephalus xanthocephalus

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
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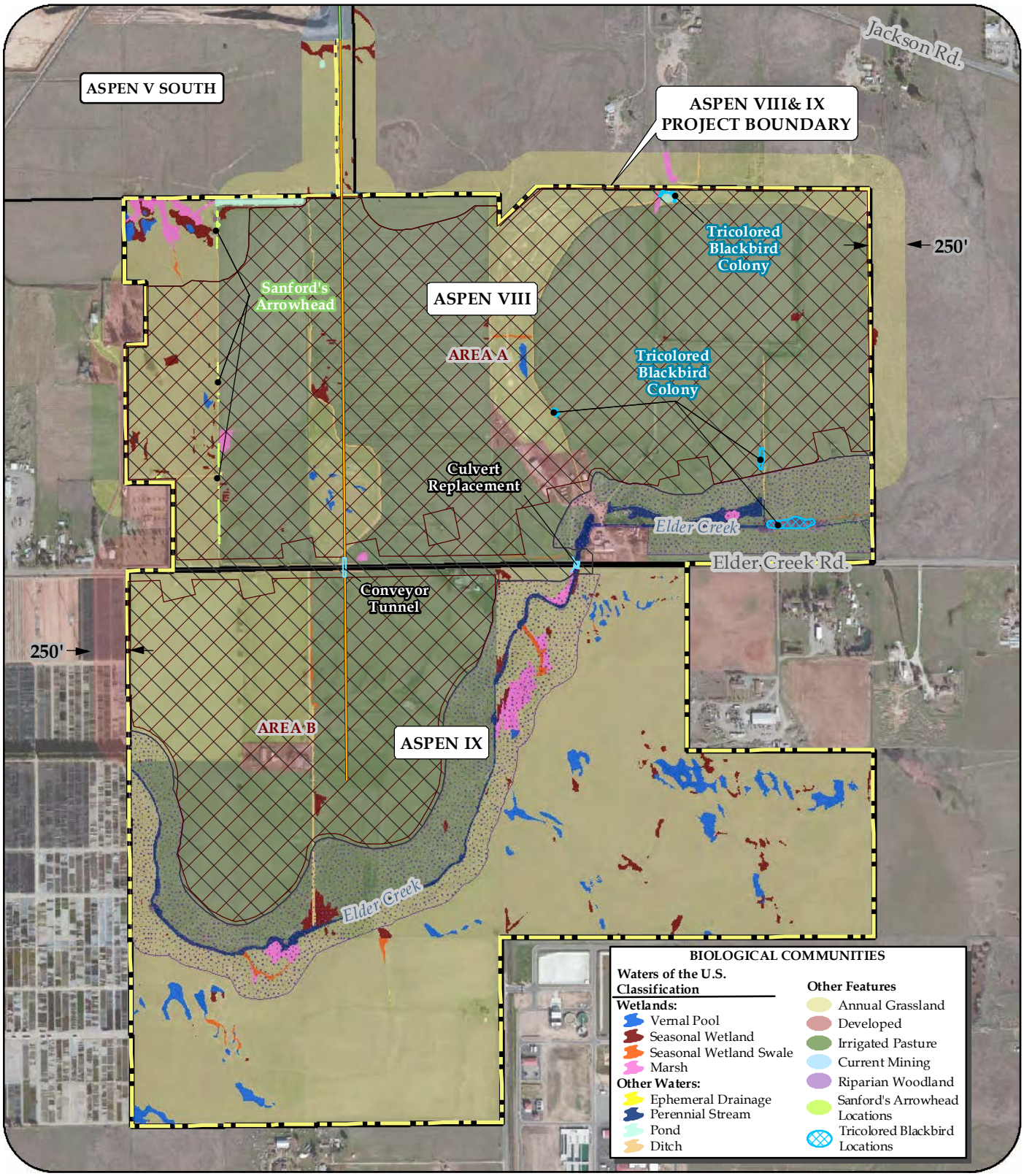
FIGURE 9

CNDDB RARE ANIMAL LOCATIONS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/24/2014 AS8_AS9_BRA_Fig9_CNDDB_Animals_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Survey Study Area
- Proposed Mining Boundary
- Limits of Disturbance
- Proposed Preserve
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 10

BIOLOGICAL RESOURCES AND IMPACTS

BIOLOGICAL RESOURCES ASSESSMENT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/16/2015 AS8_AS9_BRA_Fig10_BioImpacts_201506.mxd

Teichert – Aspen VIII & IX Biological Resources Assessment
Special-Status Species Known or Potentially Known to Occur within the Project Vicinity

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
PLANTS				
FERRIS' MILKVETCH *Astragalus tener* var. *ferrisiae*	— / — / 1B	Vernally moist meadows, alkaline flats & fallow rice fields. Scattered throughout the Sacramento Valley region from Butte Co. south to Solano Co. Elev. <75 m.	April - May	Unlikely to Occur
ALKALI MILKVETCH *Astragalus tener* var. *tener*	— / — / 1B	Alkali meadows, vernal pools & playas, edges of salt marshes, & moist grassy flats. Western portion of Central Valley & San Francisco Bay area from Yolo Co. south to Merced, San Benito & Monterey Cos. Elev. < 60 m.	March - June	Unlikely to Occur
HEARTSCALE *Atriplex cordulata* var. *cordulata*	— / — / 1B	Generally alkali grassland, alkali meadow & alkali scrub. Occasional on margins of alkali pools. Western Central Valley from Glenn Co. south to Tulare & San Luis Obispo Cos. Elev. < 200 m.	April - Oct	Unlikely to Occur
BRITTLESCALE *Atriplex depressa*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Mostly western regions of Sacramento Valley from Glenn & Butte Cos. south throughout the San Joaquin Valley (Kern Co.). Elev. < 320 m.	May - Oct	Unlikely to Occur
SAN JOAQUIN SALTBUSH *Atriplex joaquiniana*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Western Central Valley & Inner South Coast Range from Glenn Co. south to San Luis Obispo Co. Elev. < 835 m.	April - Oct	Unlikely to Occur
VERNAL POOL SMALLSCALE *Atriplex persistens*	— / — / 1B	Deeper portions of large, alkaline vernal pools. Central Valley from Glenn Co. south to Tulare Co. Most occurrences in San Joaquin Valley. Elev. < 115 m.	June - Oct	Unlikely to Occur
HISPID BIRD'S-BEAK *Cordylanthus mollis* ssp. *hispidus*	— / — / 1B	Saline marshes, alkali flats & alkali vernal pools. Scattered locations throughout San Joaquin Valley. Also Solano & Alameda Cos. & near Rocklin in Placer Co. Elev. < 150m.	June - Sept	Unlikely to Occur
PALMATE BIRD'S-BEAK *Cordylanthus palmatus*	FE / SE / 1B	Saline alkali flats, alkali scrub & alkali grassland. Scattered locations in the Central Valley from Glenn Co. south to Fresno Co. Also Livermore Valley in Alameda Co. Elev. < 150 m.	May - Oct	Unlikely to Occur
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B	Vernal pools & swales, ephemeral drainages & margins of other seasonal wetlands. Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. < 450 m.	March - May	Could Occur
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B	Swales, vernal pools, moist flats & ephemeral drainages. North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	May - August	Unlikely to Occur
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B	Marshy lake margins, cattle ponds & in vernal pools. Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	April - Aug.	Could Occur
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4.	Vernal pools & seasonally saturated clay flats. Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Luis Obispo Co. Elev. < 500 m.	March - June	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
AHART'S DWARF RUSH *Juncus leiospermus* var. *ahartii*	— / — / 1B	Vernal pools, swales & ephemeral drainages. Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	March - May	Could Occur
LEGENERE *Legenere limosa*	— / — / 1B	Vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	April - June	Could Occur
HECKARD'S PEPPERGRASS *Lepidium latipes* var. *heckardii*	— / — / 1B	Alkali flats and alkali grassland near the margins of vernal pools. Western Sacramento Valley from Glenn Co. south to Solano Co. Elev. < 200 m.	March - May	Unlikely to Occur
HOARY NAVARRETIA *Navarretia eriocephala*	— / — / 4	Seasonally wet flats, usually in heavy soil. Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	May - June	Unlikely to Occur
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4	Typically growing heavy soils, vernal pools, & drying flats. Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	April - June	Unlikely to Occur
BAKER'S NAVARRETIA *Navarretia leucocephala* ssp. *bakeri*	— / — / 1B	Vernal pools and ephemeral drainages. Western Sacramento Valley & northern Inland Coast Range from Glenn & Mendocino Cos. to Solano Co. Elev. < 1700 m.	April - July	Unlikely to Occur
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B	Vernal pools, usually with acidic soils. E. Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	April - May	Could Occur
ADOBE NAVARRETIA *Navarretia nigelliformis* ssp. *nigelliformis*	— / — / 4	Vernal pools & vernally moist swales. Scattered locations from the Sierra Nevada Foothills, Central Valley & Inner South Coast Range. Elev. 90-1000 m.	April - June	Unlikely to Occur
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B	Generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev. 30-1700 m.	May - Oct	Could Occur
SACRAMENTO ORCUTT GRASS *Orcuttia viscida*	FE / SE / 1B	Generally found in larger, deeper vernal pools. Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	April - Sept	Could Occur
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	May - Aug	Known to Occur
SALINE CLOVER *Trifolium depauperatum* var. *hydrophilum*	— / — / 1B	Salt marshes, alkali meadows, & vernal pools. Central Western California (Sonoma Co. to San Luis Obispo Co.) & southwestern Sacramento Valley. Elev. < 300 m.	April - June	Unlikely to Occur
INVERTEBRATES				
ANDRENID BEE *Andrena subapasta*	— /—/CNDDB	Inhabits upland areas near vernal pools. Females collect pollen primarily from *Arenaria*, but also *Triphysaria eriantha* and *Lasthenia* flowers. Occurs in vernal pool grassland habitats in El Dorado, Placer, Sacramento and San Joaquin Cos.	Late Feb - early May	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
BLENNOSPERMA VERNAL POOL ANDRENID BEE *Andrena blennospermatis*	— /—/CNDDB	Bee is oligolectic on *Blennosperma*. Occurs in vernal pool grassland habitats where *Blennosperma* is found. Records include scattered locations along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento & Tehama Cos., & near the base of the Coast Ranges in Contra Costa, Lake & Sonoma Cos.	Late Feb - April	Unlikely to Occur
CONSERVANCY FAIRY SHRIMP *Branchinecta conservatio*	FE/ — / —	Alkaline pools, vernal lakes & vernal pools that are typically large and/or relatively deep and moderately turbid. Known from several disjunct locations in the Central Valley from Tehama Co. south to Ventura Co.	Nov - May	Unlikely to Occur
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	Nov - May	Known to Occur
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	Nov - May	Likely to Occur
Hairy water flea *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento Co., as well as from Solano Co. Little information exists regarding the species' habitat or life history requirements.	Nov - May	Could Occur
RICKSECKER'S HYDROCHARA *Hydrochara ricksecker*i	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	Nov - May	Could Occur
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	Nov - May	Likely to Occur
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to Fresno County, across the Central Valley and some of the coast ranges.	Nov - May	Likely to Occur
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/—	The subspecies occurs at scattered locations in the Central Valley & adjacent foothills of the Sierra Nevada & Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., *Sambucus* spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant).	Year-round (exit holes)	Could Occur
AMPHIBIANS				
CALIFORNIA TIGER SALAMANDER *Ambystoma californiense*	FT / ST / —	Restricted to large vernal pools, seasonal ponds, or stock ponds that hold water for at least 4 months during spring for breeding & larval development. Adult non-breeding habitat is generally grasslands & oak savannah. In Sacramento Co. known only from southeastern county (south of the Cosumnes River).	March - May	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
WESTERN SPADEFOOT *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, & quiet in-channel pools for breeding & larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley & surrounding foothills from Colusa Co. to Tulare Co. In Sacramento Co., known from southeastern county (mostly south of the Cosumnes River), but also at Mather Field vernal pool complex.	March - May	Could Occur
CALIFORNIA RED-LEGGED FROG *Rana draytonii*	FT/—/ SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and stream-sides with plant cover. Most common in lowlands or foothills along the California coast and surrounding the Central Valley. Only a handful of scattered populations within the Central Valley.	Jan – Feb	Unlikely to Occur
REPTILES				
WESTERN POND TURTLE *Emys marmorata*	—/—/ SSC	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers). Loose soils in adjacent banks, grasslands, and open woodland for nesting.	March - Oct	Could Occur
GIANT GARTER SNAKE *Thamnophis gigas*	FT / ST / —	Found in marshes, low gradient streams and adjacent rice fields supported by perennial fresh water in the Central Valley. All credible occurrences in Sacramento County are west of State Route 99.	April - Sept	Unlikely to Occur
BIRDS				
AMERICAN WHITE PELICAN *Pelecanus erythrorhynchos* (nesting colony)	—/—/ SSC	California's nesting pelicans have been confined mainly to the Klamath Basin, within Siskiyou, Modoc and Lassen Cos. Historic breeding range includes the Central Valley, prior to large-scale urban and agricultural development. No nesting records exist for this species within Sacramento Co.	March - July	Unlikely to Occur
LEAST BITTERN *Ixobrychus exilis* (nesting)	—/—/ SSC	Breeds in tall emergent vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps. Breeding populations known from throughout California, including the Central Valley. In Sacramento Co., only known to occur in far eastern portion of county.	May – July	Unlikely to Occur
WHITE-FACED IBIS *Plegadis chihi* (nesting colony)	—/—/ CNDDB	This species nests at scattered locations in the Central Valley as well as elsewhere in California where there are dense, freshwater emergent wetlands. No breeding colonies known from Sacramento Co.	May – July	Unlikely to Occur
DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus* (nesting colony)	—/—/ CNDDB	Breeding colonies are typically formed in clusters of large trees near water. Require aquatic bodies (lakes, ponds) large enough to support a mostly fish diet. Only records from Sacramento Co. are from the American River & the Delta region.	April – Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near dense-topped trees (for nesting and roosting). Occurs throughout Sacramento County.	Year-round	Could Occur
NORTHERN HARRIER *Circus cyaneus* (nesting)	—/—/ SSC	Nests in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Occurs throughout Sacramento County.	Year-round	Could Occur
BALD EAGLE *Haliaeetus leucocephalus* (nesting & wintering)	FD/ SE / CFP	Nests near large lakes, reservoirs, and rivers. Wintering occurs near these latter habitats as well as in rangelands and coastal wetlands. Occasional winter visitor in Sacramento County.	Oct - March	Unlikely to Occur
GOLDEN EAGLE *Aquila chrysaeto* (nesting & wintering)	—/—/ CFP	Nests on secluded cliffs, but may also use large, isolated trees. Hunts widely over open areas. Most records in Sacramento County are winter occurrences from the far eastern portions of the county.	Year-round	Unlikely to Occur
COOPER'S HAWK *Accipiter cooperii* (nesting)	—/—/CNDDB	Nests in dense riparian or oak woodland. Hunts and winters in wide variety of woodland and forest vegetation communities. Most nesting occurrences in Sacramento County are associated with riparian habitat along the larger rivers or large urban stands of trees.	May - July	Unlikely to Occur
SHARP-SHINNED HAWK *Accipiter striatus* (nesting)	—/—/ CNDDB	Nests in dense pole and small-tree stands of riparian and coniferous forest near water. Hunts and winters in wide variety of woodland and shrub vegetation communities. No nesting occurrences in Sacramento County have been documented.	May - July	Unlikely to Occur
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— /ST / —	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Scattered throughout Sacramento County.	April - Sept	Could Occur
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Hunts in expansive, open vegetation communities. Winter visitor in small numbers throughout Sacramento County.	Oct - April	Could Occur
PRAIRIE FALCON *Falco mexicanus* (nesting)	—/—/ SSC	Nests on secluded cliffs, bluffs, or rock outcrops (particularly with southeastern exposure). Hunts in open terrain (grassland, oak savannah, and early succession stages of shrub and woodland habitats). Most records in Sacramento County are winter occurrences from the far eastern portions of the county.	April - Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
AMERICAN PEREGRINE FALCON *Falco peregrinus anatum* (nesting)	FD/ SD / CFP	Species occurs all over the world; in North America, breeds in open landscapes with cliffs (or skyscrapers) for nest sites. Can be found nesting at elevations up to 12,000 feet, as well as along rivers, coastlines, or in cities. Known from mountain & coastal regions throughout the state. No records for this species from the Central or Sacramento Valleys.	March – Aug	Unlikely to Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. It is less often found in open desert. It typically requires dense stands of trees for cover and roosting. It is most often found where there are substantial populations of small birds (the primary prey item). It is a regular winter visitor to Sacramento County.	Oct - March	Could Occur
GREAT BLUE HERON *Ardea herodias* (nesting colony)	—/—/ CNDDB	Breeding colonies are located in trees near isolated swamps or on islands, or near lakes and ponds bordered by forests. Foraging habitat includes freshwater and saltwater wetlands/water bodies, as well as grasslands and agricultural fields. Known to breed in Sacramento Co. only along the American & Cosumnes Rivers & the Delta region.	March – May	Unlikely to Occur
GREAT EGRET *Ardea alba* (nesting colony)	—/—/ CNDDB	Nesting colonies are located in large trees adjacent to bodies of water, such as lakes, ponds, marshes and estuaries. Foraging habitat includes a variety of wetland habitats. Known to breed in Sacramento Co. only along the American & Cosumnes Rivers & the Delta region.	April - May	Unlikely to Occur
MOUNTAIN PLOVER *Charadrius montanus* (wintering)	—/—/ SSC	Found patchily distributed as a wintering species in California where it occurs on relatively level lands with short grass, plowed or burned agricultural fields, and sprouting grain or alfalfa fields. Species tends to show high site fidelity and has never been recorded in Sacramento County.	Oct - March	Unlikely to Occur
SHORT-EARED OWL *Asio flammeus* (nesting)	—/—/ SSC	Suitable nesting habitat is provided by freshwater and coastal marshes, coastal prairie and dunes, wet meadows, and dense grasslands. There is only a single nesting season record for Sacramento County (along Desmond Road in the south county).	April - July	Unlikely to Occur
LONG-EARED OWL *Asio otus* (nesting)	—/—/ SSC	Species requires grassland or other open spaces for foraging, as well as dense tall shrubs or trees for nesting and roosting. Scattered populations exist in the mountain and coastal regions of the state; no records exist for this species within Sacramento Co.	Feb - July	Unlikely to Occur
BURROWING OWL *Athene cunicularia* (burrow sites & some wintering sites)	—/—/ SSC	Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Forages in similar habitats.	Year-round	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging. Occurs throughout Sacramento County in small numbers.	April - July	Could Occur
CALIFORNIA GULL *Larus californicus* (nesting colony)	—/—/ CNDDB	Breeds on islands in lakes or rivers in the Sierra Nevada & Cascade Ranges, & on the coast. Forages in a variety of habitats, from parking lots to farm fields to the open ocean. No nesting season records exist for this species in the Central or Sacramento Valleys.	May - July	Unlikely to Occur
WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis* (nesting)	FT / SE / —	Species is restricted to cottonwood & willow-dominated riparian forests along large rivers. The majority of breeding population currently concentrated along upper Sacramento River. Extirpated from Sacramento Co. Only one historic record in the County, from the Sacramento River near the Delta.	June - Aug	Unlikely to Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting & communal roosts)	—/—/ CNDDB	Found as a resident & wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, & other open woodland types near water (generally where there are large trees with dense cover for nesting and roosts). Scattered throughout Sacramento County.	Year-round	Likely to Occur
PURPLE MARTIN *Progne subis* (nesting)	—/—/ SSC	Extremely localized & limited distribution along Central to North Coast, Sierra Nevada and Cascades, southern California mountains, & Sacramento. Nests mostly in old woodpecker cavities in tall, old, isolated trees or snags. However, the small population in Sacramento County appears to be limited to the drainage holes on the underside of bridges (mostly along the I-5, US 50, and I-80 corridors).	April - Sept	Unlikely to Occur
BANK SWALLOW *Riparia riparia* (nesting)	— / ST / —	Formerly found as a summer nesting species within a larger California distribution along the coast & adjacent to larger streams & rivers. Range is now concentrated along Central Valley streams & rivers. Species nests in vertical banks & cliffs with fine-textured sandy soils. No existing nesting habitat for the species occurs on the project site, but mining activities can create habitat that is sometimes then used by the species. There have been no occurrences of nesting in mining sites in Sacramento Co.	April - July	Unlikely to Occur
WILLOW FLYCATCHER *Empidonax traillii* (nesting)	— / SE / —	Breeds from southern British Columbia, Alberta, North Dakota, New York, & Maine south to central California, Nevada, Arkansas, & Virginia. Nests in riparian brush dominated by deciduous willows/shrubs. Nesting season records for the state limited to the Sierra Nevada & Cascades; no records exist within Sacramento Co.	May - Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Aspen VIII/IX Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
GRASSHOPPER SPARROW *Ammodramus savannarum* (nesting)	—/—/ SSC	Nests in dense, dry, expansive grasslands (sometimes with scattered shrubs). Forages in similar habitat. Species exhibits extreme site fidelity. In Sacramento Co. known only from southeastern county (mostly along Meiss Road).	April - July	Unlikely to Occur
SONG SPARROW (MODESTO POPULATION) *Melospiza melodia* "Modesto" (nesting)	—/—/ SSC	The Modesto Song Sparrow is found in areas containing extensive wetlands, such as the Sacramento-San Joaquin Delta. Prefers freshwater marsh & riparian forest habitats with available water, open areas for foraging & moderately dense vegetation cover for nesting. Known to occur in Sacramento Co. only from the Sacramento River & Delta region.	March - Aug	Unlikely to Occur
TRICOLORED BLACKBIRD *Agelaius tricolor* (nesting)	—/ SE / —	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or grasses. Forages in grassland or rangeland providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within at least three miles of the nest colony. Nesting colonies are scattered throughout Sacramento Co.	April - July	Known to Occur
MAMMALS				
PALLID BAT *Antrozous pallidus*	—/—/ SSC	Found as a resident in all desert, grassland, shrub, woodland, & forest habitats from sea level to approximately 6,000 feet. Day roosts are typically found in buildings, bridges, rocky outcrops, mines, caves, & trees. Night roosts are generally provided by bridges, mines, & caves. Only a small number of occurrences are known for Sacramento Co.	April - Sept	Unlikely to Occur
WESTERN RED BAT *Lasiurus blossevillii*	—/—/ SSC	Occurs at scattered locations throughout the lowland portions of California west of the Sierra Nevada crest and desert regions (typically in riparian forest or orchards). Roosting sites are found in tree or shrub foliage between 2 - 40 ft above ground (typically in large cottonwoods, sycamores, walnuts, and willows). In Sacramento County known from scattered occurrences throughout the county.	April - Sept	Unlikely to Occur
YUMA MYOTIS *Myotis yumanensis*	—/—/ CNDDB	Found in a variety of habitats (including coastal vegetation communities & urban areas) with nearby sources of water over which the species forages. Day roosts are found in caves, mines, buildings, or crevices. Night roosts are typically associated with bridges, buildings, & other man-made structures. In Sacramento Co. known from scattered occurrences throughout the county.	April - Sept	Unlikely to Occur
AMERICAN BADGER *Taxidea taxus*	—/—/ SSC	Found as a resident species at scattered localities throughout California (except in the coastal redwood region). Generally occurs in extensive, open habitats in the vicinity of abundant rodent populations. In Sacramento Co. known mostly from the far eastern portions of the county.	Year-round	Unlikely to Occur

SPECIAL STATUS CODE ABBREVIATIONS AND DEFINITIONS	
FEDERAL	
FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threatened
FC	Federal Candidate Species (former Category 1 candidates)
FD	Federally Delisted
STATE	
SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
SD	State Delisted
Other	
CFP	California Department of Fish and Wildlife designated "Fully Protected"
SSC	California Department of Fish and Wildlife designated "Species of Special Concern"
1A	California Rare Plant Rank - Presumed extinct
1B	California Rare Plant Rank - Rare or Endangered in California and elsewhere
2A	California Rare Plant Rank - Presumed extirpated in California, more common elsewhere
2B	California Rare Plant Rank - Rare or Endangered in California, more common elsewhere
3	California Rare Plant Rank - Plants About Which More Information is Needed, A Review List
4	California Rare Plant Rank - Plants of Limited Distribution, A Watch List
CNDDB	Species is tracked by the California Department of Fish and Wildlife's "California Natural Diversity Database"

LIKELIHOOD OF OCCURRENCE DEFINITIONS	
Known to Occur	Taxon was observed at the Project site during recent surveys.
Likely to Occur	Taxon previously reported within or immediately adjacent to the Project site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project site.
Could Occur	Suitable habitat is available at the Project site; however, there is little to no other indicators that the taxon might be present.
Unlikely to Occur	Taxon is unlikely to be present due to poor habitat quality, lack of suitable habitat features, or known restricted current distribution that does not include the Project area.

ATTACHMENT B

Teichert's Aspen VIII & IX Biological Resources Assessment
Rare Plant Survey Report

SPECIAL-STATUS PLANT SPECIES SURVEY REPORT

Teichert – Aspen VIII & IX

Sacramento County, California

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~~December 2014~~
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ASPEN VIII & IX PROPERTIES

TEICHERT AGGREGATES – SACRAMENTO COUNTY, CALIFORNIA

Special-Status Plant Species Survey Report

July 2015

1.0 INTRODUCTION

This report presents the methods and results of special-status plant surveys conducted on Teichert Aggregates' (Teichert's) Aspen VIII and Aspen IX properties (Property). The Property, comprised of approximately 682 acres, is located in the unincorporated portion of Sacramento County (Figure 1). Teichert is proposing to mine existing aggregate material (sand and gravel) on approximately 357 acres of the Property (Project). The proposed Project will consist of aggregate removal and conveyance, as well as reclamation for agricultural (grazing) purposes. The Project is an extension of mining on Teichert's 'Aspen' properties, which have continuously supplied aggregate resources to Teichert's materials processing operations since the 1950s.

1.1 PROPERTY SITE LOCATION AND DESCRIPTION

The Property is located approximately 2 miles south of Mather Field in Sacramento County and includes two separate properties owned by Teichert, known as Aspen VIII (APNs 063-01800-005, -006 and 063-01600-001) and Aspen IX (APNs 066-0020-006, 066-0030-001 and 066-0050-003) (Figure 2). Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will eventually tie in with an existing conveyor system on Aspen V-South. This portion of conveyor between Aspen VIII and Aspen V-South (APN 063-0190-027) has been included as part of the Project (collectively, Project Site) (Figure 2). The Project Site is located in Township 08N, Range 06E, Sections 27, 28, 33, and 34 with a portion of Aspen VIII falling in the Rio De Los Americanos Land Grant (MDBM) of the "Carmichael, California" 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 1981). The approximate center of the site is located at 38° 30' 39" North and 121° 19' 03" West within the Elder Creek Watershed.

Elder Creek Road bisects the two properties, with Aspen VIII occurring to the north and Aspen IX to the south. Elder Creek enters the Project Site from the east on Aspen VIII, where it was historically channelized, and eventually enters Aspen IX on the north following its natural course before exiting on the west. The Project includes mining the majority of the Aspen VIII site, as well as the northwestern portion of Aspen IX, north of Elder Creek. The Project also includes the installation of a larger culvert under Elder Creek Road to increase the capacity of flows under the road and of a turn lane south of Aspen VIII to accommodate trucks.

2.0 ENVIRONMENTAL SETTING

The Project Site consists of approximately 682 acres of land, including Elder Creek which traverses through the site in an east to west direction. The majority of the site is utilized as rangeland for livestock and irrigated pasture for forage production. Some portions of the site have been dry farmed, primarily for wheat. Three separate rural residential houses and/or associated farm buildings also occur on the Project Site. Surrounding land uses include additional rangeland and rural residential homes, agricultural cropland, a nursery facility (Village Nurseries), two cemeteries (Arlington Memorial Cemetery and Bellevue Cemetery), and a wastewater treatment facility (Vineyard Surface Water Treatment Plant).

2.1 CLIMATE, TOPOGRAPHY, AND HYDROLOGY

Sacramento, as with the rest of California's Central Valley, is typical of a Mediterranean-type climate with hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 38°F in December to a high of 92°F in July (usclimatedata.com). Average annual precipitation is approximately 18.51 inches, with January usually the wettest month (usclimatedata.com).

The majority of the Project Site consists of historically leveled fields for both dryland grazing and irrigated pasture. Moderate rolling hills also characterize the topography of the site on other areas. The elevation of the site ranges from approximately 60 to 85 feet above mean sea level (MSL).

The Project Site is located within boundaries of the Morrison Creek and Elder Creek Watersheds (Figure 3). The Morrison Creek watershed encompasses approximately 200 acres in both Aspen VIII and IX, while the Elder Creek Watershed includes approximately 483 acres. Although Morrison Creek itself does not traverse the Project Site, its southern watershed boundary lies within the western portion of Aspen VIII and along the northwestern portion of Aspen IX before transitioning into the Elder Creek watershed to the south. Elder Creek occurs on both Aspen VIII and IX, whereby it enters Aspen VIII on the southeast and exits Aspen IX on the west (Figures 2 and 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized.

Elder Creek originates near the intersection of Kiefer Boulevard and Eagles Nest Road and eventually discharges into Morrison Creek near Brookfield Drive in the City of Sacramento, approximately 8 miles west of the Project Site. Historically, Elder Creek was probably an ephemeral to intermittent watercourse, seasonally supported by winter precipitation and runoff from the surrounding uplands. Today, however, the majority of Elder Creek can be characterized as a semi-perennial creek fed primarily by runoff from ranches, residential areas, and irrigated pasture lands. Within the Project Site, Elder Creek is bordered by irrigated pastures, which are supported by a groundwater release and recycling system that provides year-round irrigation to fields. In this system, groundwater is first supplied to pastures during the early summer months and allowed to sheet across fields. This water eventually

drains into a network of surrounding ditches and irrigation ponds for capture and reutilization, while excess irrigation runoff flows to Elder Creek.

2.2 SOILS

The Natural Resources Conservation Service (NRCS) soil surveys for Sacramento County identifies six soil types within in the Project Site (NRCS 1993). The most predominant soil component is Red Bluff-Xerarents complex, 0 to 2 percent slopes, which is distributed throughout much the proposed mining area (Figure 4). Red Bluff loam, 0 to 2 percent slopes is the second-most predominant soil type on the Project Site (Figure 4). Other soil types include San Joaquin silt loam, 0 to 3 percent slopes; Kimball silt loam, 0 to 2 percent slopes; San Joaquin silt loam, leveled; and Hedge loam, 0 to 2 percent slopes (Figure 4). Detailed summaries of these soil types have been described in the original wetland delineation report prepared by Foothill Associates (2006).

2.3 EXISTING HABITAT AND PLANT COMMUNITIES

Presently, both annual grasslands and irrigated pastures dominate the landscape on the Project Site (Figure 5). Elder Creek appears on the USGS 7.5-minute series Carmichael and Elk Grove, California quadrangles as a solid blue line feature (perennial drainage) and traverses the Project area in a northeast to southwest direction. Foothill Associates conducted a wetland delineation for the Aspen VIII and IX Property in 2006 (Foothill 2006). ECORP Consulting, Inc. revised the delineation in November 2009 and March 2009 and again in march 2014 as part of the development of the proposed Project (ECORP 2009; ECORP 2010; ECORP 2014). The U.S. Army Corps of Engineers issued a preliminary jurisdictional determination (PJD) on 03 June 2014. A total of 27.795 acres of wetland and waters of the U.S. have been identified on the Project Site (Figure 5). These include a perennial stream (Elder Creek), vernal pools, seasonal wetlands and swales, an ephemeral drainage, freshwater marshes, ditches, and ponds (Figure 5).

Other features on the Project Site include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the site.

3.0 SPECIAL-STATUS PLANT SPECIES

Special-status plants are those that are legally protected under state and federal Endangered Species Acts (ESAs) or other regulations, or species that are considered sufficiently rare by the scientific community to qualify for such listing. These include the following:

- Plants listed or proposed for listing as threatened or endangered under the federal ESA or candidates for possible listing as threatened or endangered under the ESA (50 Code of Federal Regulations (CFR] §17.12);

- Plants listed or candidates for listing by the state of California as threatened or endangered under the California ESA (Fish and Game Code of California §2050 et seq.);
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code of California §1900 et. seq.);
- Plants listed that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) §15380;
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR]1A, 2B, 2A and 2B); and
- Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (CRPR 3 and 4). In general, these plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA §15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

4.0 METHODS

This section describes the methods used to conduct special-status plant surveys on the Project Site. All research and surveys were conducted over a two-year period.

4.1 PRE-FIELD SURVEY INVESTIGATIONS

Prior to field surveys, a preliminary list of special-status plants that have the potential to occur on the Project Site and are documented in the regional area was generated by a query search of existing databases and agency information, including:

California Natural Diversity Database (Rarefind Version 5) – Database query of special-status plant species and sensitive natural communities reported in the study area; generated on 05 March 2013 and 14 August 2014 (CNDDB 2014) (Figure 6). Query included the "Carmichael, California" 7.5-minute quadrangle and eight surrounding quadrangles;

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered plant species having the potential to occur in the study area; generated on 15 March 2013 (USFWS 2013) and 07 April 2014 (USFWS 2014); and

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status plants that may occur in the study area; generated on various dates between March 2013 (CNPS 2013) and August 2014 (CNPS 2014).

A list of all special-status plant species known or potentially known to occur on the Project Site is shown in Table A-1 in Appendix A. For each species (CRPR 1A, 1B, 2A, and 2B) identified as having a moderate to high potential to occur on the Project Site, phenological data and photographs were compiled prior to

field surveys. Specific information gathered included distribution, life cycles, habitat requirements, regional occurrence(s), representative photographs, and species keys. This information was referenced from the CNDDB data, individual treatments from Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012), and photographs from the CalPhoto website.

4.2 SPECIAL-STATUS PLANT SPECIES OCCURRENCE POTENTIAL

The potential for special-status plants depends largely on the presence of specific habitat types on the Project Site. Reconnaissance-level field surveys were conducted on 18 March 2013, and again on 09 April 2014, to review resources (i.e., wetlands) that warrant additional or more focused surveys. Habitat types identified during the reconnaissance-level field assessments were evaluated with known habitat requirements for each special-status plant species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- No Potential – species reported to have a current or historic range in the regional area, but does not occur on the Project Site due to the lack of required habitat for the species;
- Unlikely/Low Potential – species reported to have a current or historic range in the regional area, but has only marginal quality habitat on the Project Site (i.e., disturbed, fragmented, or otherwise degraded) or its presence cannot be completely discounted due to incomplete information on the taxon's distribution or habitat requirements;
- Moderate Potential – species reported to have a current or historic range in the regional area and moderate quality habitat on the Project Site;
- Present/High Potential – species previously reported from the site or otherwise expected to occur due to substantial habitat on the Project Site.

Based on review of the CNDDB and CNPS database searches, previously prepared biological reports for the Project Site and surrounding areas, and reconnaissance-level field surveys, it was determined the Project Site supports potential suitable habitat (moderate to high) for eight special-status plant species. These include dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* subsp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*). Detailed descriptions of these species and their potential to occur on the Project Site are provided in Appendix B.

Several other special-status plant species were identified in the database searches for the selected quadrangles. These species include Brandegee's clarkia (*Clarkia biloba* subsp. *brandegeae*), stinkbells (*Fritillaria agrestis*), Heckard's dwarf peppergrass (*Lepidium latipes* var. *heckardii*), California rose mallow (*Hibiscus lasiocarpos* var. *occidentalis*), and saline clover (*Trifolium hydrophilum*). These species did not have moderate to high potential to occur at the site due to the lack of specific habitat requirements on the Project Site, such as foothill woodland/grassland, chaparral, tidal marsh, saltwater marsh, or alkaline vernal pools and flats. Although there is a CNDDB record of Peruvian dodder (*Cuscuta*

obtusiflora var. *glandulosa*) within the nine quadrangle search area, this species was last seen in 1948 in Merced County and is thought to be extirpated.

It should be noted that focused surveys for Sacramento Orcutt grass and slender Orcutt grass were previously conducted by Foothill Associates in May 2008 (Foothill 2008). In addition, follow-up surveys of special-status plant species were conducted between March and July of 2010 by Teichert's biologist B. Baba (Teichert 2010). No rare plants were found during those surveys; however, a few remnant populations of Sanford's arrowhead may have existed in an irrigation ditch (Baba pers. observ. 2010). This ditch had been previously cleaned out by the farmer and positive identification could not be confirmed at the time.

4.3 FIELD SURVEY METHODS

Field surveys for special-status plants were conducted over a two year period from March 2013 through August 2014 in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001), the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 1996), and the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009).

4.4 REFERENCE POPULATIONS

Prior to and during the timeframe when surveys of the Project Site were conducted, various reference populations were visited. Reference populations were used to evaluate the condition of specific phenological traits needed to identify plants in the field, such as flowering and fruiting times. Teichert's biologist B. Baba visited various known populations of Legenere, dwarf downingia, bractless hedge-hyssop, Ahart's dwarf rush, Sacramento Orcutt grass, and Sanford's arrowhead within the regional area between April 2013 and July 2014. These sites included Teichert's Lincoln property in Placer County, Teichert's Aspen VI and Grantline properties in Sacramento County, Phoenix Field Vernal Pools in Sacramento County, Mather Field Vernal Pools in Sacramento County, and Jepson Prairie Preserve in Solano County.

Visiting additional species and reference sites was not feasible because of the uncertain status of many previously known locations, the lack of precise information on the location and ownership of local populations, and the lack of access to local populations on private and preserved lands.

4.5 ON-SITE FIELD SURVEYS

To determine if special-status plant species occur on the Project Site, surveys were conducted throughout the Project area for all potentially occurring species (as listed in Table A-1, Appendix A). In addition, the survey study area was extended outside the Project Site boundary to ensure all areas within 250-feet of the proposed mining footprint (i.e., proposed limits of disturbance) were covered (Figure 5). Specific survey dates were March 25th, April 22nd, May 6th and 22nd, and June 20th of 2013 and March 14th, April 14th, 23rd, 24th, May 1st and 23rd, June 19th, and July 14th of 2014. The survey

dates were established to encompass the range of flowering and identification periods for all species, with particular emphasis on the special-status plant species. Over the course of the 2-year survey period, Teichert's biologist B. Baba walked meandering transects across the entire Project Site. Teichert's biologist J. Greer also accompanied B. Baba on some of the 2014 surveys. Survey transects were spaced at 15- to 50-foot intervals, depending upon the existing terrain, habitat types, vegetation cover, and structural complexity. Special attention was given where the habitat type was determined to be suitable and most likely to support special-status plant species (i.e., wetlands). Many areas consisted of irrigated pastures dominated by various pasture species and thus provided limited or no suitable habitat for most special-status plants.

Owing to variance in the phenology and habitat preference of various species, surveys were conducted over a period of several months. Earlier surveys of vernal pools were also conducted to determine which wetlands to revisit later in the season that could most likely support Sacramento Orcutt grass or slender Orcutt grass. All habitats present on the Project Site were surveyed thoroughly in order to properly inventory and document any potential occurrences of special-status plant species. All plant species observed during the survey period were recorded in the field and presented in Appendix C. Nomenclature used follows the Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012).

5.0 EXISTING HABITATS AND PLANT COMMUNITIES

The majority of the Project Site consists of irrigated pastures and annual grasslands (Figure 5). Other habitats at the site include perennial stream (Elder Creek), vernal pool, seasonal wetland, swale and ephemeral drainage, ditches, ponds, riparian woodland, and ruderal. A brief summary of these habitats and plant communities are described below and shown in Figure 5. Representative photos of habitat types are also included in Appendix D.

5.1 IRRIGATED PASTURE

Irrigated pastures, totaling 331 acres north of Elder Creek, are maintained by farming practices that supply irrigation to leveled areas via groundwater wells and recycled water from ponds and Elder Creek. These areas are both grazed by cattle and harvested for forage. A network of ditches and ponds are associated with the irrigated pastures (further discussed in Section 5.7 below). Common plant species occurring in irrigated pastures include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

5.2 ANNUAL GRASSLAND

Annual grasslands on the Project Site are represented by both natural, undulating topography as well as historically leveled areas. This habitat community consists of 308 acres and includes grazing by cattle (Figure 5). Annual grasslands that have not been leveled are generally located south of Elder Creek, within the southern and eastern portions of Aspen IX. Similar landscapes are also present near the northwestern corner and south-central portion of Aspen VIII. These areas consist of relatively flat to moderately rolling hills dominated by soft chess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes (further discussed in Sections 5.4 and 5.5 below).

Some grassland areas experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*). Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley, hare barley, and ryegrass.

Trees are largely absent in annual grassland communities except along borders where other features exist (i.e., roads, ditches, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. In addition, a cluster of large red gum eucalyptus trees (*Eucalyptus camaldulensis*) occurs within the western section of Aspen VIII near an existing cemetery.

5.3 PERENNIAL STREAM (ELDER CREEK)

A total of 5.415 acres of perennial stream have been delineated on the Project Site (Figure 5). This includes approximately 8,470 lineal feet of Elder Creek. The creek is often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (Paspalum distichum), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is rather limited throughout much of the creek, probably due to present and past grazing pressures. Trees consisting of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*) are scattered along portions of Elder Creek, particularly within the Aspen VIII site. This area of the creek also supports dense stands of Himalayan blackberry (*Rubus armeniacus*) and California wild rose (*Rosa californica*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted

that this creek is hydrologically sustained from late-spring through summer by irrigation runoff from adjacent pastures.

5.4 VERNAL POOLS

Numerous vernal pools, totaling 7.260 acres, occur throughout the undisturbed grassland areas of the Project Site (Figure 5). These vernal pools vary in maximum water depth between a few inches to 20 inches deep, and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush (*Eleocharis macrostachya*), annual hairgrass, Mediterranean barley, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Typical resident wildlife species associated with the vernal pools include various aquatic invertebrates and amphibians such as the Sierra chorus frog (Pseudacris sierra). The vernal pool fairy shrimp (Branchinecta lynchi) and vernal pool tadpole shrimp (Lepidurus packardi), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools on the Project Site and adjacent areas (C. Rogers, pers. observ.).

5.5 SEASONAL WETLANDS, SWALES, AND EPHEMERAL DRAINAGE

The Project Site also supports numerous seasonal wetlands, swales, and an ephemeral drainage, totaling 7.005 acres (Figure 5). The majority of these seasonal wetlands follow a natural hydrologic pattern, whereby they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods, may also support the venal pool fairy shrimp.

In other instances, seasonal wetlands and swales are associated within irrigated pastures and affected by summer irrigation, remaining saturated or inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatsedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean beardgrass, and waxy mannagrass.

5.6 FRESHWATER MARSH

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the Project Site (Figure 5). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Due to an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, willow weed, and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

5.7 DITCHES AND PONDS

A network of ditches (2.444 acres) and ponds (0.920 acre) are scattered throughout irrigated pastures (Figure 5). The ditches collect irrigation runoff from pastures and eventually drain to ponds, from which irrigation water is redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia*, *P. maculosa*, *P. hydropiper*, and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall fescue, dallis grass, mannagrass, and annual beard grass. One ditch in Aspen VIII was dominated by Sanford's arrowhead.

Ponds on site are relatively deep, and thus pond centers tend to lack vegetation. Pond levels may also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. In addition, Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii* and *S. babylonica*), and valley oak (*Quercus lobata*) are often associated with nearby upland areas.

5.8 RIPARIAN WOODLAND

Riparian woodland vegetation (approximately 1.091 acres) is limited to patches of narrow bands along Elder Creek and around the perimeter of existing ponds (Figure 5). Most of these species consists of Fremont cottonwood, willows, Himalayan blackberry, and California wild rose. Most of Elder Creek lacks riparian woodland vegetation, probably due to past and present grazing pressures. Existing ditches also lack riparian woodland species due to routine maintenance activities.

5.9 RUDERAL

Ruderal vegetation is frequently associated with various equipment storage areas and access roads. In addition, disposal areas along ditches are frequently lined with ruderal species. Common ruderal plants at the site include field mustard (*Brassica rapa*), perennial mustard, radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, greenstem filaree (*Erodium moschatum*), redroot pigweed (*Amaranthus retroflexus*), and soft chess brome.

6.0 PLANT SURVEY RESULTS

A total of 261 taxa of vascular plants were identified on the Project Site (Appendix C). Of these taxa, 113 are native, 125 are naturalized, and 23 are ornamentals planted as landscape. A total of 26 species are considered noxious or invasive weeds in California (Cal-IPC 2014; CDFA 2014). No federal or state-listed plant taxa were observed. No elderberry (*Sambucus nigra* subsp. *caerulea*) shrubs, specific host plant for the federally-listed *Threatened* valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) were found. One rare plant species was documented within the survey area: Sanford's arrowhead (Figure 7; Appendix E).

Sanford's arrowhead is listed as a CRPR List 1B.2 plant. This species is an aquatic perennial member of the water-plantain family (Alismataceae). Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Sanford's arrowhead is widely distributed throughout the Central Valley between 0 and 650 meters. This species is presently known from Shasta to Kern Counties, with the majority of records occurring in Sacramento County. At the Project Site, large populations of Sanford's arrowhead (2,000+ individuals) were observed growing within an irrigation ditch in Aspen VIII, near the western portion of the property (Figure 7; Appendix E). Two individual plants were also observed in a connected ditch running east to west along the northern border of the adjacent cemetery. These ditches are fed by irrigation runoff from irrigated pastures to the east, before eventually emptying into a large irrigation pond on the northern project boundary. Common plants growing in association with the ditch and Sanford's arrowhead include tall flatsedge, creeping spikerush, creeping water primrose, waxy mannagrass, and rice cutgrass.

Sanford's arrowhead is expected to be impacted by proposed mining activities. The proposed limits of disturbance (active mining) include the majority of the ditch containing Sanford's arrowhead and will directly impact the largest and most dense populations of the plant. The remaining populations of Sanford's arrowhead extend to the northern end of the ditch, where mining will not occur, but are expected to be indirectly affected once farming practices no longer utilize and support irrigated pastures. Interestingly, all other ditches or ponds within the study area were not observed to contain Sanford's arrowhead. It appears that the particular ditch supporting Sanford's arrowhead in Aspen VIII is the most maintained (routinely cleaned out), thereby suggesting that the species can be prolific with certain disturbance or management activities.

Because multiple surveys have been conducted during the appropriate blooming periods when target species would have been identifiable, all other special-status plant species are considered to be absent from or unlikely to occur at the Project Site at this time. The results of protocol-level special-status plant species surveys are typically considered to be valid by the resource agencies for a period of 5 years, given that circumstances on the Project Site can be assumed to remain largely unchanged during this time period.

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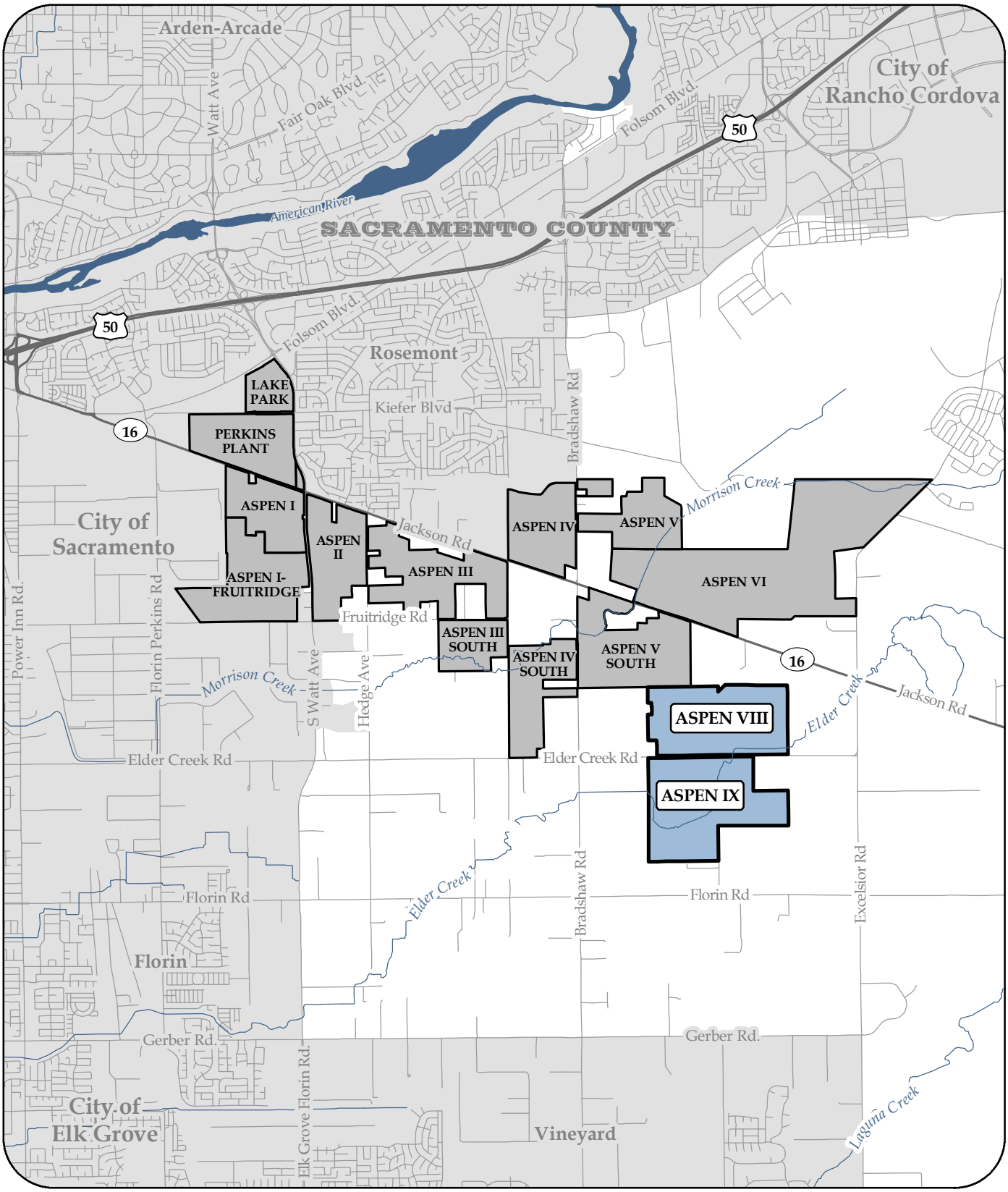
Figure 7 Rare Plant Locations – Sanford’s Arrowhead



TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

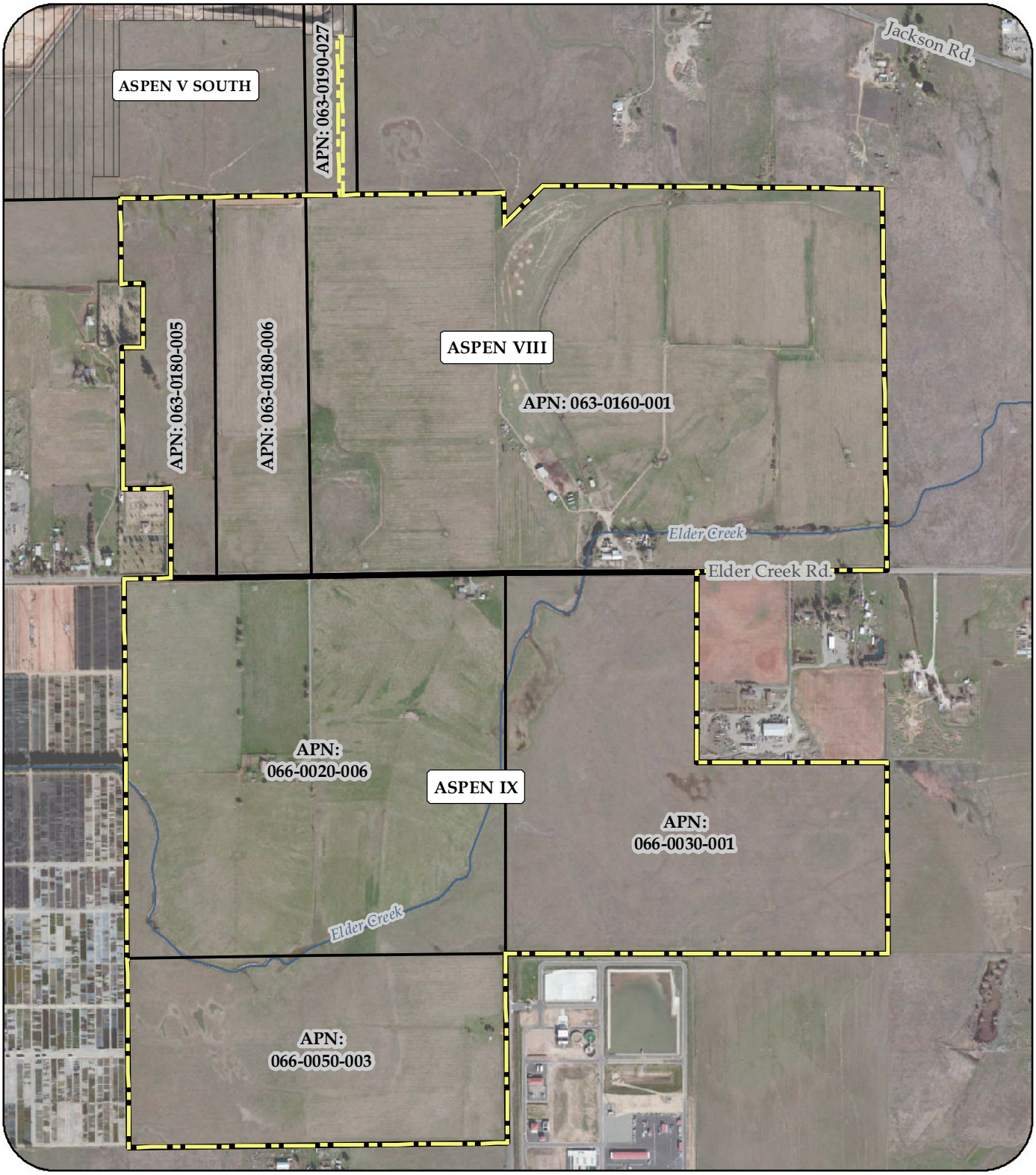
FIGURE 1

SITE VICINITY

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/03/2014 AS8_AS9_RarePlant_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Project Parcel Boundaries
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

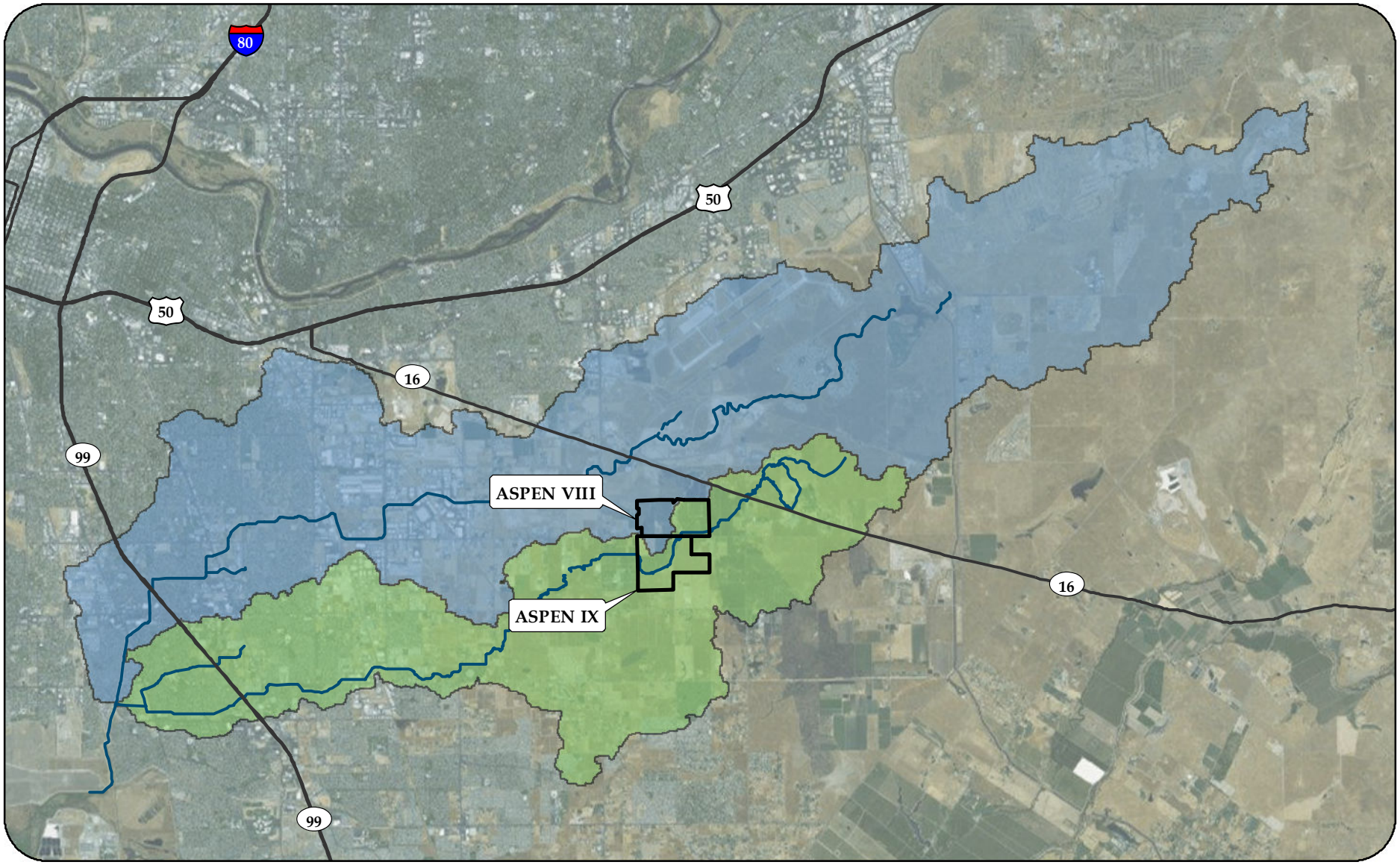
FIGURE 2

PROJECT SITE MAP

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/13/2014 AS8_AS9_RarePlant_Fig2_Site_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek & Elder Creek
- Morrison Creek Watershed
- Elder Creek Watershed
- Aspen VIII & IX Property Boundaries

SOURCE:

- Watersheds Provided by Foothill & Associates (2010)
- Aerial Photography Provided by ESRI Basemaps & Affliates (Feb. 2012)

0 1 2 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 3
MORRISON CREEK/ELDER CREEK WATERSHED MAP
RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

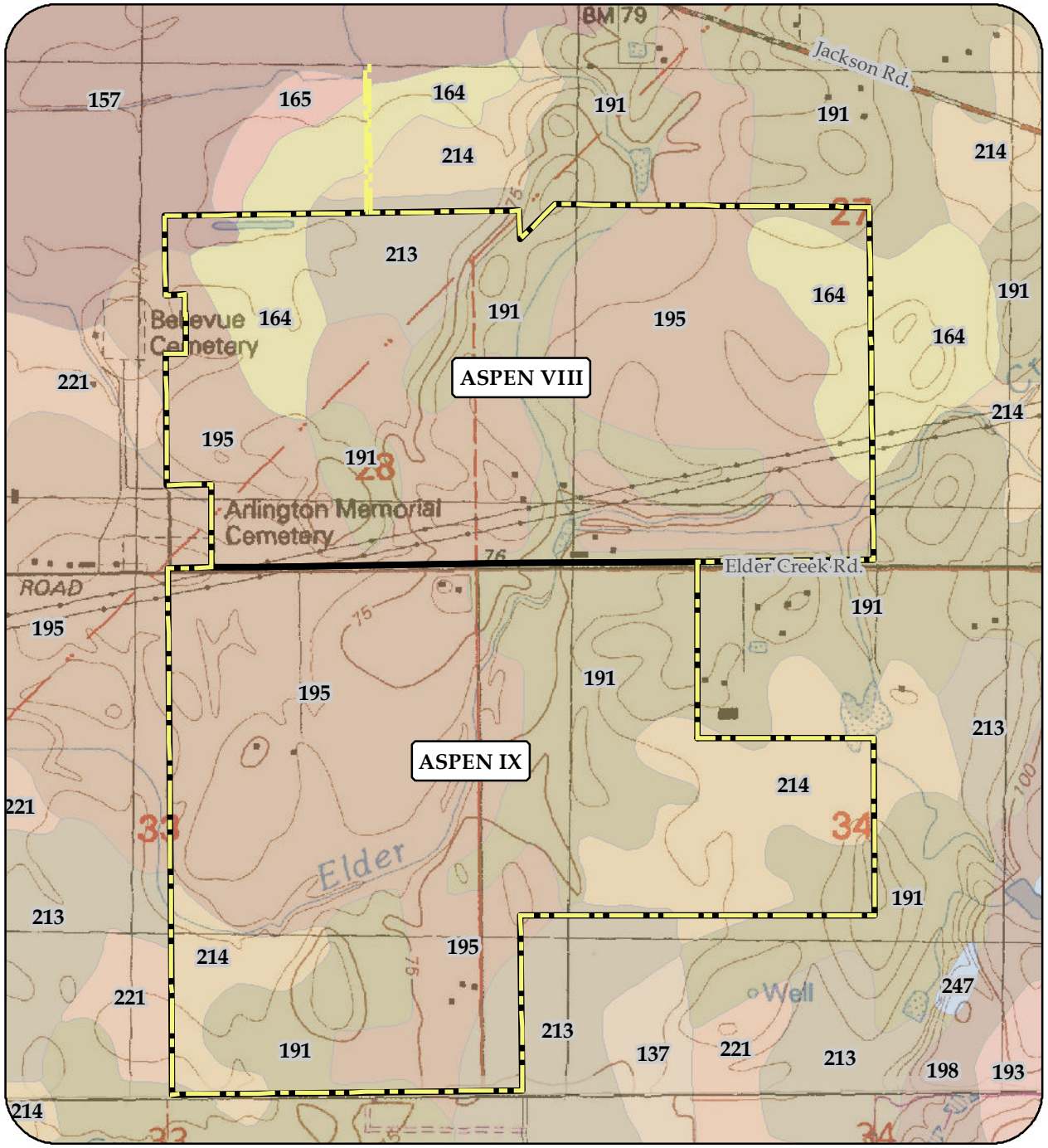
C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig3_Watershed_201410.mxd

FIGURE 4

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA



LEGEND:

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- 137- Durixeralfs, 0 to 1 percent slopes
- 157- Hedge loam, 0 to 2 percent slopes
- 164- Kimball silt loam, 0 to 2 percent slopes
- 165- Kimball silt loam, 2 to 8 percent slopes
- 191- Red Bluff loam, 0 to 2 percent slopes
- 193- Red Bluff-Redding complex, 0 to 5 percent slopes
- 195- Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 198- Redding gravelly loam, 0 to 8 percent slopes
- 214- San Joaquin silt loam, 0 to 3 percent slopes
- 213- San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 221- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes
- 247- Water
- Project Boundary
- Aspen VIII & IX Property Boundaries

0 600 1,200 Feet

SOURCE:

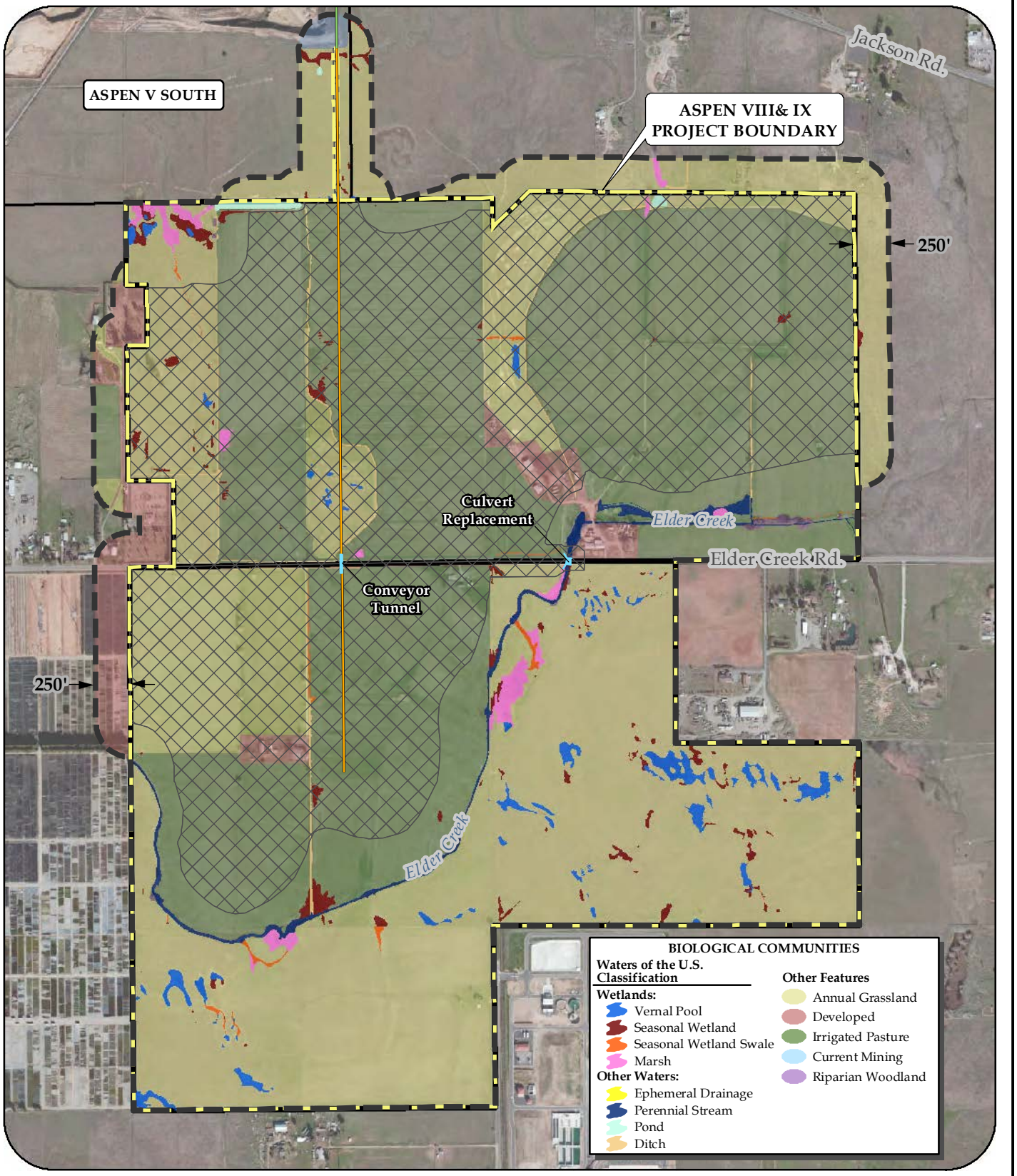
Soil Survey Provided by NRCS (Nov. 26, 2013)
USGS 7.5' Quads: Carmichael & Elk Grove
Property Boundary Provided by RFE Engineering (Mar. 2014)

DISCLAIMER:

The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig4_Soils_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Rare Plant Study Survey Area
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

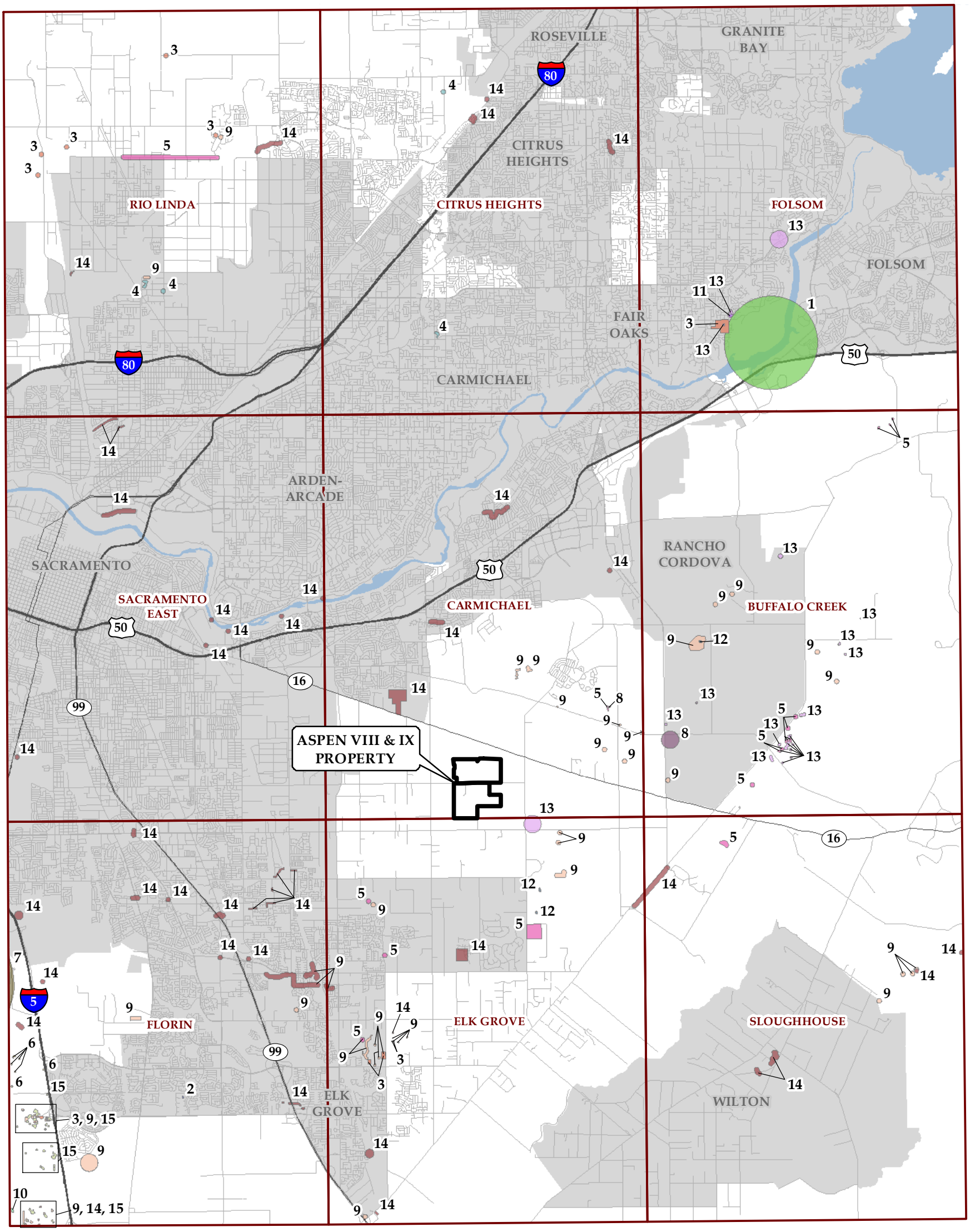
FIGURE 5

HABITATS AND WETLANDS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/16/2015 AS8_AS9_RarePlant_Fig5_Bio_201506.mxd



CNDDB RARE PLANT SPECIES:

1 - Clarkia biloba ssp. brandegeeae
2 - Cuscuta obtusiflora var. glandulosa
3 - Downingia pusilla
4 - Fritillaria agrestis
5 - Gratiola heterosepala
6 - Hibiscus lasiocarpos var. occidentalis
7 - Juglans hindsii
8 - Juncus leiospermus var. ahartii
9 - Legenere limosa
10 - Lepidium latipes var. heckardii
11 - Navarretia myersii ssp. myersii
12 - Orcuttia tenuis
13 - Orcuttia viscida
14 - Sagittaria sanfordii
15 - Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

Aspen VIII & IX Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (August 2014)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

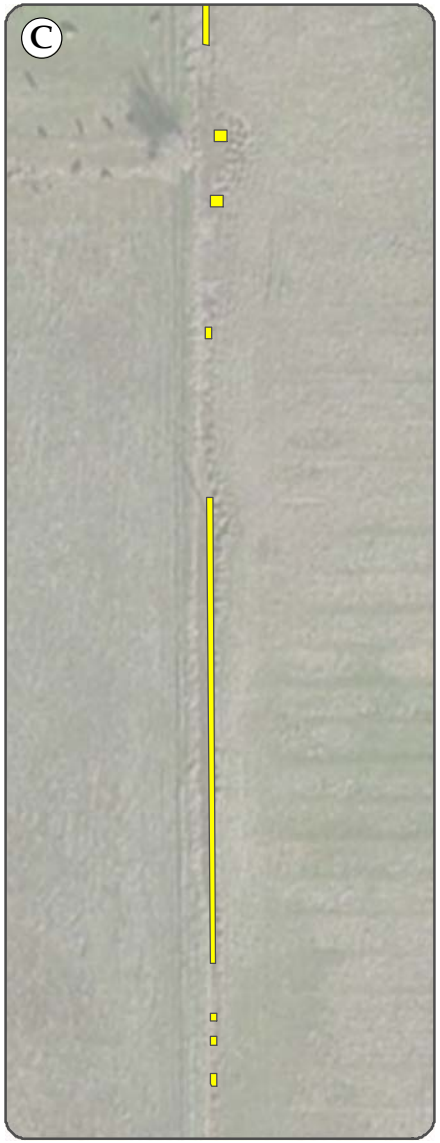
FIGURE 6

CNDDB RARE PLANT LOCATIONS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/06/2014 AS8_AS9_RarePlant_Fig6_CNDDB_201410.mxd



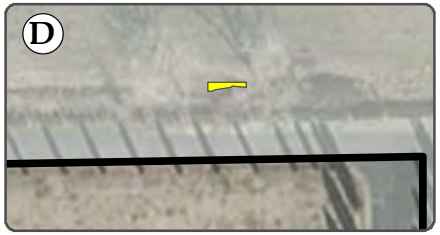


FIGURE 7

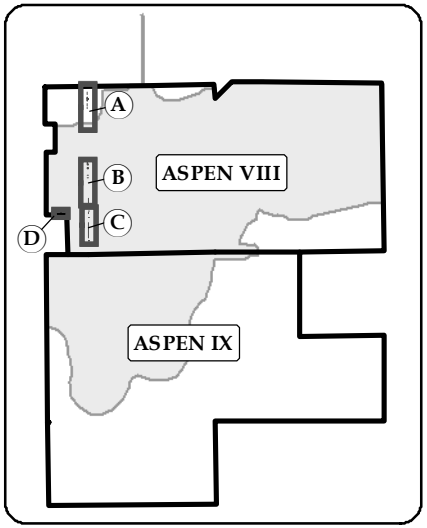
RARE PLANT LOCATIONS

RARE PLANT REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

- Sanford's Arrowhead Observed Locations
- Limits of Disturbance
- Aspen VIII & IX Property Boundaries



0 50 100 Feet

SOURCE:
Aerial Photography Provided by
ESRI Basemaps & Affliates (Feb. 2012)

DISCLAIMER:
The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 6/16/2015 AS8_AS9_RarePlant_Fig7_RarePlantLocs_201506.mxd

APPENDIX A

Teichert – Aspen VIII & IX Rare Plant Survey
Special-Status Plant Species Known or Potentially Known to Occur within the Project Vicinity

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
California androsace *Androsace elongata* ssp. *acuta*	- / - / 4.2	Scattered locations throughout California Elev. 15-2000m.	Annual herb typically on dry grassy slopes in a variety of habitats, including foothill and valley grassland.	March – June	Unlikely/Low Potential
Depauperate milkvetch *Astragalus paupercaulus*	- / - / 4.3	Northeastern Sierra Nevada Foothill from Shasta Co. south to Placer Co. Elev. 150-1200 m.	Annual herb usually found on open, vernally-moist, volcanic clays & grassy flats.	March – June	Unlikely/Low Potential
Ferris' milkvetch *Astragalus tener* var. *ferrisiae*	- / - / 1B.1	Sacramento Valley region from Butte Co. south to Solano Co. Elev. <75 m.	Annual herb of alkaline flats, vernally moist meadows, & fallow rice fields.	April – May	Unlikely/Low Potential
Alkali milkvetch *Astragalus tener* var. *tener*	- / - / 1B.2	Central Valley & San Francisco Bay area from Yolo Co. south to Merced, San Benito & Monterey Cos. Elev. < 60 m.	Annual herb of alkali meadows, vernal pools & playas, edges of salt marshes, & moist grassy flats.	March – June	Unlikely/Low Potential
Heartscale *Atriplex cordulata* var. *cordulata*	- / - / 1B.2	Western Central Valley from Glenn Co. south to Tulare & San Luis Obispo Cos. Elev. < 200 m.	Annual herb of alkali grassland, alkali meadow & alkali scrub. Occasional on margins of alkali pools.	April – Oct.	No Habitat Present
Brittlescale *Atriplex depressa*	- / - / 1B.2	Western Central Valley from Glenn & Butte Cos. South to Kern Co. Elev. < 320 m.	Annual herb occurring on alkali flats, alkali scrub, alkali grassland & playas.	May – Oct.	No Habitat Present
San Joaquin saltbush *Atriplex joaquiniana*	- / - / 1B.2	Western Central Valley & Inner South Coast Range from Glenn Co. south to San Luis Obispo Co. Elev. < 835 m.	Annual herb occurring on alkali flats, alkali scrub, alkali grassland, & playas.	April – Oct.	No Habitat Present
Vernal pool smallscale *Atriplex persistens*	- / - / 1B.2	Central Valley from Glenn Co. south to Tulare Co. Elev. < 115 m.	Annual herb found in the deeper portions of large, alkaline vernal pools.	June – Oct.	No Habitat Present
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	- / - / 1B.1	Scattered locations throughout San Joaquin Valley. Also Solano & Alameda Cos. & near Rocklin in Placer Co. Elev. < 150m.	Annual herb inhabiting saline marshes, alkali flats, & alkali vernal pools.	June – Sept.	No Habitat Present
Palmate bird's-beak *Cordylanthus palmatus*	E / E / 1B.1	Central Valley from Glenn Co. south to Fresno Co. Also Livermore Valley in Alameda Co. Elev. < 150 m.	Annual herb of saline alkali flats, alkali scrub, & alkali grassland.	May – Oct.	No Habitat Present

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
Dwarf downingia *Downingia pusilla*	- / - / 2B.2	Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. < 450 m.	Annual herb of vernal pools & swales, ephemeral drainages, & margins of other seasonal wetlands.	March – May	Moderate Potential
Tuolumne button-celery *Eryngium pinnatisectum*	- / - / 1B.2	North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	Annual to perennial herb occurring in swales, vernal pools, moist flats, & ephemeral drainages.	May – August	Unlikely/Low Potential
Boggs Lake hedge-hyssop *Gratiola heterosepala*	- / E / 1B.2	Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	Annual herb found along marshy lake margins, cattle ponds, & in vernal pools.	April – Aug.	Moderate Potential
Hogwallow starfish *Hesperevax caulescens*	- / - / 4.2	Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Diego Co. Elev. < 500 m.	Annual herb occupying vernal pools, vernal swales, & heavy clay soils.	March – June	Moderate Potential
Rose mallow *Hibiscus lasiocarpos* var. *occidentalis*	- / - / 1B.2	Sacramento Valley and the northern part of San Joaquin Valley. Most records are from the Sacramento River/Delta waterways. Elev. < 120m.	Perennial herb growing on the margins of freshwater marshes, wet riverbanks, and peat islands in sloughs.	June – Sept	Unlikely/Low Potential
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	- / - / 1B.2	Eastern Sacramento Valley from Tehama Co. south to Sacramento Co. Also found in Calaveras Co. Elev. 30-100 m.	Annual herb found in vernal pool, swales & ephemeral drainages.	March – May	Moderate Potential
Legenere *Legenere limosa*	- / - / 1B.1	Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	Annual herb of vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds.	April – June	Moderate Potential
Heckard's peppergrass *Lepidium latipes* var. *heckardii*	- / - / 1B.2	Western Sacramento Valley from Glenn Co. south to Solano Co. Elev. < 200 m.	Annual herb occurring on alkali flats and alkali grassland near the margins of vernal pools.	March – May	No Habitat Present
Hoary navarretia *Navarretia eriocephala*	- / - / 4.3	Southeastern Sacramento Valley & northern & central Sierra Nevada Foothill from Yuba to Tuolumne Co. Elev. 100-400 m.	Annual herb of seasonally wet flats, usually in heavy soil.	May – June	Unlikely/Low Potential

Table A-1
Special-Status Plant Species Known or Potentially Known to Occur at Teichert's Aspen VIII/IX Property

Species	Fed / CA / CNPS Status	Distribution	Habitat	Flowering Period	Habitat Suitability at Site
Tehama navarretia *Navarretia heterandra*	- / - / 4.3	Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	Annual herb typically growing heavy soils, vernal pools, & drying flats.	April – June	Unlikely/Low Potential
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	- / - / 1B.1	Western Sacramento Valley & northern Inland Coast Range from Glenn & Mendocino Cos. to Solano Co. Elev. < 1700 m.	Annual herb growing in vernal pools and ephemeral drainages.	April – July	Unlikely/Low Potential
Myer's pincushion navarretia *Navarretia myersii* ssp. *myersii*	- / - / 1B.1	Eastern Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	Annual herb found in vernal pools, usually with acidic soils.	April – May	Moderate Potential
Adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	- / - / 4.2	Scattered locations from the Sierra Nevada Foothills, Central Valley & Inner South Coast Ranges. Elev. 100-1000 m.	Annual herb occurring in vernal pools & vernally moist swales.	April – June	Unlikely/Low Potential
Slender orcutt grass *Orcuttia tenuis*	T / E / 1B.1	Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev. 30-1700 m.	Annual grass generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils.	May – Oct	Moderate Potential
Sacramento orcutt grass *Orcuttia viscida*	E / E / 1B.1	Known only in Sacramento County (from about Phoenix Field to approximately Rancho Seco). Elev. 30-100 m.	Annual grass generally found in larger, deeper vernal pools.	April – Sept	Moderate Potential
Sanford's arrowhead *Sagittaria sanfordii*	- / - / 1B.2	Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	Perennial herb occurring along the margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals.	May - Aug	Present/High Potential
Saline clover *Trifolium depauperatum* var. *hydrophilum*	- / - / 1B.2	Central Western California (Sonoma Co. to San Luis Obispo Co.) & southwestern Sacramento Valley. Elev. < 300 m.	Annual herb of salt marshes, alkali meadows, & vernal pools.	April – June	Unlikely/Low Potential

APPENDIX B

Teichert – Aspen VIII & IX Rare Plant Survey
Species Accounts

Dwarf Downingia

Downingia pusilla

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 2B.2

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Dwarf downingia is an inconspicuous, annual member of the Bellflower family (Campanulaceae). Depending on location, plants are quite variable, with some growing as small-stature plants less than 3 centimeters tall and others producing sprawling stems up to 15 centimeters long. Floral characteristics are the most distinguishing features separating this rare species from other, more common downingia species. Unlike other species in the genus, dwarf downingia flowers are tiny (2.5 to 4 millimeters) and lack the strong bilateral symmetry characteristic of other *Downingia* flowers. Dwarf downingia flowers are creamy white to occasionally pale blue, with two small yellow spots near the throat. Flowering typically occurs from March through May. Like most *Downingia* species, it is almost impossible to identify to species without flowers.

This species is largely restricted to wetlands with a strict endemic of the vernal pool hydrologic cycle. The species appears to occupy a range of pool sizes and depths, with most records indicating that the species prefers smaller and/or shallower vernal pools with comparatively 'flashy' hydrology (CNDDB 2014). The species will also frequently occupy ephemeral drainages and swales and the seasonally fluctuating vernal pool-like edges of stock ponds and seasonal marshes (Baba pers. obs.). Dwarf downingia does not appear to be associated with any specific landforms or soil associations.

Dwarf downingia is documented from 127 occurrences in California's vernal wetlands, generally below 150 meters elevation (CNDDB 2014). In California, the species' range extends from the northern San Joaquin Valley (Merced and Fresno counties) in the south through the Sacramento Valley to Tehama County in the north. It is also known from the Interior valleys on the Coast Range north of San Francisco (Napa and Sonoma counties). Most occurrences occupy a belt from Sonoma County to the southern Sacramento Valley. Dwarf downingia, like some other members of the annual vernal pool flora, is also known from disjunct localities in Chile.

The nearest known occurrence of dwarf downingia is approximately 4.9 miles south-southwest from the site (CNDDB Occurrence No. 54) (CNDDB 2014). This population is located in vernal pools east of Waterman Road, between Sheldon Road and Bond Road in Elk Grove. The population is till presumed extant. Vernal pools, swales and hydrologically similar margins of seasonal marshes and ponds at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Dwarf downingia could be expected to occur at the site.

Boggs Lake Hedge-Hyssop

Gratiola heterosepala

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Federal Listing Status: None
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.2

Boggs Lake hedge-hyssop is diminutive annual of the Plantain family (Plantaginaceae). This species grows erect with stems reaching 2 to 10 centimeters in height. The stems produce small, opposite leaves about 1 to 2 centimeters long, with the lower ones tending to be longer and leaner than the shorter and wider ones above. The upper leaves are also notably blunt at their tips. One to several tubular flowers are produced at the tips of stem, which are glandular puberulent. The flowers are pale yellow to white and only about 6 to 8 millimeters long. Blooming usually occurs in spring between April and June, depending on the specific location. This species is distinguished from the relatively common bractless hedge-hyssop (*Gratiola ebracteata*) by its more truncate leaves and yellow flowers. Boggs Lake hedge-hyssop also has shorter, unequal sepals that are fused at the base (Baldwin et. al. 2012).

Boggs Lake hedge hyssop is found in a wide geographic area but is strictly associated with the vernal pool-type hydrologic cycle. This species has been reported to grown in vernal pools and playa lakes, as well as seasonal stock ponds and fluctuating lake margins. Most occurrences are from well-developed large or deep vernal pools that exhibit more extreme, longer inundation periods, often where interspecies completion is lower. Associated species indicative of these longer inundated pools include hairy pepperwort (*Marsilia vestita*), quillwort (I*soetes* spp.), downingia (*Downingia* spp.), smooth goldfields (*Lasthenia glaberrima*), elatine (*Elatine* spp.), coyote thistle (*Eryngium castrense* and E. *vaseyi*), and bractless hedge-hyssop.

Boggs Lake hedge hyssop was first collected in 1954 from Bogg's Lake in Lake County, California. Since that time, numerous additional occurrences have been recorded, ranging from the Modoc Plateau, through the Sacramento Valley, Inner North Coast Range, and central Sierra Nevada Foothills, south to Merced and Fresno Counties in the San Joaquin Valley Region. Most records are from Tehama and Modoc Counties and are associated with northern volcanic mudflow vernal pools of the northern Sacramento Valley and Modoc Plateau.

The nearest known location of Boggs Lake hedge hyssop is approximately 2.5 miles of northwest of the site, at Mather Field (CNDDB Occurrence No. 84) (CNDDB 2014). These plants were recorded growing in deeper vernal pools and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes ponds at the site are considered potential habitat for the species. Considering its wide distribution and relatively close proximity of nearby populations, Boggs Lake hedge hyssop could be expected to occur within the Project site.

Ahart's Dwarf Rush

Juncus leiospermus var*. ahartii*

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Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.2

Ahart's dwarf rush is an inconspicuous annual member of the Rush family (Juncaceae). Ahart's dwarf rush is a green to reddish grass-like plant reaching 2 to 10 centimeters tall. Each plant may produces one to several, erect, thread-like stems from a basal cluster of grass-like leaves. Each stem produces a single, tiny flower at the tip. The flowers are small (less than 0.5 centimeters) and consist of 6 to 10 dark brown, pointed scales, three stamens, and an ovary with a long three-branched style. Flowering generally occurs from late-March through May. Other small, common annual rushes that may co-exist with Ahart's dwarf rush include toad rush (*Juncus bufonius*), leafy-bracted rush (*Juncus capitatus*), and inch-high rush (*Juncus uncialis*). Ahart's dwarf rush is most easily distinguished from the others by its comparatively long style (very short in inch-high rush), simple stem (branched in toad rush), single terminal flower (axillary in toad rush and clustered at tip in leafy-bracted rush) and relatively short inflorescence bract (much longer in leafy-bracted rush).

Ahart's dwarf rush grows in a variety of seasonal wetland type habitats, but appears to by restricted to acidic soils in vernal pool complexes. Although Ahart's dwarf rush has been recorded growing with more "deeply-adapted" vernal pool associates, most records indicate that the species prefers the margins of vernal pools or in swales and seasonal wetlands where hydrologic conditions are more "flashy." In addition, this species is also known to occur on gopher mounds along the margins of these wetlands (CDFG 2014).

Presently, Ahart's dwarf rush is known from only 13 occurrences throughout the Great Central Valley. Populations are recorded from Tehama County in the north to Calaveras County in the south, with elevations ranging from 30 to 90 meters (CDFG 2014). Most occurrences are from Butte and Sacramento County.

The nearest known occurrence of Ahart's dwarf rush is approximately 1.8 miles northeast of the site, at Mather Field just west of Eagles Nest Road (CNDDB Occurrence No. 8). These plants are located in in shallow vernal pools and along vernal swales and still presumed extant. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Ahart's dwarf rush could be expected to occur at the site.

Legenere

Legenere limosa

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.1

© 2012 Barry Baba

Legenere is an inconspicuous, annual member of the Bellflower family (Campanulaceae). This plant grows with sprawling stems that reach 10 to 30 centimeters in length. Its slender stems, which are produced underwater, often form roots along the lower nodes and eventually rise out of water or are left growing entangled within a mass of other vegetation. Due to its cryptic, delicate stature, the plant is notoriously overlooked and difficult to detect. Probably the most distinguishing feature of this plant is its cylindrical fruit capsule (about ½ to 1 centimeter long) that is present at the end of each elongated flower stalk, which may be as long as 3 centimeters. Most plants do not have any petals and are generally observed with just their narrowly, triangular-shaped sepals at the tip of each fruit capsule. Sometimes, however, tiny flowers are present and resemble other flowers in its family. If present, the flowers are white with a greenish-yellow center and are fused into a bilaterally symmetrical lobed corolla about 3 to 4 millimeters long. Flowering typically occurs from April to June.

Legenere grows in a variety of wetland habitats including vernal pools, seasonal marshes, floodplains of intermittent streams, and along the margins of cattle stock ponds. Legenere is associated with a wide range of physiographic/edaphic landscapes. Most records indicate that the species prefers the shallower areas of seasonal pools that are inundated for longer periods than average and typically support at least some perennial species such as spikerush (*Eleocharis macrostachya*).

This species' range includes the northern Central Valley from Shasta to San Joaquin Counties and the Inland Coast Range from Lake to Santa Clara County. Populations are reported 78 occurrences, ranging in elevation from less than 950 meters. (CNDDB 2014) The majority of known extant records are concentrated in Solano and Sacramento counties, with other scattered occurrences in Alameda, Lake, Napa, Sonoma, San Mateo, Santa Clara, Placer, Yuba, and Shasta counties (Holland 1983; Platenkamp 1998; CNDDB 2014).

The nearest known occurrence of Legenere is approximately 1.4 miles south of the site (CNDDB Occurrence No. 29) (CNDDB 2014). Two colonies were identified growing in vernal pools just south of Florin Road and 0.7 miles east of Excelsior Road. Vernal pools inundated for longer periods and the margins of seasonal marshes at the site are considered potential habitat for the species. Considering the relatively close proximity of nearby populations and wide geographical range, Legenere could be expected to occur within the Project site.

Pincushion Navarretia

Navarretia myersii subsp. *myersii*

Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.1

Pincushion navarretia is an annual member of the Phlox family (Polemoniaceae). This plant has a distinctive characteristic in that it grows very prostrate, often appearing almost mat-like without stems. Although present, stems are typically less than 2 centimeters long. It produces long, thread-like leaves (4 to 8 centimeters) that radiate from the base of the inflorescence. The inflorescence is a cluster of numerous white, sessile, tubular flowers, each about 1 to 2 centimeters long. The species is may be seen flowering from mid-April through May (Dittes and Guardino 2001, CNPS 2014). Pincushion navarretia is most readily distinguished from the more common white-headed navarretia (*Navarretia leucocephala* subsp. *leucocephala*) by its low-growing stems and longer, tubular flowers.

Pincusion navarretia is a strict vernal pool endemic, often occurring in pools with moderate to highly acidic soils (CNPS 2014). Based on known populations and those observed in eastern Merced County, the species was associated with the ancient, weathered alluvial terraces comprising the Valley Springs and Ione Geologic Formations (Dittes and Guardino 2001). Generally, pincushion navarretia is presumed to occupy smaller and/or shallower pools where hydrologic conditions may be more 'flashy.' Associated species in these shallower pools or margins include annual hairgrass (*Deschampsia danthonioides*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool popcornflower (*Plagiobothrys stipitatus*), coyote thistle (*Eryngium* spp.), wooly marbles (*Psilocarphus* spp.), and Sacramento Valley pogogyne (*Pogogyne zizyphoroides*).

Presently, pincushion navarretia is known from 14 occurrences along the eastern portion of the Central Valley and adjacent Sierra Nevada Foothill from Placer County south to Merced County, between 20 and 330 meters elevation (CNPS 2014). A more rare subspecies, small pincushion navarretia (*Navarretia myersii* supbsp. *deminuta*), is also known from the Coast Range in Lake County.

The nearest known location of this species is approximately 10.6 miles northeast of the site, in the Department of Fish and Wildlife Phoenix Field Ecological Reserve (CNDDB Occurrence No. 3) (CNDDB 2014). The species occurs in two pools within the south half of the Preserve and are still presumed extant. The smaller, shallow pools at Aspen VIII & IX are considered potential habitat for pincushion navarretia. Considering the relatively close proximity of nearby populations, this species could be expected to occur within the Project site.

Slender Orcutt Grass

Orcuttia tenuis

Federal Listing Status: Threatened
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.1

Slender Orcutt grass is an annual member of the distincitive Orcuttieae Tribe in the grass family (Poaceae). This plant grows loosely tufted with slender, erect stems reaching approximately 5 to 15 centimeters. The leaves grow to be about 1.5 to 2 millimeters wide and may appear bluish-green in color. The stems are sparsely hairy and covered with droplets of a sticky, highly aromatic exudate. This feature is common in other members of the Orcutt grasses. Individual spikelets of slender Orcutt grass are evenly spaced along the inflorescence axis, which comprises more than half the plant's height. Flowering may occur between May and September (usually May or June in the Central Valley), and sometimes October, making it one of the latest blooming members of the Orcutt grasses. Other distinguishing characteristics are its equally five-toothed lemmas and stems that are frequently branching from its upper nodes. This species is also less hairy than most other Orcutt grasses.

Slender Orcutt grass is found primarily in vernal pools on substrates of volcanic orgin, but have also been found in places such as stock ponds and borrow pits. Orcutt grasses are strongly adapted to deeper vernal pools with more extreme hydrologic regimes. Interestingly, this species appears to be the least specific of Orcutt grasses with regard to specific habitats niches. This is confirmed by its occupation of a wider range of vernal pool sizes and vernal wetland types, as well as occurrences over a wider geographical range and landform types.

Slender Orcutt grass has been documented from 96 occurrences, which includes a wide range of elevations corresponding to its broad geographical range (CNDDB 2014). The lowest reported elevation is 27 meters in Sacramento County and the highest is 1,756 meters in Plumas County. The species is found from Modoc County south to Sacramento County, with large concentrations occurring in Tehama County and the Modoc Plateau Vernal Pool Region.

The nearest documented occurrence of Slender Orcutt grass is approximately 2 south of the site (CNDDB Occurrence No. 16), in a narrow vernal pool west of Laguna Creek (CNDDB 2014). The population is till presumed extant. The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX.

Sacramento Orcutt Grass

Orcuttia viscida

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Federal Listing Status: Endangered
State Listing Status: Endangered
CNPS Rare Plant Rank: 1B.1

Sacramento Orcutt grass is an annual member of the unique Orcuttieae Tribe in the grass family (Poaceae). As with other members of the tribe, Sacramento Orcutt grass is a relatively small-stature, densely tufted plant that grows 3 to 10 centimeters tall. This species appears almost bluish-green and is covered in dense, sticky hairs. As with the majority of the Orcuttieae grasses, this species produces aromatic resinous exudates at majority. Flowering typically occurs in May and June. Although the plant resembles other members of its tribe, Sacramento Orcutt grass is distinguished from the other species by its relatively long and unequal lemma teeth.

Sacramento Orcutt grass occurs primarily in large vernal pools that remain inundated for prolonged periods. Soils associated with this species tend to be strongly acidic and support a well-developed silica-iron hardpan layer approximately 2 to 10 feet below the surface. Many plants may only grown in years when seasonal rainfall is sufficient, particularly when rains begin in November and continue through the end of April. This plant is less likely to germinate in years of below-normal precipitation than other members of the Orcuttieae grasses.

Sacramento Orcutt grass is endemic to the southeastern Sacramento Valley, and has always been restricted to Sacramento County. It is known from only 12 occurrences, most of which are still presumed extant (CNDDB 2014). The recorded range of the species extends in a narrow band from just north of the American River near Orangevale to the vicinity of Rancho Seco Lake on Arroyo Seco Mesa, approximately 26 miles to the south.

The nearest documented occurrence of Sacramento Orcutt grass is approximately 0.8 mile southeast of the site (CNDDB Occurrence No. 20); however, this population is presumed extirpated (CNDDB 2014). This occurrence was last observed in 1998 in a pool that is now a permanent marsh due to runoff from an adjacent nursery (CNDDB 2014). The nearest possible extant location is approximately 3.6 miles northeast of the site (CNDDB Occurrence No. 17), in vernal pools on the Anatolia Preserve east of Sunrise Boulevard and north of Kiefer Boulevard (CNDDB 2014). The larger, deeper pools that remain inundated for extended periods at the site are considered potential habitat for Sacramento Orcutt grass. Considering the relatively close proximity of nearby populations, this species could be expected to occur at Aspen VIII & IX.

Sanford's Arrowhead

Sagittaria sandfordii

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Federal Listing Status: None
State Listing Status: None
CNPS Rare Plant Rank: 1B.2

Sanford's arrowhead is an aquatic perennial member in the water-plantain family (Alismataceae). This emergent plant possesses linear to narrowly ovate leaves and typically grows 15 to 30 centimeters tall. Plants often grow densely and spread by underground rhizomes, which produce small spherical tubers at their tips. Separate male and female flowers are produced in three-whorled clusters, with the female clusters located basally. Relatively conspicuous, white petals (0.5 to 1 centimeter) are produced from May through August. The pedicels are also recurved rather than straight when in fruit (Baldwin et. al. 2012). Sanford's arrowhead is distinguished from its close relatives in that it does not possess sagittate (arrowhead-shaped) leaves.

Sanford's arrowhead is associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Most populations appear to have established by seeds, with existing colonies spreading mainly from rhizomes and tubers.

This species occupies a variety of freshwater marsh habitats and is widely distributed throughout the Central Valley between 0 and 650 meters. Sanford's arrowhead documented from 93 occurrences and is presently known from Shasta to Kern Counties, with the majority of records occurring in Sacramento County (CNDDB 2014). A disjunct population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura Counties).

The nearest known occurrence of Sanford's arrowhead is approximately 1.8 miles northwest of the site (CNDDB Occurrence No. 25) (CNDDB 2014). These populations occur in two ponds at the Cordova Golf Course, just north of Jackson Road (Highway 16), and are still presumed extant. Existing ponds, irrigations ditches, marshes, and portions of Elder Creek are considered potential habitats for the species. Considering the close proximity of nearby populations and wide geographical range, Sanford's arrowhead could be expected to occur at the site.

APPENDIX C

Teichert – Aspen VIII & IX Rare Plant Survey
Flora Inventory

PERKINS – ASPEN VIII & IX
SACRAMENTO COUNTY

Flora Inventory
Spring/Summer 2013-14

LYCOPHYTES

ISOETACEAE (QUILLWORT FAMILY)

Isoetes orcuttii	Orcutt's quillwort

FERNS

AZOLLACEAE (MOSQUITO FERN FAMILY)

Azolla filiculoides	Water fern, Mosquito fern

MARSILEACEAE (MARSILEA FAMILY)

Marsilea vestita subsp. *vestita*	Hairy water-clover, Hairy pepperwort
Pilularia americana	American pillwort

GYMNOSPERMS

CUPRESSACEAE (CYPRESS)

*Calocedrus decurrens***	Incense cedar
*Sequoia semperivirens***	Redwood

PINACEAE (PINE FAMILY)

Pinus sp.**	Pine

MAGNOLIDS

LAURACEAE (LAUREL FAMILY)

*Cinnamomum camphora***	Camphor tree

ANGIOSPERMS, EUDICOTS

AMARANTHACEAE (AMARANTH FAMILY)

*Amaranthus albus**	Tumbleweed
*Amaranthus blitoides**	Procumbent pigweed
*Amaranthus retroflexus**	Redroot pigweed

ANACARDIACEAE (SUMAC OR CASHEW FAMILY)

*Pistacia atlantica**	Mt. Atlas mastic tree
Toxicodendron diversilobum	Western poison oak

APIACEAE (CARROT FAMILY)

*Conium maculatum**	Poison hemlock-thistle

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

Eryngium castrense	Great Valley coyote thistle

APOCYNACEAE (DOGBANE FAMILY)

Asclepias eriocarpa	Kotolo
Asclepias fascicularis	Narrow-leaf milkweed

ASTERACEAE (SUNFLOWER FAMILY)

*Anthemis cotula**	Dog-fennel
Carduus pycnocephalus subsp. *pycnocephalus**	Italian thistle
*Centaurea calcitrapa**	Purple star-thistle
*Centaurea solstitialis**	Yellow star-thistle
Centromadia fitchii	Fitch's spikeweed
*Cichorium intybus**	Chicory
*Cirsium vulgare**	Bull thistle
*Cotula coronopifolia**	Brass-buttons
*Dittrichia graveolens**	Stinkwort
Erigeron sp.	Horseweed
Gnaphalium palustre	Western marsh cudweed
*Helminthotheca echioides**	Bristly ox-tongue
Heterotheca grandiflora	Telegraph weed
Holocarpha virgata subsp. *virgata*	Sticky tarweed
*Hypochaeris glabra**	Smooth cat's-ear
*Lactuca serriola**	Prickly lettuce
Lasthenia glaberrima	Smooth goldfields
Lasthenia fremontii	Fremont's goldfields
Leontodon saxatilis subsp. *longirostris**	Common hawkbit
*Logfia gallica**	Daggerleaf cottonweed
Micropus californicus var. *californicus*	Cottontop
*Matricaria discoidea**	Pineapple weed
*Pseudognaphalium luteoalbum**	Common cudweed
Psilocarphus brevissimus var. *brevissimus*	Dwarf woolly-marbles
Psilocarphus tenellus	Slender woolly-marbles
*Senecio vulgaris**	Common groundsel
*Silybum marianum**	Milk thistle
*Soliva sessilis**	Common soliva, Field burrweed
Sonchus asper subsp. *asper**	Prickly sow thistle
*Sonchus oleraceus**	Common sow thistle
Wyethia angustifolia	Narrow-leaved mule's ear
*Xanthium spinosum**	Spiny cocklebur
Xanthium strumarium	Cocklebur

BETULACEAE (BIRCH FAMILY)

*Betula pendula***	European white birch

BIGNONIACEAE (TRUMPET-CREEPER FAMILY)

*Catalpa bignonioides***	Catalpa

BORAGINACEAE (BORAGE FAMILY)

Amsinckia intermedia	Common fiddleneck
Amsinckia menziesii	Small-flowered fiddleneck
Plagiobothrys greenei	Greene's popcornflower
Plagiobothrys stipitatus var. *micranthus*	Common vernal pool popcornflower

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

BRASSICACEAE (MUSTARD FAMILY)

*Brassica rapa**	Field mustard, Turnip
*Capsella bursa-pastoris**	Shepherd's purse
Cardamine oligosperma	Western bittercress
*Hirschfeldia incana**	Perennial mustard
Lepidium nitidum	Shining peppergrass
Lepidium strictum	Prostrate peppergrass
*Raphanus raphanistrum**	Jointed charlock
*Raphanus sativus**	Radish
Rorippa curvisiliqua	Western yellow cress, Curvepod yellow cress
Rorippa palustris	Bog yellow cress
*Sisymbrium officinale**	Hedge mustard

CAMPANULACEAE (BELLFLOWER FAMILY)

Downingia bicornuta var. *picta*	Doublehorn downingia
Downingia ornatissima var. *ornatissima*	Folded downingia

CANNABACEAE (HEMP FAMILY)

*Celtis sinensis***	Chinese hackberry

CARYOPHYLLACEAE (PINK FAMILY)

*Cerastium glomeratum**	Sticky mouse-ear chickweed
*Petrorhagia dubia**	Hairy pink
*Silene gallica**	Small-flower catchfly, Windmill pink
*Spergula arvensis**	Stickwort, Starwort
*Spergularia bocconi**	Boccone's sand-spurrey
*Spergularia rubra**	Red sand-spurrey
*Stellaria media**	Common chickweed

CHENOPODIACEAE (GOOSEFOOT FAMILY)

*Chenopodium album**	Lamb's quarters
*Chenopodium murale**	Nettleleaf goosefoot
*Salsola tragus**	Russian thistle, Tumbleweed

CONVOLVULACEAE (MORNING-GLORY FAMILY)

*Convolvulus arvensis**	Bindweed
Cuscuta howelliana	Vernal pool dodder

CRASSULACEAE (STONECROP FAMILY)

Crassula aquatica	Water pygmy-weed
*Crassula tillaea**	Moss pygmy-weed, Mediterranean pygmy-weed

ELATINACEAE (WATERWORT FAMILY)

Elatine brachysperma	Shortseed waterwort

EUPHORBIACEAE (SPURGE FAMILY)

Croton setigerus	Turkey-mullein, Doveweed

FABACEAE (LEGUME FAMILY)

Acacia sp.**	*Acacia*
Acmispon americanus var. *americanus*	Spanish clover
*Lotus corniculatus**	Bird's-foot trefoil

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

Lupinus bicolor	Miniature lupine
*Medicago polymorpha**	Common burclover
*Melilotus indicus**	Sourclover
Trifolium depauperatum var. *depauperatum*	Dwarf sack clover
*Trifolium dubium**	Shamrock
*Trifolium glomeratum**	Clustered clover
Trifolium gracilentum	Pinpoint clover
*Trifolium campestre**	Hop clover
*Trifolium hirtum**	Rose clover
Trifolium microcephalum	Small-head clover
*Trifolium repens**	White clover
Trifolium variegatum var. *variegatum*	Variegated clover, White-tipped clover
Vicia sativa subsp. *nigra**	Smaller spring vetch
Vicia sativa subsp. *sativa**	Spring vetch
Vicia villosa var. *varia**	Winter vetch

FAGACEAE (OAK FAMILY)

Quercus lobata	Valley oak
Quercus wislizenii var. *wislizenii*	Interior live oak

GENTIANACEAE (GENTIAN FAMILY)

*Centaurium tenuiflorum**	Slender centaury
Cicendia quadrangularis	Timwort

GERANIACEAE (GERANIUM FAMILY)

*Erodium botrys**	Longbeak filaree, Broadleaf filaree
*Erodium brachycarpum**	Short-fruit filaree, Whitestem filaree
*Erodium cicutarium**	Redstem filaree
*Erodium moschatum**	Greenstem filaree
*Geranium dissectum**	Cut-leaved geranium
*Geranium molle**	Dove's-foot geranium

HYPERICACEAE (ST. JOHN'S WORT FAMILY)

Hypericum perforatum subsp. *perforatum**	Klamathweed

JUGLANDACEAE (WALNUT FAMILY)

Juglans hindsii	Northern California black walnut

LAMIACEAE (MINT FAMILY)

Lycopus americanus	American bugleweed
*Marrubium vulgare**	Horehound
*Mentha pulegium**	Pennyroyal
Pogogyne zizyphoroides	Sacramento mesa mint
Trichostema lanceolatum	Vinegar weed

LIMNANTHACEAE (MEADOWFOAM FAMILY)

Limnanthes douglasii ssp. *rosea*	Rosy Douglas' meadowfoam

LINACEAE (FLAX FAMILY)

*Linum bienne**	Pale flax

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

LYTHRACEAE (LOOSESTRIFE FAMILY)

*Lagerstroemia indica***	Crape myrtle
*Lythrum hyssopifolia**	Hyssop loosestrife
*Lythrum portula**	Spatulaleaf loosestrife

MAGNOLIACEAE (MAGNOLIA FAMILY)

Magnolia sp.***	

MALVACEAE (MALLOW FAMILY)

*Malva nicaeensis**	Bull mallow
*Malva parviflora**	Cheeseweed

MONTIACEAE (MINER'S LETTUCE FAMILY)

Calandrinia ciliata	Red maids
Claytonia perfoliata subsp. *perfoliata*	Miner's lettuce
Montia fontana	Water chickweed, Blinks

MORACEAE (MULBERRY FAMILY)

*Ficus carica**	Edible fig
*Morus alba***	White mulberry

MYRSINACEAE (MYRSINE FAMILY)

*Anagallis arvensis**	Scarlet pimpernel

MYRTACEAE (MYRTLE FAMILY)

*Eucalyptus camaldulensis***	Red gum

OLEACEAE (OLIVE FAMILY)

Fraxinus 'Modesto'***	Modesto ash
Ligustrum sp.***	Privet
*Olea europaea***	Olive

ONAGRACEAE (EVENING PRIMROSE FAMILY)

Epilobium brachycarpum	Annual willowherb
Epilobium campestre	Smooth willowherb
Epilobium ciliatum ssp. *ciliatum*	Fringed willowherb, Northern willowherb
Epilobium torreyi	Torrey's willowherb
Ludwigia peploides subsp. *peploides**	Creeping water primrose

OROBANCHACEAE (BROOMRAPE FAMILY)

Castilleja attenuata	Valley tassels
Castilleja exserta subsp. *exserta*	Purple owl's-clover
*Parentucellia viscosa**	Yellow glandweed
Triphysaria eriantha subsp. *eriantha*	Butter-and-eggs, Johnny-tuck
Triphysaria pusilla	Dwarf owl's-clover
Triphysaria versicolor subsp. *faucibarbata*	Yellow owl's-clover

OXALIDACEAE (OXALIS FAMILY)

Oxalis pes-caprae	Bermuda buttercup

PAPAVERACEAE (POPPY FAMILY)

Eschscholzia californica	California poppy

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

PHRYMACEAE (LOPSEED FAMILY)

Mimulus guttatus	Common yellow monkeyflower
Mimulus tricolor	Tricolor monkeyflower

PLANTAGINACEAE (PLANTAIN FAMILY)

Callitriche heterophylla var. *heterophylla*	Varied leaved water starwort
Callitriche marginata	Winged water starwort
*Plantago lanceolata**	English plantain
*Veronica anagallis-aquatica**	Water speedwell
*Veronica persica**	Persian speedwell
Veronica peregrina subsp. *xalapensis*	Purslane speedwell

PLATANACEAE (PLANE-TREE FAMILY)

Platanus x. *acerifolia***	London plane-tree

POLEMONIACEAE (PHLOX FAMILY)

Navarretia leucocephala ssp. *leucocephala*	White-flowered navarretia

POLYGONACEAE (BUCKWHEAT FAMILY)

Polygonum aviculare subsp. *depressum**	Common knotweed
*Persicaria hydropiper**	Waterpepper
Persicaria lapathifolia	Willow weed
*Persicaria maculosa**	Lady's thumb
Persicaria punctata	Dotted smartweed
*Rumex acetosella**	Sheep sorrel
*Rumex conglomeratus**	Clustered dock
*Rumex crispus**	Curly dock
*Rumex pulcher**	Fiddle dock

RANUNCULACEAE (BUTTERCUP FAMILY)

Ranunculus aquatilus var. *hispidulus*	Fern-leaf water buttercup
Ranunculus bonariensis var. *trisepalus*	Vernal pool buttercup
*Ranunculus muricatus**	Spiny-fruit buttercup
Ranunculus sceleratus var. *sceleratus**	Cursed buttercup

ROSACEAE (ROSE FAMILY)

Malus sp.**	Apple
Prunus sp.**	Fruit tree
Pyrus sp.**	Pear
Rosa californica	California wild rose
*Rosa eglanteria**	Sweet-brier
*Rubus armeniacus**	Himalayan blackberry

RUBIACEAE (MADDER FAMILY)

Galium aparine	Goose grass
*Galium parisiense**	Wall bedstraw

RUTACEAE (CITRUS FAMILY)

Citrus sp.**	Citrus

SALICACEAE (WILLOW FAMILY)

Populus fremontii subsp. *fremontii*	Fremont cottonwood

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

*Salix babylonica***	Weeping willow
Salix gooddingii	Goodding's black willow

SAPINDACEAE (SOAPBERRY FAMILY)

*Acer saccharinum***	Silver maple

SCROPHULARIACEAE (FIGWORT FAMILY)

Limosella acaulis	Owyhee mudwort

SOLANACEAE (NIGHTSHADE FAMILY)

Solanum americanum	White nightshade

ULMACEAE (ELM FAMILY)

*Ulmus americana***	American elm

VERBENACEAE (VERVAIN FAMILY)

Phyla nodiflora	Common lippia

VITACEAE (GRAPE FAMILY)

Vitis sp.	Grape

ZYGOPHYLLACEAE (CALTROP FAMILY)

*Tribulus terrestris**	Puncture vine

ANGIOSPERMS, MONOCOTS

AGAVACEAE (CENTURY PLANT FAMILY)

Chlorogalum sp.	Soap plant

ALISMATACEAE (WATER-PLANTAIN FAMILY)

*Alisma lanceolatum**	Lance-leaved water plantain
Alisma triviale	Northern water plantain
Damasonium californicum	Fringed water-plantain
Sagittaria sanfordii [1]	Sanford's arrowhead

ARACEAE (ARUM FAMILY)

Lemna minor	Common duckweed
Wolffia brasiliensis	Brazilian watermeal

CYPERACEAE (SEDGE FAMILY)

Carex densa	Dense sedge
Carex praegracilis	Field sedge
Cyperus eragrostis	Tall nutsedge
Eleocharis acicularis	Least spikerush
Eleocharis macrostachya	Creeping spikerush
Schoenoplectus acutus var. *occidentalis*	Common tule

JUNCACEAE (RUSH FAMILY)

Juncus acuminatus	Tapered rush

[1] California Native Plant Society CRPR List 1B.2

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

Juncus balticus	Baltic rush
Juncus bufonius var. *bufonius*	Common toad rush
*Juncus capitatus**	Leafybract dwarf rush
Juncus uncialis	Inch-high rush
*Juncus usitatus**	Australian rush
Juncus xiphioides	Iris-leaved rush

JUNCAGINACEAE (ARROW-GRASS FAMILY)

Triglochin scilloides	Flowering-quillwort

LILIACEAE (LILY FAMILY)

Chlorogalum sp.	Soap plant

POACEAE (GRASS FAMILY)

*Agrostis avenacea**	Pacific bentgrass
*Aira caryophyllea**	Silver European hairgrass
Alopecurus saccatus	Vernal pool foxtail
*Anthoxanthum odoratum**	Sweet vernal grass
*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
*Briza minor**	Little quaking grass
*Bromus diandrus**	Ripgut grass
*Bromus hordeaceus**	Soft-chess brome
*Crypsis schoenoides**	Swamp grass
*Cynodon dactylon**	Bermuda grass
*Dactylis glomerata**	Orchard grass
Deschampsia danthonioides	Annual hairgrass
*Echinochloa crus-galli**	Barnyard grass
*Elymus caput-medusae**	Medusa head
*Festuca arundinacea**	Tall fescue
*Festuca bromoides**	Brome fescue
*Festuca myuros**	Six-weeks fescue, Rattail fescue
*Festuca perennis**	Ryegrass
*Festuca pratensis**	Meadow fescue
*Glyceria declinata**	Waxy mannagrass
*Holcus lanatus**	Common velvet grass
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley
Hordeum murinum ssp. *leporinum**	Hare barley
Hordeum murinum subsp. *murinum**	Wall barley
Leersia oryzoides	Rice cutgrass
*Paspalum dilatatum**	Dallis grass
Paspalum distichum	Knotgrass
*Phalaris aquatica**	Harding grass
*Poa annua**	Annual blue grass
*Poa bulbosa**	Bulbous blue grass
Poa pratensis subsp. *pratensis**	Kentucky blue grass
*Poa trivialis**	Rough blue grass
*Polypogon maritimus**	Mediterranean beard grass
*Polypogon monspeliensis**	Annual beard grass
*Sporobolus indicus**	Smut grass

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

POTAMOGETONACEAE (PONDWEED FAMILY)

Potamogeton sp.	Pondweed

THEMIDACEAE (BRODIAEA FAMILY)

Brodiaea coronaria subsp. *coronaria*	Harvest brodiaea
Brodiaea elegans subsp. *elegans*	Elegant brodiaea
Dichelostemma capitatum ssp. *capitatum*	Blue dicks
Dichelostemma multiflorum	Wild hyacinth
Triteleia laxa	Ithuriel's spear
Triteleia hyacinthina	White brodiaea

TYPHACEAE (CATTAIL FAMILY)

Typha domingensis	Southern cattail
Typha latifolia	Broad-leaved cattail

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

** Ornamental, planted as landscape tree/shrub

APPENDIX D

Teichert – Aspen VIII & IX Rare Plant Survey
Representative Photos

Photo 1

15 August 2014

Aspen VIII & IX
Irrigated Pasture in Summer
after Harvesting

Photo 2

28 March 2014

Aspen VIII & IX
Annual Grassland

Photo 3

06 June 2014

Aspen VIII & IX
Elder Creek

Photo 4

14 April 2014

Aspen VIII & IX
Vernal Pools

Photo 5

28 March 2014

Aspen VIII & IX
Seasonal Wetlands and Swales

Photo 6

19 June 2014

Aspen VIII & IX
Irrigated Seasonal Wetland

Photo 7

15 August 2014

Aspen VIII & IX
Irrigated Season Swale

Photo 8

15 August 2014

Aspen VIII & IX
Freshwater Marsh along Ditch

Photo 9

15 August 2014

Aspen VIII & IX
Irrigation Pond

Photo 10

15 August 2014

Aspen VIII & IX
Irrigation Ditch

Photo 11

06 June 2014

Aspen VIII & IX
Riparian Woodland Bordering Expansion Pond along Elder Creek

Photo 12

28 March 2014

Aspen VIII & IX
Residential Home Surrounded by Ornamental Trees and Ruderal Vegetation

Photo 13

30 June 2014

Aspen VIII & IX
Sanford's Arrowhead
Growing in Ditch

Photo 14

30 June 2014

Aspen VIII & IX
Sanford's Arrowhead

APPENDIX E

Teichert – Aspen VIII & IX Rare Plant Survey
CNDDB California Native Species Field Survey Form

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 07/14/2014

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Sagittaria sanfordii*

Common Name: Sanford's Arrowhead

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2,000+ Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Barry Baba
Address: PO Box 15002
Sacramento, CA 95851
E-mail Address: bbaba@teichert.com
Phone: (916) 480-5505

Plant Information

Phenology: 90 % vegetative, 50 % flowering, 50 % fruiting

Animal Information

adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown _____

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Sacramento Landowner / Mgr.: Teichert - Triangle Properties
Quad Name: Carmichael Elevation: 20 meters
T 8N R 6E Sec 28, SW ¼ of SE ¼, Meridian: H☐ M☑ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T 8N R 6E Sec 28, NW ¼ of SE ¼, Meridian: H☐ M☑ S☐ GPS Make & Model Trimble ProXRT
DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy 0.2 feet meters/feet
Coordinate System: UTM Zone 10 ☑ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 646172.118, 4264282.443 (meters)

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Population occurring in a routinely maintained irrigation ditch. Growing in association with Ludwigia peploides, Leersia oryzioides, Cyperus eragrostis, Eleocharis macrostachya, and Glyceria declinata.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Irrigated pasture, grazing

Visible disturbances: Ditch maintenance, but appears to prefer regular maintenance of ditch

Threats: Proposed mine site

Comments:

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

BR -1 -145

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☑

May we obtain duplicates at our expense? yes ☑ no ☐

ATTACHMENT C

Teichert's Aspen VIII & IX Biological Resources Assessment
Arborist Survey Report

ASPEN VIII & IX

ARBORIST REPORT

Teichert Aggregates – Sacramento County

Prepared For:

Sacramento County
Planning and Environmental Review Division
827 7th Street, Room 230
Sacramento, CA 95814

Prepared By:

Teichert Materials
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Date:

~~December 2014~~
Revised: July 2015

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Appendix A – Tree Survey Data

ASPEN VIII & IX

TEICHERT – SACRAMENTO COUNTY

Arborist Report

July 2015

1.0 INTRODUCTION

This Arborist Report has been prepared for Teichert Aggregates, Inc.'s (Teichert's) Aspen VIII and IX site (Property) in Sacramento County, California. The Property is located approximately 0.5 mile south of Jackson Road (Highway 16) and 0.5 mile east of Bradshaw Road, and is bisected by Elder Creek Road (Figure 1). The purpose of this report is to present the results of a tree survey conducted for the Property, including information about the species, size, condition, and location of the trees on the property. This information will be used to evaluate project impacts and create appropriate mitigation pursuant to Sacramento County Code (Chapter 19.12 *Tree Preservation and Protection*) and policies of the Sacramento General Plan Conservation Element.

1.1 Project Overview

The Property is an approximately 682-acre site within unincorporated Sacramento County, of which Teichert proposes to mine approximately 357.3 acres for aggregate resources (Project) (Figure 2). Material mined from the site will be transported via conveyor belt to Teichert's Perkins processing plant, approximately 4 miles to the northwest (Figure 1). This conveyor will exit near the northwestern corner of Aspen VIII, where it will extend into the neighboring Aspen V-South Property to the north, before eventually connecting to an existing conveyor system on a permitted mining area on Aspen V-South. This portion of conveyor between Aspen VIII and Aspen V-South has been included as part of the Project (Figure 2). The Project also includes a conveyor tunnel that will be constructed underneath Elder Creek Road (Figure 2). In addition to mining activities, Teichert proposes to improve an existing culvert that connects Elder Creek between Aspen VIII and IX from underneath Elder Creek Road (Figure 2). All ancillary elements and construction activities, including conveyor between Aspen VIII and Aspen V-South, tunnel under Elder Creek Road, and culvert replacement in Elder Creek, have been included as part of the Project and, together with mining, amount to a total disturbance area of approximately 384.44 acres (Figure 2).

1.2 Regulatory Context

The Sacramento County Tree Preservation Ordinance and policies within the General Plan Conservation Element afford various protections to native vegetation and the urban forest. Requirements for the protection of native oak trees are found in Sacramento County Code 19.12. This policy and ordinance requires a project applicant to obtain authorization from the County for any project impacts which would encroach within the dripline of or destroy, kill or remove any "tree," as defined, with the urban

area of the unincorporated area of Sacramento County, or any property, public or private. The ordinance defines "trees" as follows:

> "Any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground (dbh)."

In addition to protection of oak trees, the Conservation Element of the Sacramento County General Plan includes policies that build on Sacramento County's Tree Preservation and Protection Ordinance. Specifically, CO-138 and CO-139 require that other native trees (California sycamore and California black walnut) also be protected or otherwise mitigated for in accordance with existing tree replacement policies and standards for native oaks (i.e., on an inch-by-inch basis). Sacramento General Plan Policy CO-140 further expands on native tree protections by addressing tree canopy and other mitigation requirements for native oak woodlands, oak savannah and mixed riparian areas. Impacts to non-native tree canopy are addressed in the Urban Forest Management section of the General Plan under policies CO-145 and CO-146, which require mitigation for loss of non-native tree canopy as a result of development.

For projects that will substantially impact or remove on-site or off-site trees, an arborist report is typically required as part of the Planning Application. Impacted trees are defined as all on-site and off-site trees meeting the County's criteria of a 'protected' tree that have canopies overhanging the site or that may be impacted by off-site project-related construction.

1.3 Existing Conditions

The Aspen VIII property (Sacramento Co. Assessor's Parcel Numbers [APNs] 063-0180-005,-006 and 063-0160-001) is an approximately 319-acre site bounded by Elder Creek Road to the south, Bellevue and Arlington Cemeteries to the west, and agricultural land (grazing) to the north and east (Figure 2). The Aspen IX property (APNs 066-0020-006, 066-0030-001 and 066-0050-003) is an approximately 363-acre site located immediately south of Elder Creek Road, 0.5 mile east of Bradshaw Road, 0.25 mile north of Florin Road and 0.5 west of Excelsior Road (Figure 2). Current land uses surrounding the site include rural residential, agricultural cropland, and rangeland. The topography of the site is generally flat with a few moderate rolling hills.

Several different biological communities occur on the Property, including irrigated pasture, annual grassland and wetland communities (Figure 3). Irrigated pasture habitat occurs over the majority of the site, totaling approximately 331.1 acres. A network of ditches and ponds are associated with the irrigated pastures. Common plant species include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

Much of the remaining Property consists of annual grasslands, totaling approximately 308.5 acres. These areas consist of relatively flat to moderately rolling hills dominated by soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wall barley (*Hordeum murinum*), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), brome fescue (*Festuca bromioides*), ryegrass, longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal wetlands are common within these relatively undisturbed landscapes.

Trees are largely absent on the Property except along borders where other features exist (i.e., homes, roads, ditches, ponds, etc.). Most trees on site are the result of ornamental landscape plantings around roads and residential homes. Himalayan blackberry (*Rubus armeniacus*) and sweet briar (*Rosa rubiginosa*) brambles are also interspersed with trees throughout the site along fencelines, irrigation ditches/ponds, and portions of Elder Creek.

Wetlands identified and mapped on the Property include vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, stock pond and ditch (Figure 3). In addition, Elder Creek occurs on both Aspen VIII and IX, whereby it enters at the southeast corner of Aspen VIII and exits at the western boundary of Aspen IX (Figure 3). The creek is channelized throughout the Aspen VIII portion of the site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the site on the west where it is once again channelized. The creek is essentially a perennial drainage that is hydrologically supported by irrigation runoff during the dry (summer) season.

Other features on the Property include three rural residential homes and associated farm/equipment storage buildings. Dirt and graveled access roads to homes, farm buildings, and pastures are also present throughout the Property.

2.0 TREE SURVEY REPORT- IDENTIFICATION, INVENTORY AND ASSESSMENT

2.1 Survey Methods

An aerial photo of the site was used to determine potential tree locations and to develop field survey maps. Trees were then surveyed on foot by Teichert biologists B. Baba and J. Greer (ISA Certified Arborist, Cert. #WE-10104A) on 23 April, 01 May, and 07 October 2014 to verify and map all trees located within and immediately adjacent to the proposed limits of disturbance. In general, surveys were focused to areas within the project boundary and roughly 150 feet of the proposed limits of disturbance. Adjacent private properties were not inventoried if their trees were determined to be well outside of potential impacts.

All trees with trunks equal to or greater than four inches in diameter were inventoried and mapped using a Trimble Juno global positioning system (GPS) unit with sub-meter accuracy. All recorded trees were closely examined to determine species type and their diameter at breast height (DBH). To determine DBH, a diameter tape was used to verify each trunk diameter at the industry standard of 54 inches above grade. In addition, dripline radius was assessed based upon the measurement from the trunk to the end of the longest lateral limb, which defines the protection zone of the tree.

The overall vigor of each tree was rated according to Table 1 (below). Vigor consists of a combined assessment of the health and structure of a tree. The health rating component considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and insect infestation. The structural rating component reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure.

TABLE 1. ASPEN VIII & IX ARBORIST REPORT (2014) - TREE VIGOR RATING SYSTEM

Vigor Rating	Tree Health	Tree Structure
4	Healthy tree or shrub, free of signs and symptoms of disease. Leaf size, color, and density are typical for the species; buds are normal size, viable and abundant; current and past growth increments are better than average.	No wounds, cavities, decay, or indication of hollowness evident in the root crown, trunk, or primary and secondary limbs; no anchor roots exposed; no dead primary or secondary limbs present; there have been no major limb failures; limbs are not overburdened; branching structure appropriate for species.
3	Tree with moderate vigor, with very little evidence of stress or disease. Some thinning of crown and somewhat poor leaf color; buds are normal size and viable; current and past growth increments are generally average.	Average amount of deadwood/dieback with respect to the tree's size and growing environment; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any callusing is vigorous; any decay is limited to small dead branches/stubs.
2	Tree in decline, with moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation; epicormic growth evident; current and past growth increments below average; buds small and few; tree may be slow to callus around old wounds.	Dieback of medium to large branches; limbs slightly overburdened; branching structure and/or canopy balance moderately altered by the tree's growing environment; small to moderate wounds, cavities, decay, and indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed.
1	Tree in severe decline; most of the foliage is from epicormic growth; major evidence of stress, disease, nutrient deficiency and/or insect infestation; poor leaf color; buds unviable.	Dieback of scaffold branches and/or trunk; significant wounds, cavities, decay, and/or indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots exposed; limbs may be severely overburdened.
0	Tree is dead; no living tissue evident.	Extensive dieback evident, with branches completely dry and breaking easily; trunk and major limbs hollow; tree has lost all anchorage.

Data Collected

1. Tree tag number;
2. Species identification;
3. Location;
4. Trunk diameter at breast height (DBH);
5. Visual estimate of dripline radius ; and
6. Visual assessment for health and structural condition using a 0-4 scale, defined in Table 1.

2.2 Survey Results

A total of 102 trees, representing 17 species, were surveyed. The numbers and types of trees surveyed are shown in Table 2. Demographic data for each tree can be found in Appendix A, and the number and locations of each tree can be found in Figure 4.

TABLE 2. ASPEN VIII & IX ARBORIST REPORT (2014) TREE SPECIES SURVEYED

Common Name	Scientific Name	No. of Trees Surveyed
Goodding's black willow	*Salix gooddingii*	21
California black walnut	*Juglans hindsii*	9
Valley oak	*Quercus lobata*	5
Modesto ash	*Fraxinus velutina*	21
Fremont cottonwood	*Populus fremontii*	9
Red gum	*Eucalyptus camaldulensis*	10
Fruitless mulberry	*Morus alba*	13
Weeping willow	*Salix babylonica*	1
Chinese tallowtree*	*Triadica sebifera*	1
London plane tree	*Plantanus x hispanica*	1
Edible fig*	*Ficus carica*	2
Mount Atlas Mastic Tree	*Pistacia atlantica*	1
Camphortree	*Cinnamomum camphora*	1
Chinese pistache	*Pistacia chinensis*	3
Lemon	*Citrus x limon*	1
Prunus tree	*Prunus spp.*	2
Silver Maple	*Acer saccharinum*	1

*The California Invasive Plant Council classifies this tree as a "Not-Native Invasive" species with moderate status regarding potential impact to local native ecosystems.

Trees were scattered throughout the survey area, commonly along fencelines, roads, irrigation ditches, ponds and residential landscapes (Figure 4). The most frequently occurring species were Goodding's black willow and Modesto ash. Goodding's black willow trees are common California native trees that are usual colonizers of disturbed sites with a continuous water supply. All surveyed black willows exist adjacent to irrigation water sources, with the majority concentrated along an irrigation pond and connected ditches in the northwestern portion of Aspen VIII. Modesto ash trees, regularly planted as ornamental landscape/shade trees, are common along driveways/fencelines and around residential homes.

Other commonly occurring trees were red gum eucalyptus, fruitless mulberry, and Fremont cottonwood. Both the red gum and mulberry trees are not native and were most likely planted as landscape trees. The red gum trees form two large clumps in the northwest corner of the study area, near the Bellvue Cemetery. Mulberry trees were found scattered throughout the site along fencelines and around homes. Fremont cottonwood trees were also distributed throughout the site, usually in association with water sources. Similar to the black willow, Fremont cottonwood trees are native to the area and tend to behave as fast-growing, primary colonizers in areas with a constant water supply.

Both cottonwood and black willow trees will often form riparian scrub or forest habitat along the perimeters of riparian areas, usually in association with other species (such as black walnut and valley oak). Within the Aspen VIII and IX survey area, riparian forest tree canopy is generally lacking, represented only by small patches along an irrigation pond in the northwest corner of the study area and along various ditches and Elder Creek (totaling approximately 0.469 acre) (Figure 5). Additional riparian forest scrub was observed within the Elder Creek channel in the southeast portion of Aspen VIII. This was probably the largest riparian stand on the Property, but was not mapped due to its location well outside of the survey area. The riparian habitat in this area is generally dominated by Himalayan blackberry/sweet briar brambles interspersed with willow and cottonwood trees.

Outside of landscape and riparian areas, other frequently-encountered tree species were Northern California black walnut and valley oak. Black walnut trees were generally found to be growing as individuals along various fencelines, with the exception of one small stand mapped as part of riparian habitat just north of the intersection of Elder Creek and Elder Creek Road in Aspen VIII. Several valley oak trees were also found scattered within the survey area but did not form oak woodland canopy, existing instead either as isolated individuals or as understory saplings within riparian scrub habitat.

In general, trees surveyed within the Aspen VIII and IX property represent a random collection of species, the majority of which are considered ornamental landscape trees. The highest concentrations of trees were found in association with residential landscapes and generally constitute planted assemblages of ornamental species. Most surveyed trees were large, mature individuals of overall decent health but with poor structure, as is typical of older trees. In addition to age, a combination of neglect, ground disturbance and heavy browsing by livestock has likely contributed to poor structure. Notably, two caged trees (#42 and #76) were severely stressed and altered by browsing activity. Overall, the majority of large trees exhibited overburdened limbs, limb dieback and various forms of decay. Additionally, more than half (62) of the surveyed trees were multi-stemmed, with many trees showing evidence of included bark. One tree (#43) was found to be dead and was recorded as a standing dead snag.

Additional ornamental and landscape trees were observed within adjacent private properties to the west, south and east of the Project boundary, but were not accessible and thus not mapped. These trees are well outside of potential impacts and are protected by required setbacks.

2.3 General Recommendations

The proposed mining boundary and limits of disturbance include a total of approximately 383.68 acres. Of the 102 trees surveyed on the Property, 74 were found to be within or immediately adjacent to (i.e., with overhanging canopies) the proposed limits of disturbance and may be removed or otherwise disrupted as a result of Project activities (Figure 4).

A total of 14 protected trees (5 valley oak and 9 California black walnut) were found onsite to be of a sufficient size to be protected and regulated by the Sacramento County Tree Preservation Ordinance, 12 of which exist within the proposed limits of disturbance and may be impacted as a result of the project. For valley oak and black walnut trees that would be removed or indirectly impacted (i.e., ground disturbance within existing driplines), Teichert will comply with the Sacramento Tree Preservation Ordinance and Sacramento General Plan Policy CO-139 by replacing these trees on an inch-by-inch basis. Table 3 summarizes the total potential impacts to native protected trees by the proposed Project.

TABLE 3. POTENTIAL IMPACTS TO NATIVE PROTECTED TREES – ASPEN VIII AND IX (2014)

Common Name	Scientific Name	No. Trees	Total Inches DBH
California Black Walnut	*Juglans hindsii*	9	156.3
Valley Oak	*Quercus lobata*	3	22.3
		TOTAL:	**178.6**

Several patches of riparian forest scrub habitat were found sporadically distributed near water sources within the survey area, totaling approximately 0.469 acre (Figure 5). The total remaining native and non-native tree canopy—excluding invasive species—potentially impacted by the proposed project is approximately 1.345 acres (Figure 5). The removal of non-native invasive trees (i.e., Chinese tallow and edible fig) (Cal-IPC 2006) could be considered a benefit to future reclamation goals and the surrounding ecosystem. Sacramento General Plan Policies address losses to mixed riparian forest canopy (Policy CO-140) and other tree canopy (Policies CO-145 and CO-146) by requiring the creation of an on-site mitigation area equal in size to the acreage of canopy lost. Mitigation planting will be carried out on-site within preserved portions of Elder Creek. Table 4 summarizes the total potential impacts to tree canopy by the proposed project.

TABLE 4. POTENTIAL IMPACTS TO TREE CANOPY – ASPEN VIII AND IX (2014)

Canopy	Total Canopy of Surveyed Trees (Acres)	Total Canopy Potentially Impacted (Acres)
Riparian Forest/ Scrub Canopy	0.469	0.229
Other Canopy	1.345	1.345
GRAND TOTAL:	**1.814**	**1.574**

3.0 SUMMARY

A total of 74 trees, representing 1.574 acres of tree canopy, will be potentially impacted by the Project. Of these impacts, 12 are native trees (valley oak and Northern California black walnut), totaling 178.6 inches DBH, that are protected by the Sacramento County Tree Preservation Ordnance. Prior to Project impacts, Teichert will prepare a detailed mitigation plan addressing impacts to native protected trees (i.e., valley oak and black walnut) and other tree canopy loss (excluding invasive species), developed in accordance with County Ordinance, General Plan policies and final mitigation measures for the Project. The Mitigation Plan will include species to be planted, planting locations and densities, planting methods, a maintenance plan (e.g., for irrigation, weeds, and herbivory), and monitoring and performance requirements.

4.0 REFERENCES

California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Published by the California Invasive Plant Council, February 2006.

LIST OF FIGURES

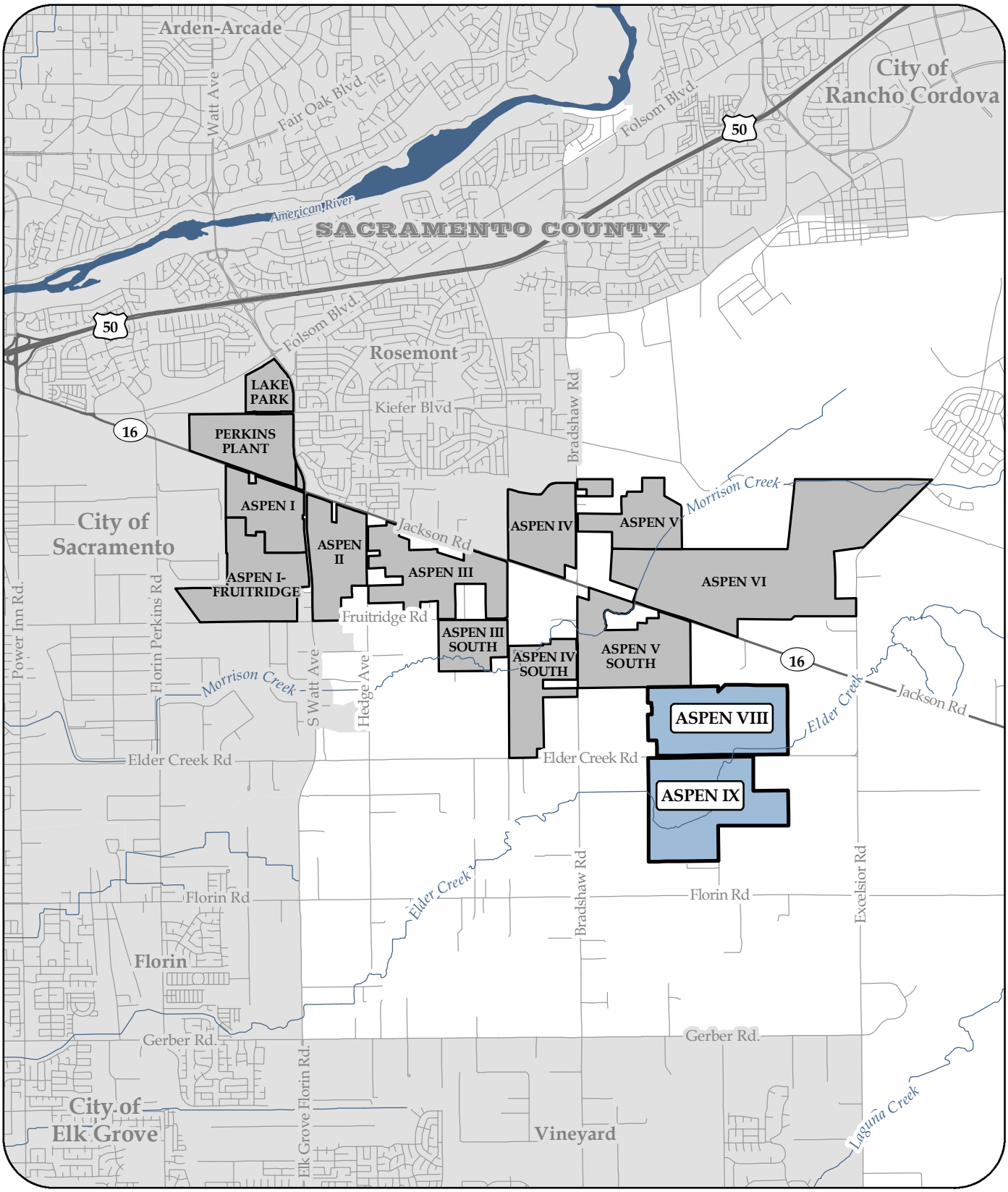
Figure 1 – Site Vicinity Map

Figure 2 – Property and Project Site Map

Figure 3 – Existing habitat Communities

Figure 4 – Tree Survey Results

Figure 5 – Tree Canopy



TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

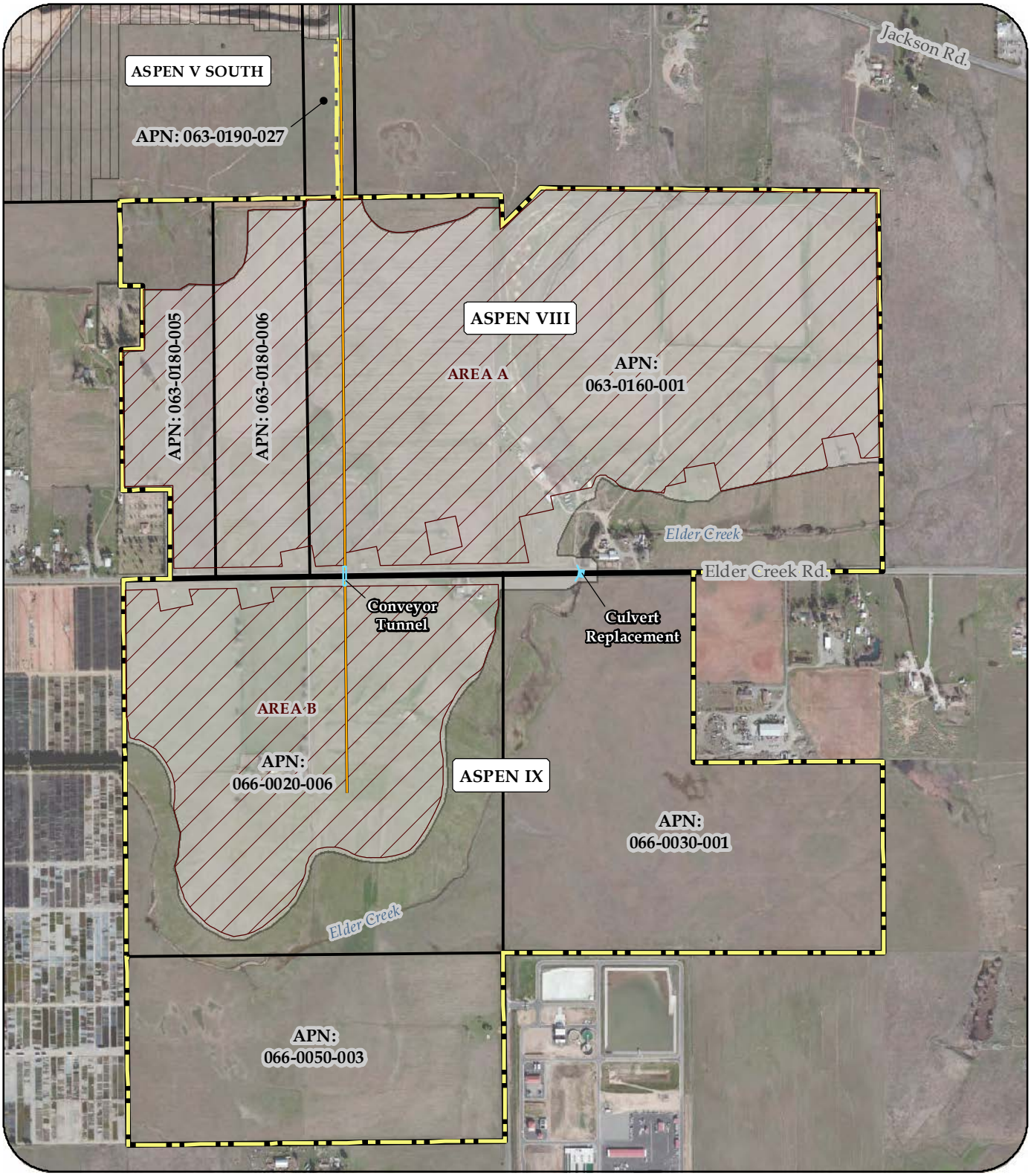
FIGURE 1

SITE VICINITY MAP

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/23/2014 AS8_AS9_Arborist_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel & Culvert Replacement
- Proposed Mining Boundary
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

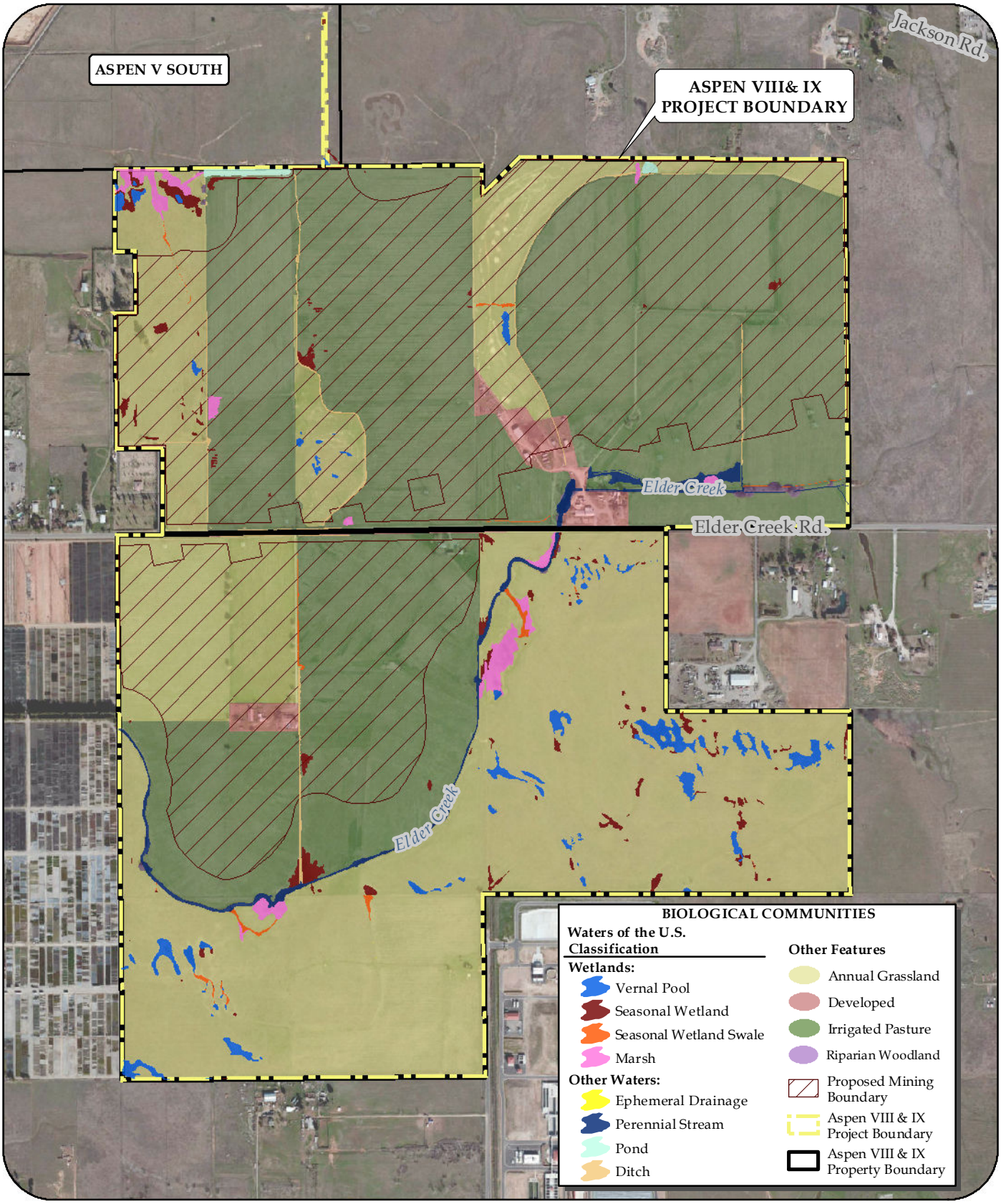
FIGURE 2

PROPERTY & PROJECT SITE MAP

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/10/2015 AS8_AS9_Arborist_Fig2_Site_201506.mxd



TEICHERT MATERIALS

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

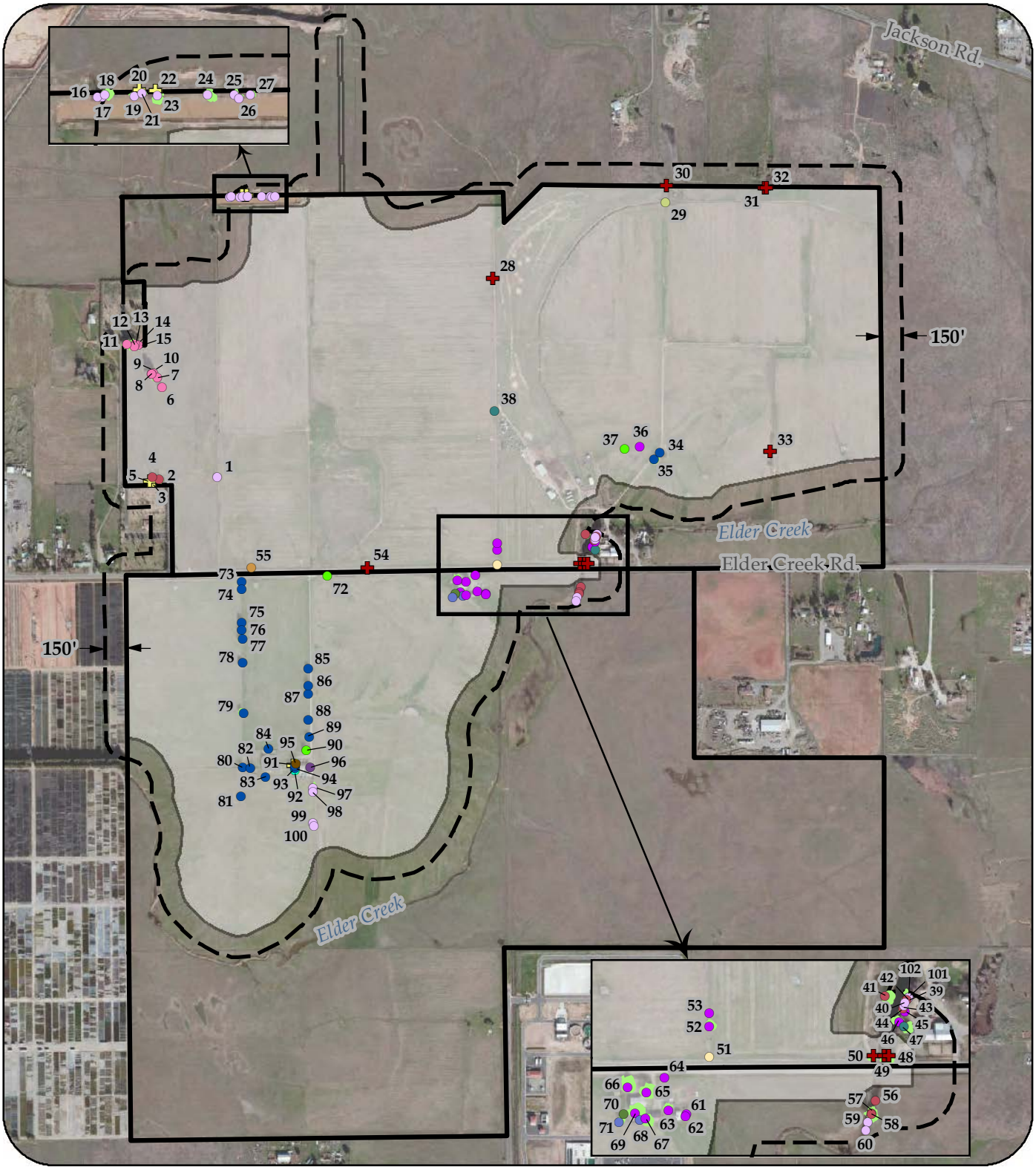
0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 3
HABITATS AND WETLANDS
ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 12/5/2014 AS8_AS9_Arborist_Fig3_Bio_201412.mxd



LEGEND:

Native Protected Species:
- Northern CA Black Walnut
- Valley Oak

Other Species:
- Acacia
- Camphortree
- Chinese Pistache
- Chinese Tallowtree
- Citrus
- Edible Fig
- Fremont Cottonwood
- Goodding's Black Willow
- Lemon
- London Plane
- Modesto Ash
- Mt Atlas Mastic Tree
- Mulberry
- Prunus
- Red Gum
- Silver Maple
- Weeping Willow
- Tree Canopy
- Arborist Survey Area
- Limits of Disturbance
- Aspen VIII & IX Property Boundary

0 500 1,000 Feet

SOURCE:
- Arborist Survey GPS (April-Oct. 2014)
- Orthophoto Provided by Digital Globe (February 2012)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

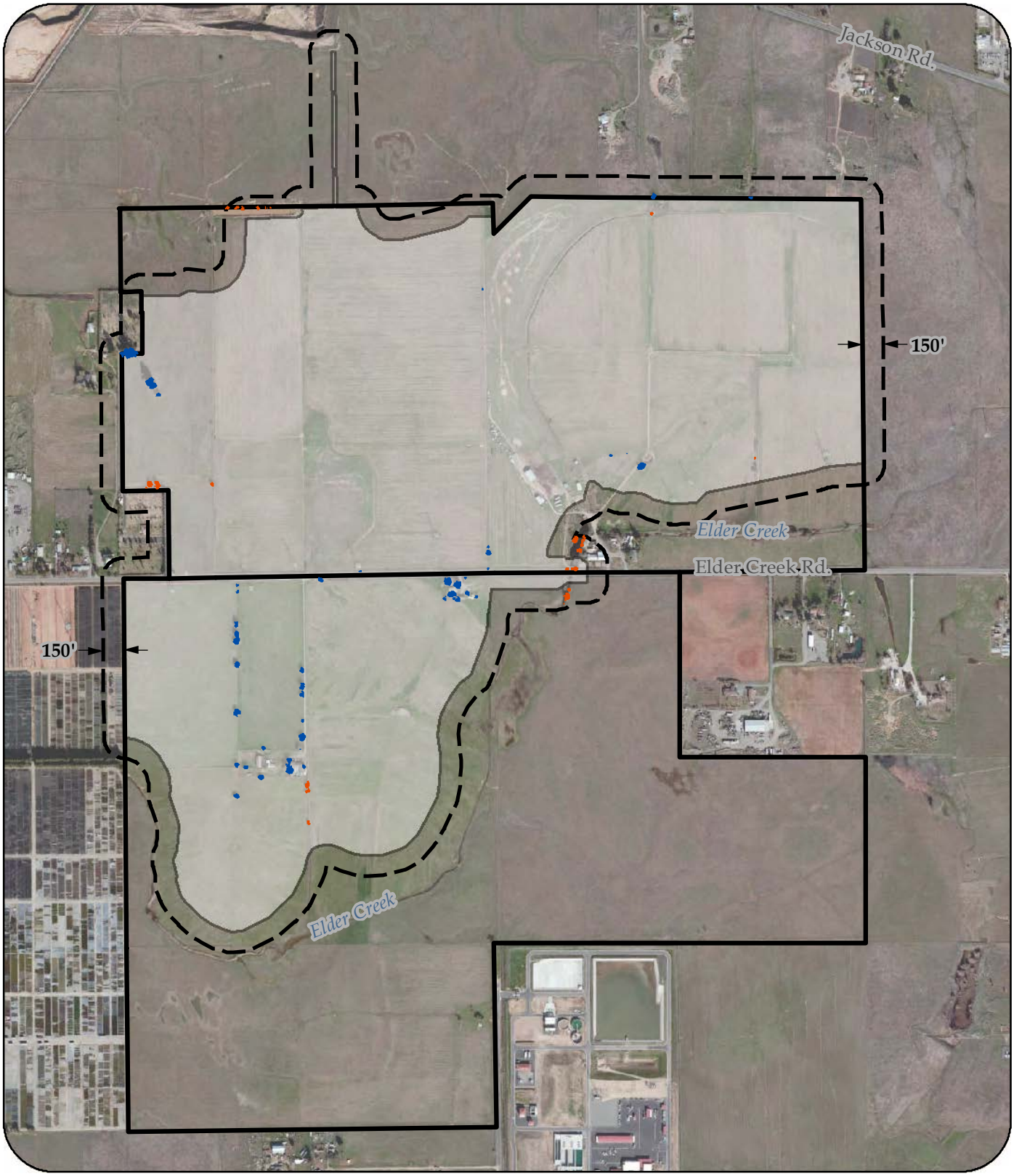
FIGURE 4

TREE SURVEY

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo Rev. by R. Enes 6/11/2015 AS8_AS9_Arborist_Fig4_TreeSurveyArea_201506.mxd



TEICHERT MATERIALS

LEGEND:

- Riparian Forest/Scrub Canopy: ± 0.469 Acres
- Other Canopy: ± 1.345 Acres
- Arborist Survey Area
- Limits of Disturbance
- Aspen VIII & IX Property Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (February 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 5

TREE CANOPY

ARBORIST REPORT
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 6/11/2015 AS8_AS9_Arborist_Fig5_TreeCanopy_201506.mxd

APPENDIX A

Teichert Aggregates – Aspen VIII and IX
Tree Survey Data

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
1	Goodding's Black Willow	*Salix gooddingii*	3.0	20.2	1	20.0	Yes
2	Fremont Cottonwood	*Populus fremontii*	2.0	32.9	1	25.0	Yes
3	Valley Oak	*Quercus lobata*	4.0	5.2	1	4.0	Yes
4	Fremont Cottonwood	*Populus fremontii*	2.0	28.2	1	20.0	Yes
5	Valley Oak	*Quercus lobata*	3.0	13.0	3	4.0	Yes
6	Red Gum	*Eucalyptus camaldulensis*	2.0	34.5	1	20.0	Yes
7	Red Gum	*Eucalyptus camaldulensis*	3.0	46.7	2	30.0	Yes
8	Red Gum	*Eucalyptus camaldulensis*	3.0	31.1	1	30.0	Yes
9	Red Gum	*Eucalyptus camaldulensis*	4.0	34.8	2	30.0	Yes
10	Red Gum	*Eucalyptus camaldulensis*	4.0	48.5	2	20.0	Yes
11	Red Gum	*Eucalyptus camaldulensis*	3.0	24.5	1	30.0	Yes
12	Red Gum	*Eucalyptus camaldulensis*	3.0	14.2	1	20.0	Yes
13	Red Gum	*Eucalyptus camaldulensis*	4.0	21.6	2	10.0	Yes
14	Red Gum	*Eucalyptus camaldulensis*	3.0	10.1	1	6.0	Yes
15	Red Gum	*Eucalyptus camaldulensis*	3.0	20.5	1	12.0	Yes
16	Goodding's Black Willow	*Salix gooddingii*	1.0	8.0	1	6.0	No
17	Goodding's Black Willow	*Salix gooddingii*	3.0	30.0	4	10.0	No
18	Goodding's Black Willow	*Salix gooddingii*	2.0	13.0	2	5.0	No
19	Goodding’s Black Willow	*Salix gooddingii*	2.0	13.0	2	5.0	No
20	Valley Oak	*Quercus lobata*	4.0	9.1	1	8.0	No
21	Goodding's Black Willow	*Salix gooddingii*	3.0	11.0	2	6.0	No
22	Valley Oak	*Quercus lobata*	4.0	4.0	1	5.0	No
23	Goodding's Black Willow	*Salix gooddingii*	4.0	40.0	5	15.0	No
24	Goodding's Black Willow	*Salix gooddingii*	2.0	25.0	3	10.0	No
25	Goodding's Black Willow	*Salix gooddingii*	3.0	8.0	1	5.0	No
26	Goodding's Black Willow	*Salix gooddingii*	4.0	10.0	1	6.0	No
27	Goodding's Black Willow	*Salix gooddingii*	4.0	10.0	1	6.0	No
28	Northern CA Black Walnut	*Juglans hindsii*	3.0	7.1	1	7.0	Yes
29	Weeping Willow	*Salix babylonica*	3.0	16.6	1	10.0	Yes
30	Northern CA Black Walnut	*Juglans hindsii*	4.0	34.8	2	25.0	Yes
31	Northern CA Black Walnut	*Juglans hindsii*	3.0	8.0	1	6.0	Yes
32	Northern CA Black Walnut	*Juglans hindsii*	3.0	12.0	1	10.0	Yes
33	Northern CA Black Walnut	*Juglans hindsii*	4.0	11.7	2	10.0	Yes
34	Modesto Ash	*Fraxinus velutina*	0.0	0.0	1	0.0	Yes
35	Modesto Ash	*Fraxinus velutina*	1.0	59.5	2	30.0	Yes
36	Mulberry	*Morus alba*	1.0	12.5	4	5.0	Yes
37	Chinese Pistache	*Pistacia chinensis*	4.0	14.0	2	10.0	Yes
38	Edible Fig*	*Ficus carica*	4.0	13.0	3	8.0	Yes

*The California Invasive Plant Council classifies this tree as a “Not-Native Invasive” species with moderate status regarding potential impact to local native ecosystems.

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA (CONTINUED)							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
39	Fremont Cottonowood	*Populus fremontii*	2.0	60.0	3	15.0	No
40	Goodding's Black Willow	*Salix gooddingii*	2.0	14.7	5	8.0	No
41	Fremont Cottonwood	*Populus fremontii*	3.0	46.0	3	35.0	No
42	Fremont Cottonwood	*Populus fremontii*	2.0	64.0	3	30.0	No
43	Goodding's Black Willow	*Salix gooddingii*	3.0	13.0	5	8.0	No
44	Fremont Cottonwood	*Populus fremontii*	2.0	16.0	3	12.0	No
45	Mulberry	*Morus alba*	3.0	15.0	2	15.0	No
46	Mulberry	*Morus alba*	3.0	32.0	4	15.0	No
47	Edible Fig*	*Ficus carica*	3.0	46.0	4	25.0	No
48	Northern CA Black Walnut	*Juglans hindsii*	2.0	34.0	2	20.0	Yes
49	Northern CA Black Walnut	*Juglans hindsii*	2.0	23.5	3	18.0	Yes
50	Northern CA Black Walnut	*Juglans hindsii*	3.0	19.0	3	18.0	Yes
51	Mt Atlas Mastic Tree	*Pistacia atlantica*	3.0	26.0	4	10.0	Yes
52	Mulberry	*Morus alba*	4.0	45.0	9	15.0	Yes
53	Mulberry	*Morus alba*	4.0	17.0	5	10.0	Yes
54	Northern CA Black Walnut	*Juglans hindsii*	3.0	6.2	1	5.0	Yes
55	Chinese Tallowtree*	*Triadica sebifera*	2.0	9.2	2	4.0	Yes
56	Fremont Cottonwood	*Populus fremontii*	2.0	31.0	4	22.0	No
57	Fremont Cottonwood	*Populus fremontii*	2.0	24.0	1	20.0	No
58	Fremont Cottonwood	*Populus fremontii*	2.0	52.0	2	35.0	No
59	Goodding's Black Willow	*Salix gooddingii*	2.0	7.0	1	6.0	No
60	Goodding's Black Willow	*Salix gooddingii*	2.0	14.0	1	8.0	No
61	Mulberry	*Morus alba*	2.0	17.0	6	10.0	Yes
62	Mulberry	*Morus alba*	2.0	11.7	4	12.0	Yes
63	Mulberry	*Morus alba*	3.0	16.2	1	20.0	Yes
64	Mulberry	*Morus alba*	2.0	7.5	3	10.0	Yes
65	Mulberry	*Morus alba*	4.0	33.0	1	25.0	Yes
66	Mulberry	*Morus alba*	4.0	62.0	3	30.0	Yes
67	Mulberry	*Morus alba*	2.0	23.5	1	25.0	Yes
68	Prunus	*Prunus spp.*	2.0	15.4	2	15.0	Yes
69	Mulberry	*Morus alba*	4.0	21.7	1	30.0	Yes
70	Lemon	*Citrus x limon*	2.0	8.0	2	5.0	Yes
71	Prunus	*Prunus spp.*	3.0	20.0	2	15.0	Yes
72	Chinese Pistache	*Pistacia chinensis*	3.0	38.0	1	20.0	Yes
73	Modesto Ash	*Fraxinus velutina*	2.0	30.5	2	10.0	Yes
74	Modesto Ash	*Fraxinus velutina*	2.0	33.0	2	10.0	Yes
75	Modesto Ash	*Fraxinus velutina*	2.0	28.3	1	30.0	Yes
76	Modesto Ash	*Fraxinus velutina*	3.0	29.7	1	35.0	Yes

*The California Invasive Plant Council classifies this tree as a "Not-Native Invasive" species with moderate status regarding potential impact to local native ecosystems.

TABLE A-1. ASPEN VIII & IX ARBORIST REPORT - TREE SURVEY DATA (CONTINUED)							
Tree ID#	**Common Name**	**Scientific Name**	**Health**	**DBH**	**No. Stems**	**Dripline Radius**	**Impact (Yes/No)**
77	Modesto Ash	*Fraxinus velutina*	2.0	40.7	2	35.0	Yes
78	Modesto Ash	*Fraxinus velutina*	3.0	25.2	1	25.0	Yes
79	Modesto Ash	*Fraxinus velutina*	2.0	26.4	1	35.0	Yes
80	Modesto Ash	*Fraxinus velutina*	1.0	21.6	1	20.0	Yes
81	Modesto Ash	*Fraxinus velutina*	2.0	18.0	1	15.0	Yes
82	Modesto Ash	*Fraxinus velutina*	1.0	34.9	2	15.0	Yes
83	Modesto Ash	*Fraxinus velutina*	2.0	23.0	1	25.0	Yes
84	Modesto Ash	*Fraxinus velutina*	1.0	18.4	1	15.0	Yes
85	Modesto Ash	*Fraxinus velutina*	3.0	26.3	1	30.0	Yes
86	Modesto Ash	*Fraxinus velutina*	3.0	28.3	1	20.0	Yes
87	Modesto Ash	*Fraxinus velutina*	3.0	37.6	2	25.0	Yes
88	Modesto Ash	*Fraxinus velutina*	1.0	25.0	1	15.0	Yes
89	Modesto Ash	*Fraxinus velutina*	2.0	28.9	1	35.0	Yes
90	Chinese Pistache	*Pistacia chinensis*	3.0	4.4	1	10.0	Yes
91	Valley Oak	*Quercus lobata*	3.0	4.1	1	4.0	Yes
92	London Plane	*Platanus x hispanica*	4.0	45.0	1	40.0	Yes
93	Modesto Ash	*Fraxinus velutina*	2.0	47.0	3	30.0	Yes
94	Modesto Ash	*Fraxinus velutina*	1.0	59.2	4	30.0	Yes
95	Silver Maple	*Acer saccarinum*	1.0	52.3	2	35.0	Yes
96	Camphortree	*Cinnamomum camphora*	1.0	34.9	2	25.0	Yes
97	Goodding's Black Willow	*Salix gooddingii*	2.0	89.0	5	25.0	Yes
98	Goodding's Black Willow	*Salix gooddingii*	2.0	27.9	3	30.0	Yes
99	Goodding's Black Willow	*Salix gooddingii*	1.0	21.0	4	20.0	Yes
100	Goodding's Black Willow	*Salix gooddingii*	1.0	28.7	3	15.0	Yes
101	Goodding’s Black Willow	*Salix gooddingii*	2.0	8.0	1	15.0	No
102	Goodding’s Black Willow	*Salix gooddingii*	2.0	22.0	2	20.0	No

DETERMINATION OF ELIGIBILITY AND EFFECT FOR THE ASPEN XIII AND ASPEN IX PROJECTS SACRAMENTO COUNTY, CALIFORNIA

Prepared by

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Prepared for

Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864-5805

April 2014
(Job #14-016)

INTRODUCTION

The project areas proposed for quarrying are located in central Sacramento County, California. The Aspen XIII project area is located on the north side of Elder Creek Road, between Bradshaw Road and Excelsior Road. The Aspen IX project area is located adjacent to it on the south side of Elder Creek Road. Aspen VIII is 319 acres in size, Aspen IX is 363 acres.

The Aspen VIII project area is located in a portion of the Rancho Rio de los Americanos land grant and in portions of sections 27 and 28, Township 8 North Range 6 East, mapped on the Carmichael USGS topographic quadrangle (Figure 1). The Aspen IX project area is located in portions of sections 33 and 34, Township 8 North Range 6 East, mapped on the Carmichael USGS topographic quadrangle (Figure 2).

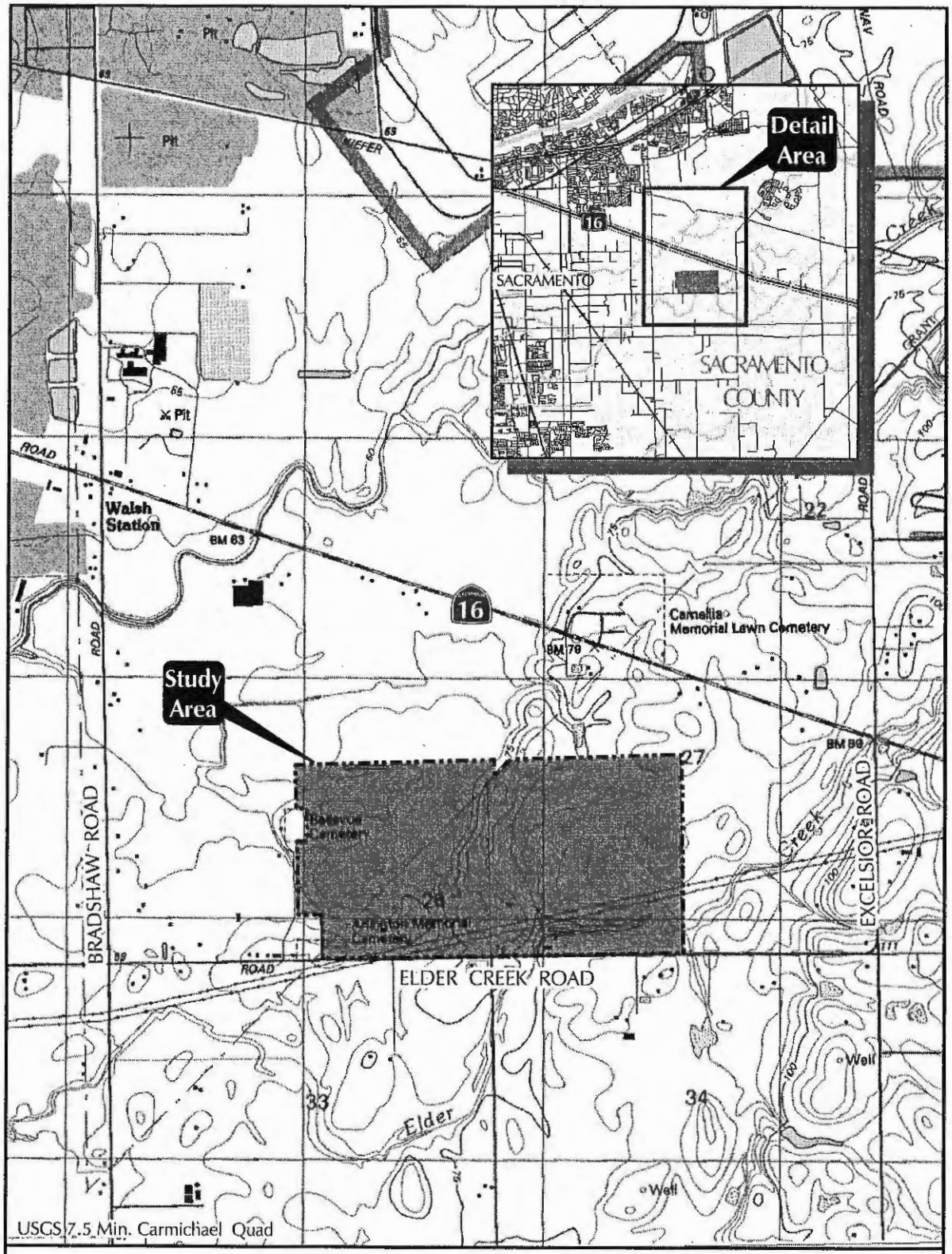
Because the proposed work will require Clean Water Act (CWA) permitting from the United States Army Corps of Engineers, the applicant will participate as a consulting party to assist the federal agency in demonstrating compliance with Section 106 of the NHPA (16 U.S.C. 470f; regulations codified at 36 CPR § 800). The bulk of the work was done in 2006 and 2007, but due to the slow pace of the construction industry at the time, it did not procede to permitting. The current study is to update the previous work. This report incorporates both phases.

Melinda A. Peak served as principal investigator for the study and served as team leader for the field trenching phase, and also prepared the Phase 1 report. Technicians Marvin Marine and Mike Lawson assisted in the trenching effort. Ann Peak led the field team in Phase 1, consisting of technicians Mike Lawson, Sue Merritt and Terry Peak (Peak & Associates, Inc. 2007). Mike Lawson returned in Phase II to perform the field check of of current conditions. Robert Gerry prepared the site forms for newly recorded resources (resumes, Appendix 1) and updated the report.

REGULATORY CONTEXT

The Section 106 review process is implemented using a five step procedure: 1) identification and evaluation of historic properties; 2) assessment of the effects of the undertaking on properties that are eligible for the National Register; 3) consultation with the State Historic Preservation Office (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties; 4) receipt of Advisory Council on Historic Preservation comments on the MOA or results of consultation; and 5) the project implementation according to the conditions of the MOA.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

N

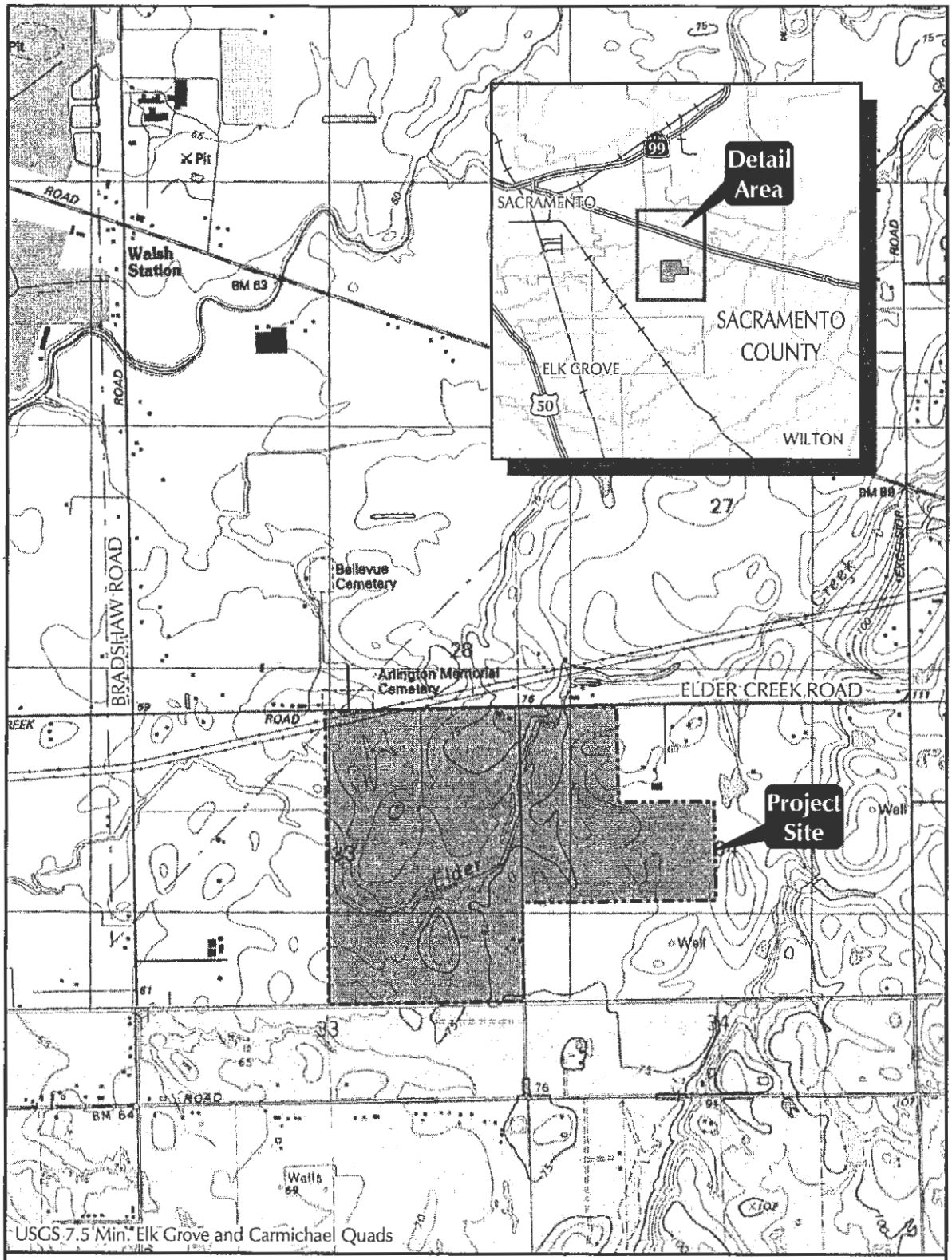
0 1000 2000
SCALE IN FEET

Drawn By: HMK
Date: 09/30/04

FIGURE 1

ASPEN VIII

site_and_vicinity.mxd
© 2004



SITE AND VICINITY

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING
LANDSCAPE ARCHITECTURE

N

0 1000 2000
SCALE IN FEET

Drawn By: AH
Date: 09/29/04

FIGURE 2

ASPEN IX

site_and_vicinity_v9.mxd
© 2004

FRAMEWORK FOR EVALUATION

Decisions regarding management of cultural resources hinge on determinations of their significance (36 CFR 60.2). As part of this decision-making process the National Park Service has identified components which must be considered in the evaluation process, including:

- criteria for significance;
- historic context; and
- integrity.

Criteria for Significance

Significance of cultural resources is measured against the National Register criteria for evaluation:

> *The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and,*
>
> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *(b) that are associated with the lives of persons significant in our past; or*
>
> *(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *(d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).*

Historic Context

The historic context is a narrative statement "that groups information about a series of historic properties based on a shared theme, specific time period, and geographical area." To evaluate resources in accordance with federal guidelines, these sites must be examined to determine whether they are examples of a defined "property type". The property type is a "grouping of individual properties based on shared physical or associative characteristics" Through this evaluation, each site is viewed as a representative of a class of similar properties rather than as a unique phenomenon.

A well-developed historical context helps determine the association between property types and broad patterns of American history. Once this linkage is established, each resource's potential to address specific research issues can be explicated.

Integrity

For a property to be eligible for listing in the National Register it must meet one of the criteria for significance (36 CFR 60.4 [a , b, c, or d]) and retain integrity. Integrity is defined as "the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period".

The following discussion is derived from National Register Bulletin 15 ("How to Apply the National Register Criteria for Evaluation").

> *Within the concept of integrity , there are seven aspects or qualities that define integrity in various combinations. The seven aspects are: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property will possess several or usually most of these aspects. The retention of specific aspects is necessary for a property to convey this significance. Determining which of the seven aspects are important involves knowing why, where and when the property is significant.*

The prescribed steps in assessing integrity are as follows:

- define the essential physical features that must be present for a property to represent its significance;
- determine whether the essential physical features are visible enough to convey their significance;
- determine whether the property needs to be compared with similar properties; and,
- determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the property being nominated and if they are present.

Ultimately, the question of integrity is answered by whether or not the property retains the identity for which it is significant.

All properties change over time. It is not necessary for a property to retain all its historic physical features or characteristics. However, the property must retain the essential physical features that enable it to convey its historic identity. The essential physical features are those features that define why a property is significant.

A property's historic significance depends on certain aspects of integrity. Determining which of the aspects is most important to a particular property requires an understanding of the property's significance and its essential physical features. For example, a property's historic significance can be related to its association with an important event, historical pattern or person. A property that is significant for its historic association is eligible for listing if it retains the essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or person.

A property important for association with an event, historical pattern, or person ideally might retain some features of all seven aspects of integrity. Integrity of design and workmanship, however, might not be as important to the significance, and would not be relevant if the property were an archeological site. A basic integrity test for a property associated with an important event

or person is whether a historical contemporary would recognize the property as it exists today. For archeological sites that are eligible under Criteria a and b, the seven aspects of integrity can be applied in much the same way as they are to buildings, structures, or objects.

In sum, the assessment of a resource's National Register eligibility hinges on meeting two conditions:

- the site must possess the potential to be eligible for listing in the National Register under one of the evaluation criteria either individually or as a contributing element of a district based on the historic context that is established; and

- the site must possess sufficient integrity, i.e. it must retain the qualities that make it eligible for the National Register.

For the National Register, "a district possesses a significant concentration, linkage, or continuity of "... objects united historically or aesthetically by plan or physical development." The identity of a district derives from the relationship of its resources, which can be an arrangement of functionally related properties.

CEQA Standards of Significance

For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources. When a project will impact an archeological site, it needs to be determined whether the site is an historical resource, which is defined as any site which:

(A.) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational,. social, political or cultural annals of California; and

(B) Meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

CULTURAL HISTORY

Archeological Background

The Sacramento Delta was one of the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, avocational archeologist J. A. Barr excavated many prehistoric mounds in the Stockton area. He collected nearly 2000 artifacts during the course of his investigations. H. C. Meredith was another avocational archeologist of the period who pursued collecting in the same Stockton locality. Meredith (1899, 1900) did publish a compilation of his own and Barr's findings, and these appear to constitute the earliest accounts of delta archeology. Holmes (1902), from the Smithsonian Institution, further elaborated on the delta or "Stockton District" archeology, presenting illustrations of artifacts collected by Meredith and Barr.

It was Elmer J. Dawson who first recognized culture changes through time in delta archeology. Though he was an amateur archeologist, Dawson understood the necessity of keeping accurate notes on grave associations and provenience of artifacts. He collaborated with W. E. Schenck to produce an overview of northern San Joaquin Valley archeology (Schenck and Dawson 1929). The overview contained information on more than 90 prehistoric sites as well as data on previous collectors.

By 1931, the focus of archeological work was directed toward the Cosumnes River locality, where survey and exploration were conducted by Sacramento Junior College (Lillard and Purves 1936). Excavations, especially at the stratified Windmiller mound (CA-SAC-107), suggested three temporally distinct cultural traditions: Early, Transitional, and Late. Information grew as a result of excavations at other mounds in the delta and lower Sacramento Valley by Sacramento Junior College and the University of California, Berkeley.

Previous investigations in the project region have focused upon very detailed archival research of Spanish sources (Bennyhoff 1977), reexamination of earlier work (Ragir 1972; Schulz 1981; Doran 1980) and archeological investigations at a number of small sites (Schulz et al. 1979; Schulz and Simons 1973; Soule 1976). Several of the previously investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practiced are varied, but detailed studies on the faunal collection suggest seasonality of occupation and a focus on fish species other than the main channel varieties.

Writing the definitive summary of California archeology, Moratto (1984: 529-547) devoted an entire chapter to linguistic prehistory. For the Central Valley region, Moratto points out that some Early Horizon and Middle Horizon central California archeological sites appear at least in part, contemporaneous, based on existing radiocarbon dates. Cultural materials recovered from CA-SJ0-68, an Early Horizon site, are thought to relate to date to 4350 ± 250 B.P or 2350 B.C. On the other hand, a Middle Horizon component at CA-CC0-308 dates to 4450 ± 400 B.P. or 2450 B.C. The antiquity of other Early and Middle Horizon sites demonstrate an overlap of the two horizons by a millennium or more.

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay Area. The Early Horizon may represent older Yokuts settlements or perhaps the speakers of a Utian language who were somehow replaced by a shift ofpopulation(s) from the bay.

Ethnological Background

The Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family (Levy 1978:398). The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Cosumnes and Sacramento Rivers including the area of central Sacramento County surrounding the project area. Linguistic studies and the application of a lexicostatistic model for language divergence suggests that Plains Miwok was a distinct linguistic entity for the last 2000 years (Levy 1970). This result led researchers such as Richard Levy (1978:398) to conclude that the Plains Miwok inhabited the Sacramento Delta for a considerable period of time.

The political organization of the Plains Miwok centered on the tribelet. Tribelets were comprised of 300 to 500 individuals (Levy 1978:410). Each tribelet was thought to control a specific area of resources and usually consisted of several villages or hamlets. Each tribelet also was divided along lineages. These lineages were apparently localized to a specific geographic setting and most likely represented a village site and their associated satellite sites where the seasonal collection of resources occurred (Levy 1978:398-399). Each settlement apparently contained roughly 21 individuals according to data collected by Gifford (Cook 1955:35).

The diet of the Plains Miwok emphasized the collection of floral resources such as acorns, buckeye, digger pine nuts, seeds from the native grasses and various fresh greens. Faunal resources such as tule elk, pronghorn antelope, deer, jackrabbits, cottontails, beaver, gray squirrels, woodrats, quail and waterfowl were hunted. Fishing, particularly salmon and sturgeon, contributed significantly to the Plains Miwok diet (Levy 1978:402-403). The primary method of collecting fish was by nets, but the use of bone hooks, harpoons and obsidian-tipped spears is also known ethnographically (Levy 1978:404).

Both twined and coiled basketry were manufactured by the Eastern Miwok. The uses of baskets included the collection and storage of seeds, basketry cradles and gaming (Levy 1978:406). Tule mats were also known to have been used by the Plains Miwok primarily as a floor covering. Other uses of tule included the manufacture of the tule balsa, a water craft in which native people navigated and exploited adjacent delta and major river systems.

Four main types of structures were known among the Eastern Miwok, depending on the environmental setting. In the mountains, the primary structure was a conical structure of bark slabs. At lower elevations the structures consisted of thatched structures, semi-subterranean earth-covered dwellings and two types of assembly houses used for ceremonial purposes (Levy 1978:408-409).

Bennyhoff (1977:11) characterized the Plains Miwok as intensive hunter-gatherers, with an emphasis upon gathering. The seasonal availability of floral resources defined the limits of the group's economic pursuits. Hunting and fishing subsistence pursuits apparently accommodated the given distribution of resources. The Plains Miwok territory covered six seasonally productive biotic communities and as such native people could apparently afford to pick and choose the resources they ranked highest from each of these zones. The subsequent storage of floral resources (such as acorns in granaries) allowed for a more stable use of the resource base (Bennyhoff 1977:10). The acorn was apparently the subsistence base needed to provide an unusually prod uctive environment as earlier non-acorn using peoples who resided in the same geographic setting apparently suffered some seasonal deprivation (Schulz 1981). Such an emphasis upon the gathering of acorns is consistent with the population increase evident during the Upper Emergent Period in California (Doran 1980).

The study of piscine (fish) remains from both CA-SAC-65 (Schulz *et al.* 1979) and CA-SAC-145 (Schulz and Simons 1973) indicates that small villages away from the major rivers appear to concentrate on the collection of piscine species (particularly the Sacramento perch) that inhabited slow-moving waters.

Historical Context

The project area lies in pa rt on lands of the Rancho Rio de los Americanos, a grant of over 35,500 acres on the south side of the American River, made to William Leidesdorff by the Mexican governor. Leidesdorff died in San Francisco in 1848, and Joseph L. Folsom, who had come to California as assistant quartermaster of Stevenson's New York Volunteers, purchased the estate from the heirs at a low price, becoming one of the wealthiest men in California. The town of Folsom was laid out on the rancho in 1855 as the terminus of the Sacramento Valley Railroad, and named in his honor (Hoover, Rensch and Rensch 1970:300).

There is no indication that any important events or activities occurred in the early history of the region. Bradshaw Road follows roughly the route of an early roadway that led from the Cosumnes River to the American River (General Land Office plat of T8NR6E 1866).

It was not long after the initial gold rush of the late 1840s-early 1850s, however, when the agricultural potential of the excellent farmlands of the Sacramento Valley was recognized. The first lands taken up were the rich bottomlands along the major watercourses. By the mid-1860s, the prime farmland had been claimed and the later settlers began to discover the potential of lands such as the project area with poorer soil and less available water. In the 1860s and 1870s, virtually all land in the region was taken up by the later settlers for agricultural purposes. The project area lies within the boundaries of the Brighton Township (Thompson & West 1880).

Examination of the General Land Office Plat of 1866 indicates that within the Aspen VIII project area, there were two early houses present: Joseph Downing's and Daniel Webber's were both located on the north side of the section line which is now marked by Elder Creek Road. Joseph Downing's was located along the line of the Rio de los Americanos grant, and Daniel Webber's house was located in the southwest quarter of the southwest quarter of section 27. The 1911 USGS map shows houses at both locations, but Webber’s house is gone by the 1954 USGS. Downings house, in the area of the Wuiet Haven Cemetery, was destroyed with development of the cemetery.

Within the Aspen IX project area, there were two other residences: W.H. Ellis' house and John S. Downing's house. The Ellis house was located just south of the section 28/33 line, in the northeast quarter of the northeast quarter of section 33. This area continues to be occupied, but there is no building on the property that dates to 1866 or anything near it. Downing's house was located in the northeast quarter of the southeast quarter of section 33. (General Land Office Plat of T8NR6E, 1866). This corresponds to the ruins recorded as 5070 Knox Road (see below).

Belleview Cemetery started in the early 1860s for the local population of farmers who settled the region in this time period. Arlington Cemetery developed first as the Garden of Good Shepard #1, but a later business venture named it "Arlington Memorial Cemetery" (Bayless and Mello1982). The Arlington Cemetery is now known as the Quiet Haven Cemetery.

NATIVE AMERICAN CONSULTATION

In the course of the 2006-2007 project, a letter was sent to the Native American Heritage Commission (NAHC) requesting a check of the Sacred Lands files. The check failed to reveal any properties listed as Sacred Lands. The NAHC did provide a list of individuals and groups to contact regarding the property. Letters were sent to Billie Blue Elliston, Leland Daniels; Matthew Franklin, Glen Villa Jr., and Frank Navarette of the lone Band of Miwok Indians; Mary Daniels-Tarango of the Miwok Indian Community of the Wilton Rancheria; and Dwight Dutschke, Sierra Native American Council. No responses were received.

In March of 2014 a new request was submitted to the NAHC, with similar results as far as the Sacred Lands file. A new lists of contacts was provided and letters were sent to:

Organization	**Individual**
Buena Vista Rancheria	Rhonda Morningstar Pope
Shingle Springs Band of Miwok Indians	Hermo Olanio, Vice-Chairperson
Shingle Springs Band of Miwok Indians	Daniel Fonseca, Cultural Resource Director
Shingle Springs Band of Miwok Indians	Nicholas Fonseca, Chairperson
United Auburn Indian Community Of the Auburn Rancheria	Marcos Guerrero, Tribal Preservation Committee
"	Gene Whitehouse, Chairperson
"	Jason Camp, THPO
Ione Band of Miwok Indians	Yvonne Miller, Chairperson
Ione Band of Miwok Indians	Anthony Burrus, Cultural Committee
Wilton Rancheria	Raymond Hitchcock, Chairperson
Wilton Rancheria	Steven Hutchason

Copies of the current communication may be found in Appendix 2. No replies have been received to date.

RESEARCH

A record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System on August 8, 2006 (NCIC File No.: SAC-06-138, A follow-up record search was conducted on March 19, 2014 (NCIC File No. SAC-14-35). The Information Center Indicated no additional work in the area since our original survey. The three sites we recorded at that time remain the only recorded resources within the APE, though they have now been assigned permanent numbers.

A portion of the northeast corner of the Aspen IX project area was the subject of surveys in 2006 and 2008 by Jones and Stokes. That study area extended much farther than the current APE. The results of a 1974 survey by Johnson were summarized in the Morrison Creek Mining Reach Downstream (South) of Jackson Highway EIR/EIS prepared by the County of Sacramento Department of Environmental Review and Assessment in conjunction with the Corps of Engineers for a Section 404 Permit Application (1997).

The recent record search results are presented in Appendix 3.

FIELD STUDIES

Field Survey

Peak & Associates undertook the re-survey of the entire property in August 2006, with a team of archeologists led by Ann S. Peak. The survey coverage was complete in nature with transects of no more than 15 meters in width. Where necessary, small holes and scrapes were made to examine the sediments. Three new historic period sites were recorded during the survey (site forms, Appendix 4). Each is described below.

A follow-up survey was conducted on April 4, 2014 to examine the current condition of recorded resources and to do spot checks to ensure the accuracy of the original survey. The investigator examined the recorded building complexes, finding minimal change since they were recorded. An additional complex, 9990 Elder Creek Road, was identified and recorded (see discussion below). The cemetery areas were re-examined and there was still no indication of any features within the APE. The remainder of the area was spot checked in areas where quarrying is contemplated (Figure 3)

10000 Elder Creek Road (P-34-1865)

The residential complex is located about half way between Bradshaw Road and Excelsior Road on the south side of Elder Creek Road. Just east of the buildings a private road leading south intersects Elder Creek. The complex is located within APN: 066-0020-006.

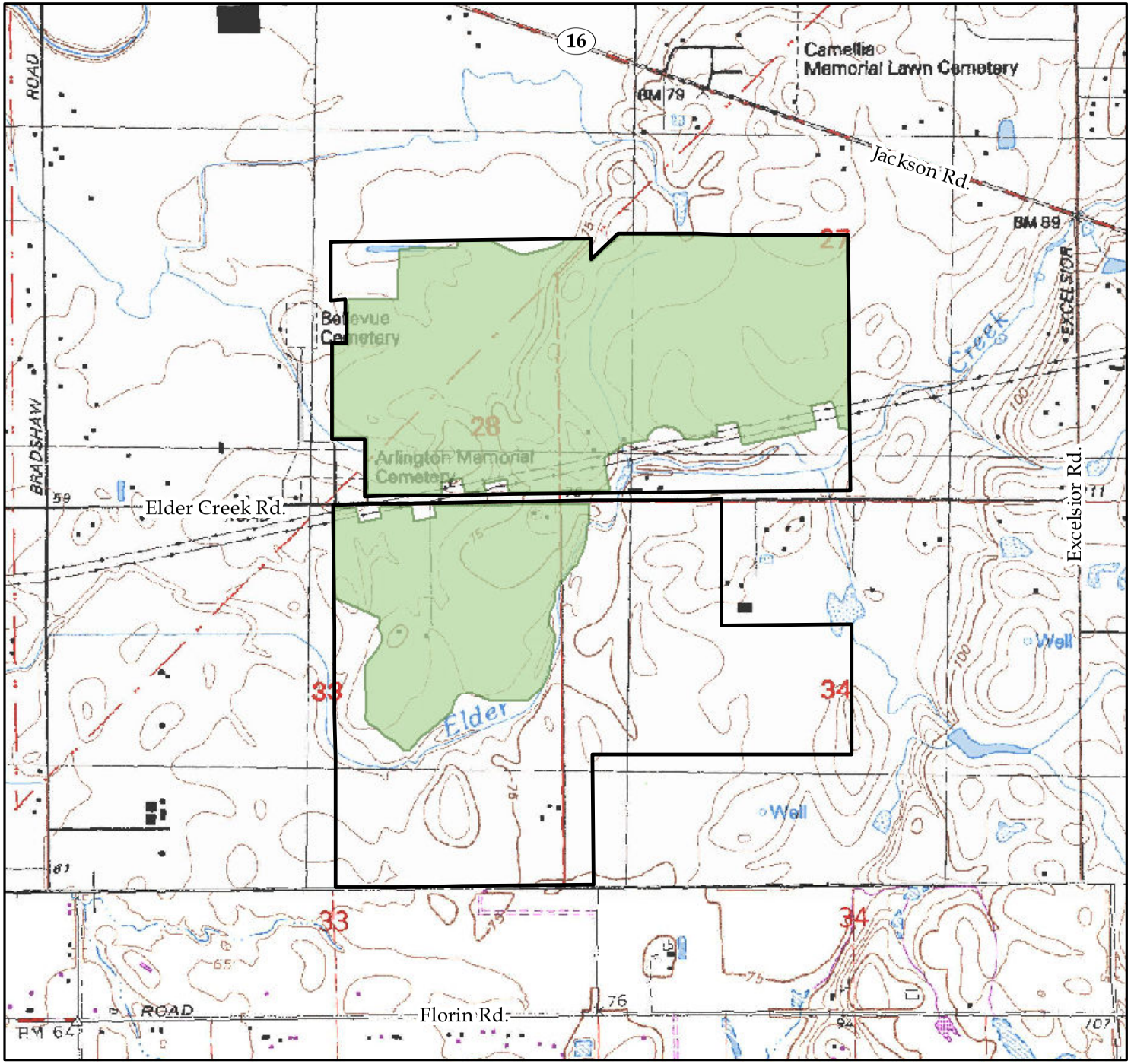
The complex consists of a group of three buildings, two of them modern. The larger residence dates to about 1970 and there is a garage/shed of cinder block construction. The smaller residence is the only one of the buildings that might have any historical importance, and it does not appear to be significant either. It is a circa 1940s Minimal Traditional one story frame residence. It has stucco siding and a composite roof. The only real clues to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west that is clearly later than the bulk of the house.

10151 Elder Creek Road (P-34-1866)

The site is located on the north side of Elder Creek Road . The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branch of Elder Creek and Elder Creek Road . APN: 063-0160-001

The only building that is fifty years old among the several buildings located at this farm headquarters is a quonset hut being used for a residence. There are several other buildings in the area , all modern. The building is oriented with the long axis east-west and it is entered from the east, via a modern aluminum door under a tacked-on porch roof. There is an addition, clearly later than the bulk of the structure, on the west end. This has lapped siding and includes another entrance from the north. The addition, entrances and a couple of aluminum framed slider windows that have been added on detract from the original appearance of the structure.

No doubt the building was built during World War II, and possibly moved from Mather Field. It was very common for these mass-produced, prefabricated structures to be sold by the military after the war. They have been used , and many are still in use, throughout the country.



TENTATIVE MINING AREA

ASPEN VIII & IX
TEICHERT AGGREGATES

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

Tentative Mining Area

Aspen VIII & IX Property Boundaries

FIGURE 3

0 750 1,500 Feet

1 inch = 1,500 feet

SOURCE:

USGS Topo Quad: Carmichael (1997)

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

TEICHERT AGGREGATES

C. Cornejo 03/04/2014 AS89_TentativeMiningArea_201403.mxd

7050 Knox Road (P-34-1867)

Knox Road is a small access road running north from Florin Road half way between Bradshaw and Excelsior (one mile from each.) The site is on the west side about 900 feet north of Florin. APN: 066-0050-012

The site is the location of a former farm headquarters. It is now only foundation pads and some minor structural features. It is not clear when the structures were built, but there are only modern artifacts (trash) in the area now.

Features now present in the area are:

1 Wood fence
2 Brick pile (stoop?)
3 Concrete slab #1
4 Raised area indicating building location
5 Stock tank
6 Water tank
7 Pump house (?) foundation = concrete slab
8 Concrete slab #2
9 Building site = flattened area and concrete walk.

9990 Elder Creek Road

This property was not recorded as a resource during the first survey. It was recorded when the follow-up survey was completed on April 4, 2014. Originally it was not recorded because the field team felt the age of the residence at this farm/ranch headquarters made the complex too young for consideration as a resource. It is true that the residence is not old, 1972 according to County Assessor's records, but the barn and other outbuildings are older.

The four buildings other than the residence include a chicken coop, two equipment sheds and a large barn. All of the buildings are plain, utilitarian structures with no architectural features of note and no unusual structural techniques or materials in evidence.

The garage/equipment shed is on south side of the complex. It has 1940s--50s-style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950s electrical fixtures. It is in fair condition. There is a modern roll up door on the west half. The one-over-one sash windows could be original. The west half of the structure, an equipment shed, appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor and features the same construction style and general appearance as the garage. There is a large industrial scale bolted to floor.

The chicken coop is similar in construction style and materials as the above, but with plexiglass replacement windows. It is in fair condition..

The barn is the most imposing structure of the complex. It is 40 feet wide by 80 feet long and is about 22 feet high. There are sliding doors on north end, but the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand out of weather and feed. Roofing is rusted corrugated steel.

Aside from the damaged doors, good overall condition. The fencing for a corral and pen extends behind and west of the barn.

Ground Penetrating Radar Survey

Due to the proximity of two cemeteries to the APE, and the known occurrence of graves outside fence lines in older cemeteries, Peak & Associates recommended that a ground penetrating radar study be undertaken to determine if there were graves within the project area near both the Arlington and Belleview Cemeteries.

Using historic aerial photographs, maps and older editions of the USGS topographic quadrangles for the project area, the potential maximum extent of the cemeteries beyond the current fence lines was determined. This is the zone selected for the ground penetrating radar study.

NORCAL Geophysical Consultants, Inc. conducted the study within the Aspen VIII project area adjacent to the cemeteries in September 2006. The survey team checked an area measuring about 300 feet north to south and about 400 feet wide on the east side of the Quiet Haven Cemetery. A second area to the north was also tested, a strip along the south side of Belleview Cemetery and a strip of land along the east side of that cemetery.

The NORCAL crew identified 11 subsurface anomalies (irregularities or deviations in readings) in the zone tested near the Quiet Haven Cemetery. There were also 16 anomalies identified in the zones surrounding Belleview Cemetery (NORCAL Geophysical Consultants, Inc. 2006).

Field Trenching

Peak & Associates returned to the project site to excavate each of the identified anomalies in May 2007. The anomaly locations had been marked with stakes. Each of the anomalies was opened with a backhoe trench. Excavated materials were observed, and samples screened from the trenches. Side walls of trenches were carefully checked from evidence of disturbance.

Many of the anomalies proved to be buried trash and debris. Other anomalies contained no evidence of disturbance or buried materials. There was no evidence of graves in the study area.

CONCLUSIONS

The trenching of the anomalies revealed that there are no graves or buried features of concern in the tested portions of the project area adjacent to the known cemeteries. There are no human remains present within the project area.

9990 Elder Creek Road (P-34-1865 ?)

The Information Center record search indicated that this complex is part of P-34-1865, even though we did not record it previously. Until this can be cleared up, we are applying the tentative designation, but describing the resources separately.

The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of the USGS map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

10000 Elder Creek Road (P-34-1865)

The older building in the complex is not associated with any known person or event of historic significance. The architectural style is very plain and there has been a major addition as well.

There is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or the California Register.

10151 Elder Creek Road (P-34-1866)

The quonset hut is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in quantities at WWII military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavations would return any information of significance, as there is no indication of subsurface deposits at the site. The site is not eligible for the National Register or for the California Register.

7050 Knox Road (P-34-1867, CA-SAC-1027-H)

This site is not associated with any known person or event of historic significance. There are no surviving buildings and there is no indication that archeological excavations would return any information of significance. The site is not eligible for the National Register or for the California Register.

There are no sites eligible for the National Register of Historic Places or for the California Register of Historical Resources within the project area.

EFFECTS OF THE PROPOSED PROJECT

As a result of the identification and evaluation efforts, an agency official may, depending on the evidence, find that there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them as defined in Section 800.16 (i).

If the agency official finds there are historic properties that may be affected by the undertaking, the agency official shall apply the criteria of adverse effect. "An adverse effect is found when an undertaking may alter, directly or indirectly , any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the

integrity of the property's location, design, setting, materials, workmanship, feeling or association" (Section 800.5 (a)).

There are three possible findings:

- Finding of no historic properties affected: There is no effect of any kind on the historic properties.
- Finding of no adverse effect: There could be an effect, but the effect would not be harmful to the characteristics that qualify the property for inclusion in the National Register; or
- Adverse effect: There could be an effect, and that effect could diminish the integrity of such characteristics.

There are no significant resources present within the project area. With regard to Section 106 of the NHPA, it is recommended that agency seek concurrence from the California SHPO with a finding of "no historic properties affected " per § 800.4(d) (1).

Similarly, we believe that there are no properties of significance within the project area under the criteria of the California Register of Historical Resources.

RECOMMENDATIONS

There is always a possibility that a site may exist in the project area and be obscured by vegetation or historic activities, leaving no surface evidence. If artifacts, exotic rock, or unusual amounts of shell or bone are uncovered during the construction, work should stop in that area immediately and a qualified archeologist should be contacted to evaluate the deposit. If the bone appears to be human, the Sacramento County Coroner and Native American Heritage Commission must be contacted.

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APPENDIX 1

Resumés

PEAK & ASSOCIATES, INC.
RESUME

MELINDA A. PEAK **January, 2013**

Senior Historian/Archeologist
3941 Park Drive, Suite 20 #329
El Dorado Hills, CA 95762
(916) 939-2405

PROFESSIONAL EXPERIENCE

Ms. Peak has served as the principal investigator on a wide range of prehistoric and historic excavations throughout California. She has directed laboratory analyses of archeological materials, including the historic period. She has also conducted a wide variety of cultural resource assessments in California, including documentary research, field survey, Native American consultation and report preparation. Ms. Peak has completed over 2,500 projects in her career, spread throughout California from Shasta County on the north to Imperial County in the south.

In addition, Ms. Peak has developed a second field of expertise in applied history, specializing in site-specific research for historic period resources. She is a registered professional historian and has completed a number of historical research projects for a wide variety of site types.

Through her education and experience, Ms. Peak meets the Secretary of Interior Standards for historian, architectural historian, prehistoric archeologist and historic archeologist.

EDUCATION

M.A. - History - California State University, Sacramento, 1989
Thesis: *The Bellevue Mine: A Historical Resources Management Site Study in Plumas and Sierra Counties, California*
B.A. - Anthropology - University of California, Berkeley

RECENT PROJECTS

Ms. Peak has had extensive experience working on coastal, lacustrine and riverine environments over the years. Some of the projects have involved identification of resources through field surveys as well as testing sites, and determining significance of resources in proposed impact areas.

Ms. Peak participated in the Pine Creek Boat Ramp Repair Project, completing historical research for the site and assisting in report preparation. A few other representative projects Ms. Peak has completed include: a field recordation and evaluation of a farm complex on Sherman Island for DWR; a survey of Lake Britton in Shasta County for Pacific Gas and Electric Company; a record search and historical map review for the Bureau of Land Management for the entire Sacramento River and a number of other existing reservoirs; the Folsom Lake Reoperation study that involved archival research to identify locations of historic and prehistoric sites inundated when the reservoir filled; and a study of river landing sites within the City of Napa for the Corps of Engineers.

Ms. Peak completed the cultural resource research and contributed to the text prepared for the DeSabla-Centerville PAD for the initial stage of the FERC relicensing. She also served cultural

resource project manager for the FERC relicensing of the Beardsley-Donnells Project for the South Feather Power Project and the Woodleaf-Palermo and Sly Creek Transmission Lines, with her team completing the technical work for the project.

Ms. Peak has completed a number of determinations of eligibility and effect documents in coordination with the Corps of Engineers for projects requiring federal permits, assessing the eligibility of a number of sites for the National Register of Historic Places. She has also completed historical research projects on a wide variety of topics for a number of projects including the Red Bluff Diversion Dam, farm complexes dating to the 1860s-1900s, bridges, an early roadhouse, Folsom Dam, Rocklin City Hall and a section of an electric railway line.

In recent years, Ms. Peak has prepared a number of cultural resource overviews and predictive models for blocks of land proposed for future development for general and specific plans. She has been able to direct a number of surveys of these areas, allowing the model to be tested.

She served as principal investigator for the multi-phase Twelve Bridges Golf Club project in Placer County. She served as liaison with the various agencies, helped prepare the historic properties treatment plan, managed the various phases of test and data recovery excavations, and completed the final report on the analysis of the test phase excavations of a number of prehistoric sites. She is currently involved as the principal investigator for the Clover Valley Lakes project adjacent to Twelve Bridges in the City of Rocklin, coordinating contacts with Native Americans, the Corps of Engineers and the Office of Historic Preservation.

Ms. Peak has served as project manager for a number of major survey and excavation projects in recent years, including the many surveys and site definition excavations for the 172-mile-long Pacific Pipeline proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She also completed an archival study in the City of Los Angeles for the project. She also served as principal investigator for a major coaxial cable removal project for AT&T.

Additionally, she completed a number of small surveys, served as a construction monitor at several urban sites, and conducted emergency recovery excavations for sites found during monitoring. She has directed the excavations of several historic complexes in Sacramento, Placer and El Dorado Counties.

Ms. Peak is the author of a chapter and two sections of a published history (1999) of Sacramento County, *Sacramento: Gold Rush Legacy, Metropolitan Destiny*. She served as the consultant for a children's book on California, published by Capstone Press in 2003 in the land of Liberty series.

Ms. Peak conducted archival research for the Fourteen Mile House, an inn on Auburn Boulevard in Citrus Heights dating to the early 1850s. She then completed the nomination of the site as a Point of Historical Interest, with approval by the State Historical Resources Commission in May 2012.

PEAK & ASSOCIATES, INC.
RESUME

ROBERT A. GERRY **January 2013**
Senior Archeologist
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

PROFESSIONAL EXPERIENCE

Mr. Gerry has over thirty years of extensive experience in both the public and private sectors. He has directed all types of cultural resource-related projects, including field survey, test excavations, data recovery programs, intensive archival research and cultural resource management. He has completed archeological work in most cultural areas of California and in the western Great Basin.

EDUCATION

Graduate studies - Anthropology - California State University, Sacramento, 1972-1977
B.A. - Anthropology - University of Illinois, Chicago Circle, 1972

RECENT PROJECTS

Mr. Gerry was field director for a cultural resources survey of the Diamond Valley Project in Alpine County, California. The project involved an overview and survey of an extensive plan area, recording and evaluation of resources and presenting the results to local Native Americans and helping to conduct a field tour with them. He also directed field survey of the Van Vleck Ranch, a large property in Sacramento County being put into a conservation easement. He has conducted surveys throughout California related to low income housing development.

Mr. Gerry was field director for a cultural resources survey of about 18,640 acres within the Naval Petroleum Reserve No. 1, Kern County, California. The project employed a stratified random sampling strategy and resulted in the recording of 112 cultural resources, and preparation of a management plan. He also directed a subsequent excavation program for evaluation of significance. Additionally, he served as field director for archeological surveys on the Plumas, Stanislaus, El Dorado and Six Rivers National Forests.

He was field director and primary report writer on several linear surveys of considerable length -- including the San Joaquin Valley Pipeline (157 miles) for Shell Oil, the Point Arena-Dunnigan fiber optic cable (137 miles) and the Medford, Oregon, to Redding, California fiber optic cable (151 miles), the Oregon and Idaho portions of the Spokane to Boise fiber optic cable, and the San Bernardino to San Diego fiber optic cable, for American Telephone & Telegraph Company. He also assisted on the 170 mile Pacific Pipeline survey on the southern coast of California and conducted several surveys of water pipelines in southern California: La Sierra pipeline (Riverside), Perris Valley. Pico Rivera, Temecula and San Jacinto.

Mr. Gerry supervised the cultural resources assessments and participated in all field surveys for the studies of water supply facilities for seven wildlife refuges in the Sacramento and San

Joaquin Valleys. He also took a lead role in field work and report preparation for major residential developments in the Sacramento area, such as the Sunrise Douglas project and Florin Vineyard.

Mr. Gerry has developed a specialty in bridge replacement evaluations, completing five such studies in Tuolumne County, two in Santa Barbara County, two in Amador County and ten others in various areas of California.

Mr. Gerry has had extensive experience in recording mining sites in northern California and Nevada for proposed mining undertakings as well as in the course of survey for proposed subdivisions, reservoirs, and other development projects. He directed the survey of two parcels totaling 2,240 acres in the Battle Mountain Mining District in Lander County, recording a number of mining sites and features. Within the Cook Ranch Project area in El Dorado County, he completed the recordation of several gold mines and a cinnabar mine. He has completed three studies involving the American Hill Mine in Nevada City, the location where hydraulic mining began.

Mr. Gerry has directed test excavations for evaluation of significance at a number of sites, both historic and prehistoric. Examples include CA-NAP-261, twelve sites on Naval Petroleum Reserve No. 1, three sites on Russell Ranch in Sacramento County, a midden site near Guinda and a village known through ethnographic literature in Murphys.

His work has included an important role in working with Native American peoples. He has surveyed eight allotments and rancherias in the Pit River area, the Point Arena/Manchester Rancheria in Mendocino County, the Susanville Rancheria in Lassen County, the Rumsey Rancheria in Yolo County, and three rancherias in northwestern California. In each of these projects, he has been closely involved with Native American organizations and individuals, including a number of native people he has directed as surveyor trainees.

In the field of historical resources, Mr. Gerry has prepared site records and significance evaluations for numerous historical buildings throughout California. The bulk of these have been single family residences, but industrial, commercial and multi-family residences were also included. He has also directed excavations for evaluation of historical archeological potential and monitored construction work in areas of known historical sensitivity.

PEAK & ASSOCIATES, INC.
RESUME

MICHAEL D. LAWSON
6241 Brantford Way
Citrus Heights, CA 92621
916-765-2441

PROFESSIONAL EXPERIENCE

Mr. Lawson has 19 years of experience with various private agencies conducting typical fieldwork and laboratory work, as well. Major projects include Twelve Bridges Golf Club and adjacent areas, Clover Valley Lakes, and other smaller projects in several counties.

Survey work includes the following counties: Colusa, Sutter, Yuba, Sacramento, El Dorado, Sierra, Butte, Lake, Fresno, Merced, San Joaquin, Placer, Nevada, Amador, Solano, Tuolumne, Kern, Contra Costa, Sonoma, Kings and Tulare. Additional experience includes mapping and processing field notes and photography. Informal visits in an unpaid capacity include: historic and prehistoric sites in Sacramento, Amador, Placer, Sonoma, Marin, Fresno, Modoc and Lassen.

Other site visits include prehistoric sites in Nevada, Arizona, Oregon, South Dakota, Michigan, Ohio and Texas.

Sites visited in Mexico and Guatemala include: El Ray, Uxmal, Tulum, Escaret, Chitchen-Itza, Carocol, Burial Creek Caves and Tikal.

Mr. Lawson has undertaken extensive survey work throughout the San Joaquin Valley for a number of smaller projects for Peak & Associates. For over a year, he served as lead monitor during the excavations for improvements to Sutter Street in the city of Folsom. He is currently monitoring an excavation for a roadway in El Dorado County

Other recent projects include his participation as a team member on major excavations in San Francisco and Vacaville, involving the removal of Native American interments. Other projects have included historic period excavations. He assisted in an Extended Phase I test in Yuba County, checking for both prehistoric and historic period resources.

EDUCATION

B.A. Anthropology – California State University, Sacramento, 2007
A.A. General Education – American River College, 1993

CSUS field class conducted at Virginia Town, Chinese mining area, Gold Hill, CA

RELATED STUDIES

Reproduction of ancient technologies, including flint knapping, blacksmithing, bronze and copper tool and weaponry, including projectiles.

APPENDIX 2

Native American Correspondence

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY
30 Years: 1975-2005

March 19, 2014

Ms. Debbie Pilas-Treadway
Native American Heritage Commission
915 Capitol Mall, Room 288
Sacramento, CA 95814

Dear Ms. Treadway:

Peak & Associates, Inc. has contracted with Teichert Aggregates to perform a cultural resources assessment for the proposed Aspen VIII and IX gravel quarries in xouthern Sacramento County. The project involves a land parcel of about 690 acres lying on both sides of Elder Creek Road between Bradshaw Road and Excelsior Road. The project area lies in T8N, R6E, Sections 27, 28, 33 and 34 and is mapped on the Carmichael 7.5' USGS quadrangle, which is the base for the attached map.

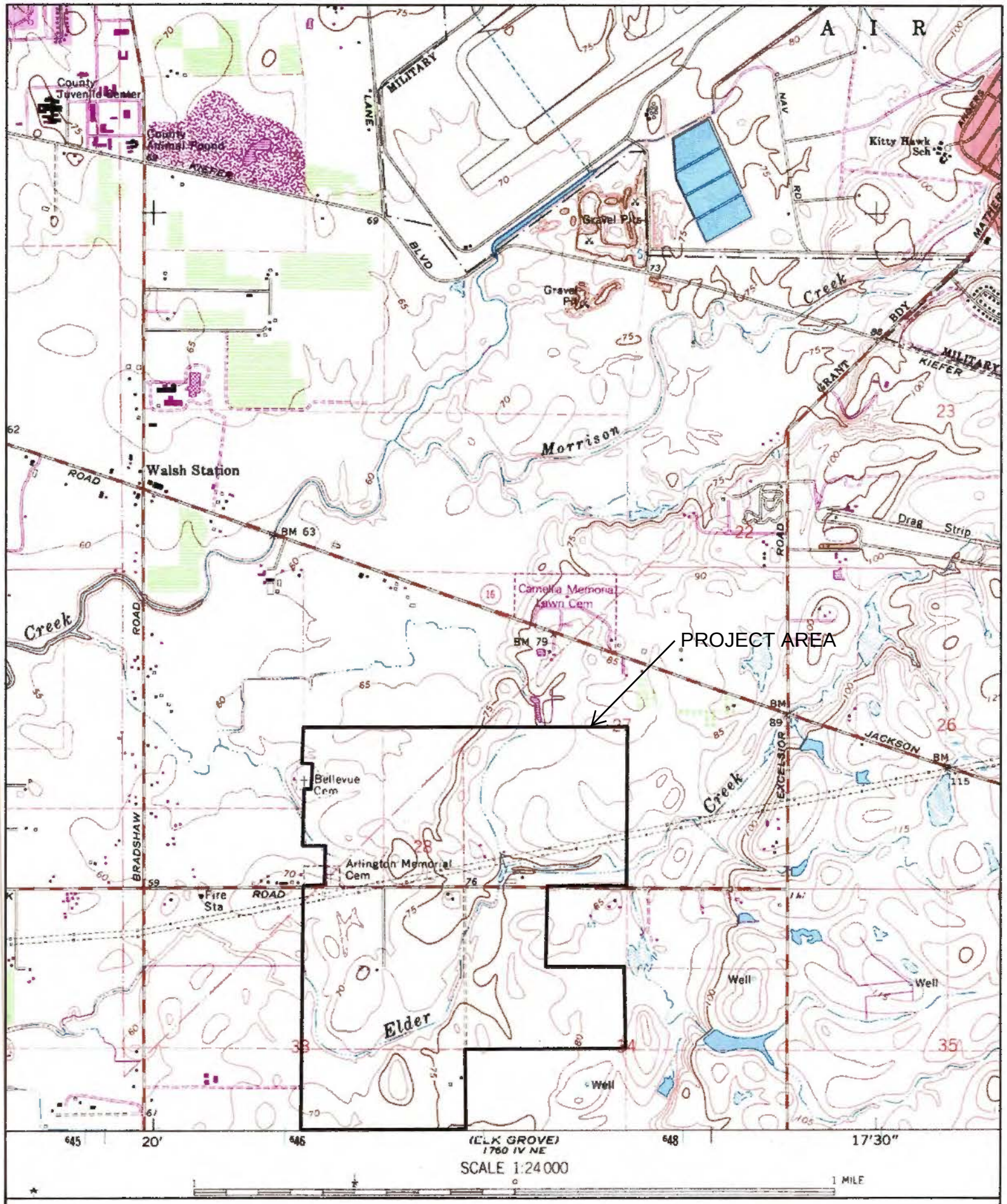
Because of wetlands issues and the need for a Section 404 permit, the project is a federal undertaking. In accordance with the Secretary of the Interior's Guidelines for implementing Section 106, we are requesting a list of appropriate Native American contacts for the project area. We also request a check of the Sacred Lands Inventory for any potential conflicts.

Thank you for your assistance.

Sincerely,

Robert A. Gerry, Consulting Archeologist
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762
(916)283-5238
FAX: (916)283-5239
peakinc@surewest.net

//RG
Encl.



Name: CARMICHAEL
Date: 3/14/2014
Scale: 1 inch equals 2000 feet

Location: 10 647049 E 4265092 N
Caption: Teichert Aggregates
Aspen VIII and IX
14-016

CR-1 - 28

MAP 1

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NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

March 26, 2014

Robert Gerry
Peak and Associates, Inc
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

VIA FAX: 916-283-5239
Number of Pages: 3

Re: Aspen VIII and IX Gravel Quarries, Sacramento County

Dear Mr. Gerry:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3713.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Sacramento County
March 26, 2014

Randy Yonemura
4305 - 39th Avenue — Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600
(916) 601-4069-cell

Buena Vista Rancheria
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 — Me-Wuk / Miwok
Sacramento , CA 95811
rhonda@buenavistatribe.com
916 491-0011
916 491-0012 - fax

Ione Band of Miwok Indians
Yvonne Miller, Chairperson
PO Box 699 — Miwok
Plymouth , CA 95669
administrator@ionemiwok.org
209-245-5800
209-245-3112 Fax

Ione Band of Miwok Indians Cultural Committee
Anthony Burris, Chairperson
PO Box 699 — Miwok
Plymouth , CA 95699
209-245-5800
209-245-3112 Fax

Shingle Springs Band of Miwok Indians
Hermo Olanio, Vice Chairperson
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
holanio@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
nfonseca@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Daniel Fonseca, Cultural Resource Director
P.O. Box 1340 — Miwok
Shingle Springs , CA 95682 — Maidu
(530) 676-8010
(530) 676-8033 Fax

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
530-883-2390
530-883-2380 - Fax

United Auburn Indian Community of the Auburn Rancheria
Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
mguerrero@auburnrancheria.com
530-883-2364
530-883-2320 - Fax

United Auburn Indian Community of the Auburn Rancheria
Jason Camp, THPO
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
jcamp@auburnrancheria.com
916-316-3772 - cell
530-883-2390
530-888-5476 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Aspen VIII and IX gravel Quarries, Sacramento County

Native American Contacts
Sacramento County
March 26, 2014

Wilton Rancheria
Raymond Hitchcock, Chairperson
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
rhitchcock@wiltonrancheria-nsn.gov
916-683-6000
916-683-6015

Wilton Rancheria
Steven Hutchason, Executive Director Environmental
9300 W. Stockton, Suite 200 Miwok
Elk Grove , CA 95758
shutchason@wiltonrancheria-nsn.gov
916-683-6000, Ext. 2006
916-683-6015, FAX
916-683-6015

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Aspen VIII and IX gravel Quarries, Sacramento County

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY

April 1, 2014

Dear :

Peak & Associates, Inc. has contracted with Teichert Aggregates to perform a cultural resources assessment for the proposed Aspen VIIIand IX gravel quarries in xouthern Sacramento County. The project involves a land parcel of about 690 acres lying on both sides of Elder Creek Road between Bradshaw Road and Excelsior Road. The project area lies in T8N, R6E, Sections 27, 28, 33 and 34 and is mapped on the Carmichael 7.5' USGS quadrangle, which is the base for the attached map.

We are contacting individuals identified by the Native American Heritage Commission as persons who might have information to contribute regarding potential Native American concerns in the project area. Any information or concerns that you may have regarding village sites, traditional properties or modern Native American uses in any portion of the project vicinity will be welcomed. If you know other individuals who are familiar with the vicinity, we would welcome this information as well.

We recognize that much of the information about protected and sacred sites may be confidential within your community and cannot be shared with those outside of your community. We will work with you to minimize impact on your cultural resources. Please contact me to discuss how we can accomplish protection of your cultural resources within your limits of confidentiality and the needs of the project.

Thank you for your assistance.

Sincerely,

Robert A. Gerry
Consulting Archeologist

RG//
Encl.

MAILING LIST

Ione Band of Miwok Indians
Mr. Anthony Burris, Cultural Committee Chairperson
PO Box 699
Plymouth, CA 95632

Ione Band of Miwok Indians
Ms. Yvonne Miller, Chairperson
PO Box 699
Plymouth, CA 95669

Wilton Rancheria
Mr. Raymond Hitchcock, Chairperson
9300 West Stockton, Suite 200
Elk Grove, CA 95758

Wilton Rancheria
Mr. Steven Hutchason, Executive Director Environmental
9300 West Stockton, Suite 200
Elk Grove, CA 95758

Buena Vista Rancheria
Ms. Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200
Sacramento, CA 95811

Shingle Springs Band of Miwok Indians
Mr. Hermo Olanio, Vice-Chairperson
PO Box 1340
Shingle Springs, CA 95682

Shingle Springs Band of Miwok Indians
Mr. Daniel Fonseca, Cultural Resource Director
PO Box 1340
Shingle Springs, CA 95682

Shingle Springs Band of Miwok Indians
Mr. Nicholas Fonseca, Chairperson
PO Box 1340
Shingle Springs, CA 95682

United Auburn Indian Community of the Auburn Rancheria
Mr. Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road
Auburn, CA 95603

United Auburn Indian Community of the Auburn Rancheria
Mr. Gene Whitehouse, Chairperson
10720 Indian Hill Road
Auburn, CA 95603

United Auburn Indian Community of the Auburn Rancheria
Mr. Jason Camp, THPO
10720 Indian Hill Road
Auburn, CA 95603

APPENDIX 3

Information Center Record Search

California Historical Resources Information System

NORTH CENTRAL INFORMATION CENTER

AMADOR
EL DORADO
NEVADA
PLACER
SACRAMENTO
YUBA

California State University, Sacramento
6000 J Street, Folsom Hall, Suite 2042
Sacramento, California 95819-6100
phone: (916) 278-6217
fax: (916) 278-5162
email: ncic@csus.edu

3/19/2014

NCIC File No.: SAC-14-35

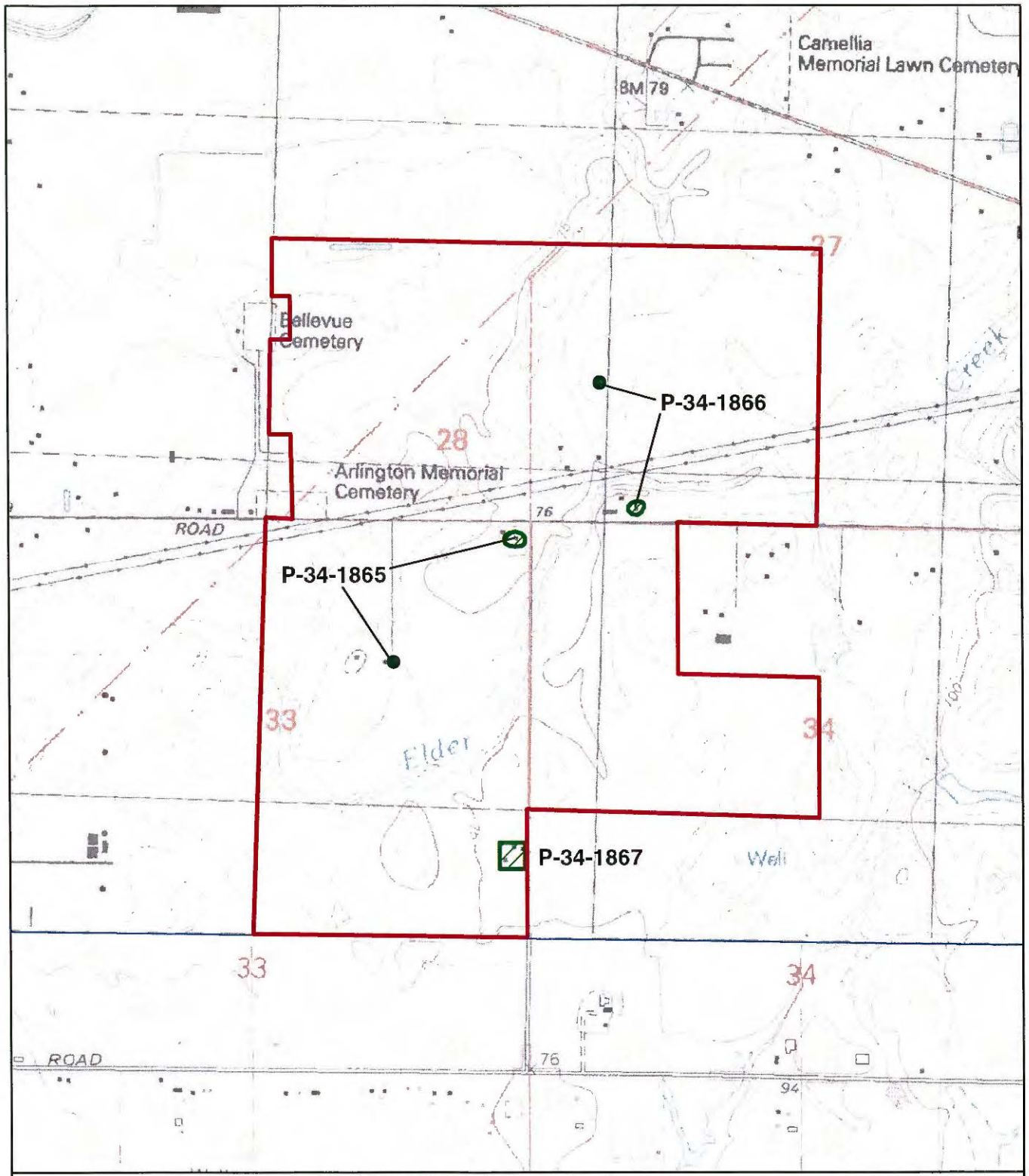
Robert A. Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95762

Records Search Results for
Aspen VII and IX Quarries
T8N/R6E Section(s) 27, 28, 33, 34
USGS Carmichael 7.5' Quad, Sacramento County

- **NCIC Resources Within Search Area:**
  P-34-1865 P-34-1866 P-34-1867
- **NCIC Reports Within Search Area:**
  88 8062 8912 9989
- **OHP Historic Properties Directory:** ☐ enclosed ☐ not requested ☒ nothing listed
- **OHP Determinations of Eligibility:** ☐ enclosed ☐ not requested ☒ nothing listed
- ***CA Inventory of Historical Resources*:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Caltrans Bridge Inventory:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Ethnographic Information:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Historical Literature:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Historical Maps:** ☒ enclosed ☐ not requested ☐ nothing listed
- **Local Inventories:** ☐ enclosed ☒ not requested ☐ nothing listed
- **GLO and/or Rancho Plat Maps:** ☒ enclosed ☐ not requested ☐ nothing listed
- **Shipwreck Inventory:** ☐ enclosed ☒ not requested ☐ nothing listed
- **Soil Survey Maps:** ☐ enclosed ☒ not requested ☐ nothing listed

Thank you for using our services. An invoice confidentiality agreement is enclosed; please sign and return a copy for our files.

Aspen VII and IX Quarries



N

0 270 540

Meters

North Central Information Center
Records Search Results

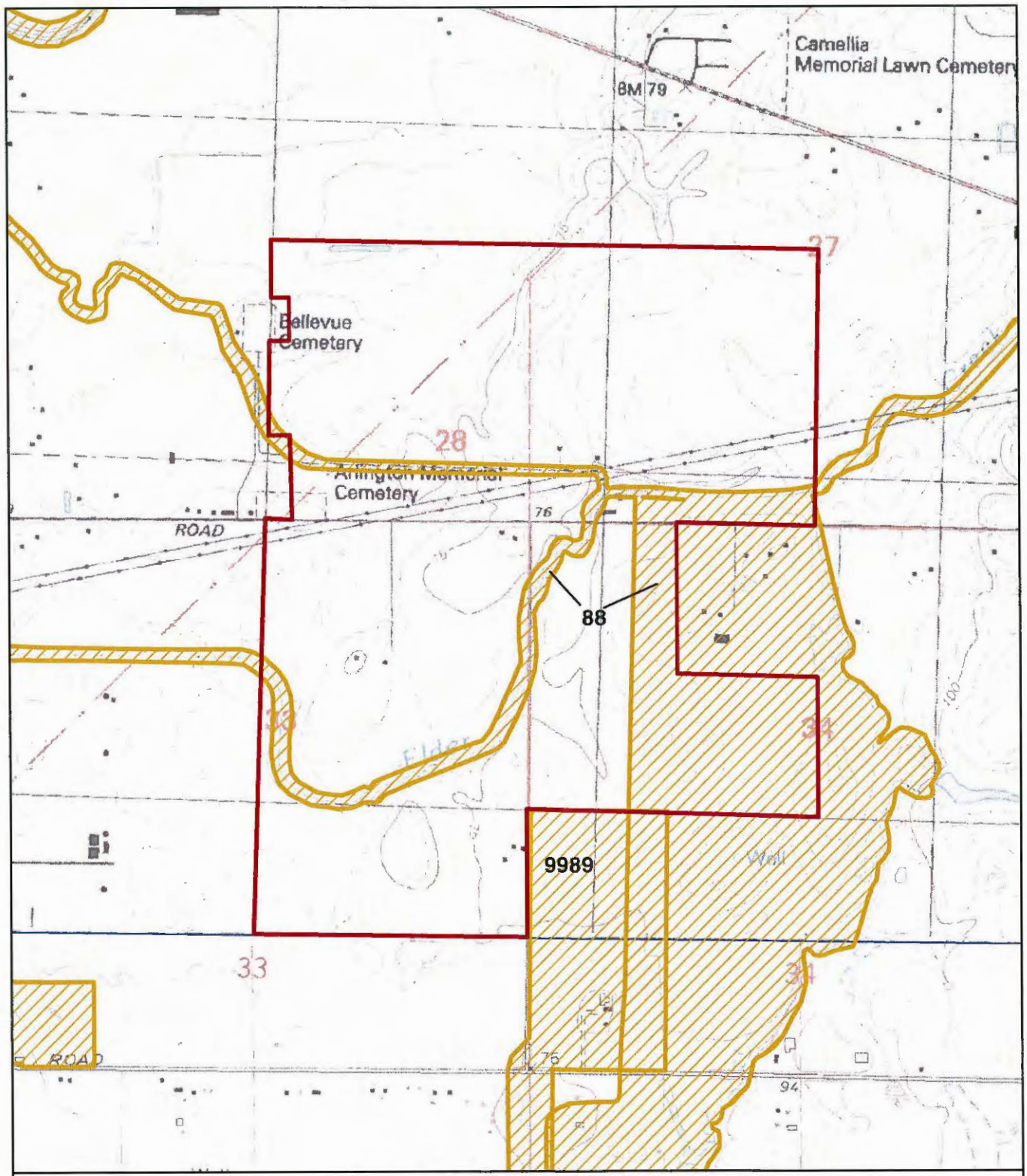
Carmichael 7.5' Quadrangle

May depict confidential cultural resource locations.
Do not redistribute.

Findings:

3 resources
5 reports

Aspen VII and IX Quarries



North Central Information Center
Records Search Results

Carmichael 7.5' Quadrangle

May depict confidential cultural resource locations.
Do not redistribute.

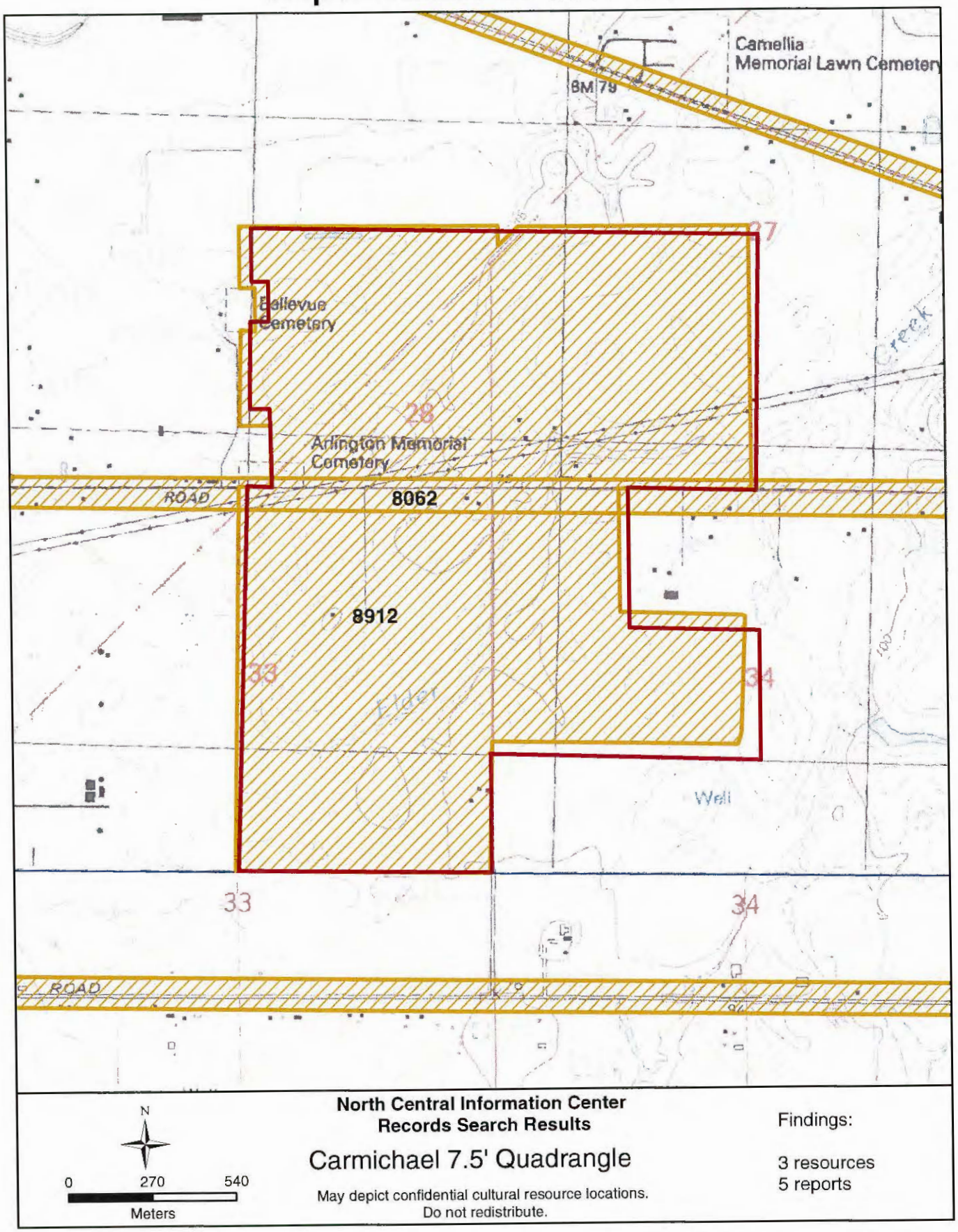
N

0 270 540
Meters

Findings:

3 resources
5 reports

Aspen VII and IX Quarries



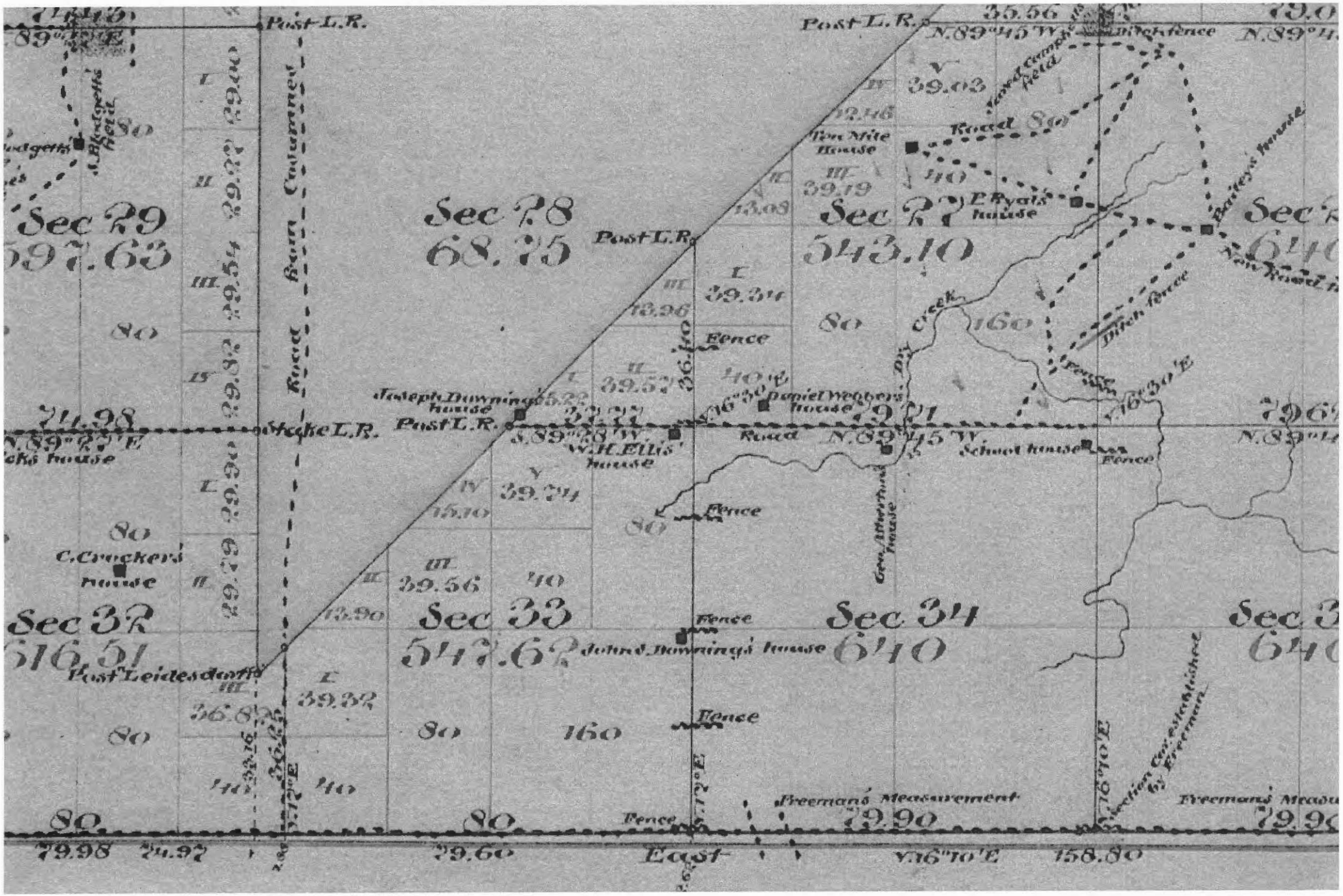
North Central Information Center Report Listing

Doc no.	Year	Author(s)	Title	Affiliation	Client
00088	1974	Johnson, Jerald J.	Reconnaissance Archeological Survey of the Morrison Stream Group in Sacramento County, California.		U.S. Army Corps of Engineers, Sacramento District, 650 Capitol Mall, Sacramento, CA 95814.
08062	2006	Ecorp Consulting	Cultural Resources Survey and Evaluation North Vineyard Station Off-Sitee (WBIG) Project	Ecorp	The West Bradshaw Implimentation Group
08912	2007	Melinda Peak	Determination of Eligibility and Effect for the Aspen XIII and Aspen IX Projects, Sacramento County, California	Peak and Associates, Inc.	Teichert Aggregates
09989	2006	Gabriel Roark	Cultural Resources Inventory and Evaluation Report for the Freeport Regional Water Project, Sacramento and San Joaquin Counties	Jones and Stokes	U.S. Bureau of Reclamation
09989	2008	Gabriel Roark	Cultural Resources Inventory Report Addendum for Modification to the Freeport Regional Water Project APE	Jones and Stokes	Freeport Regional Water Authority

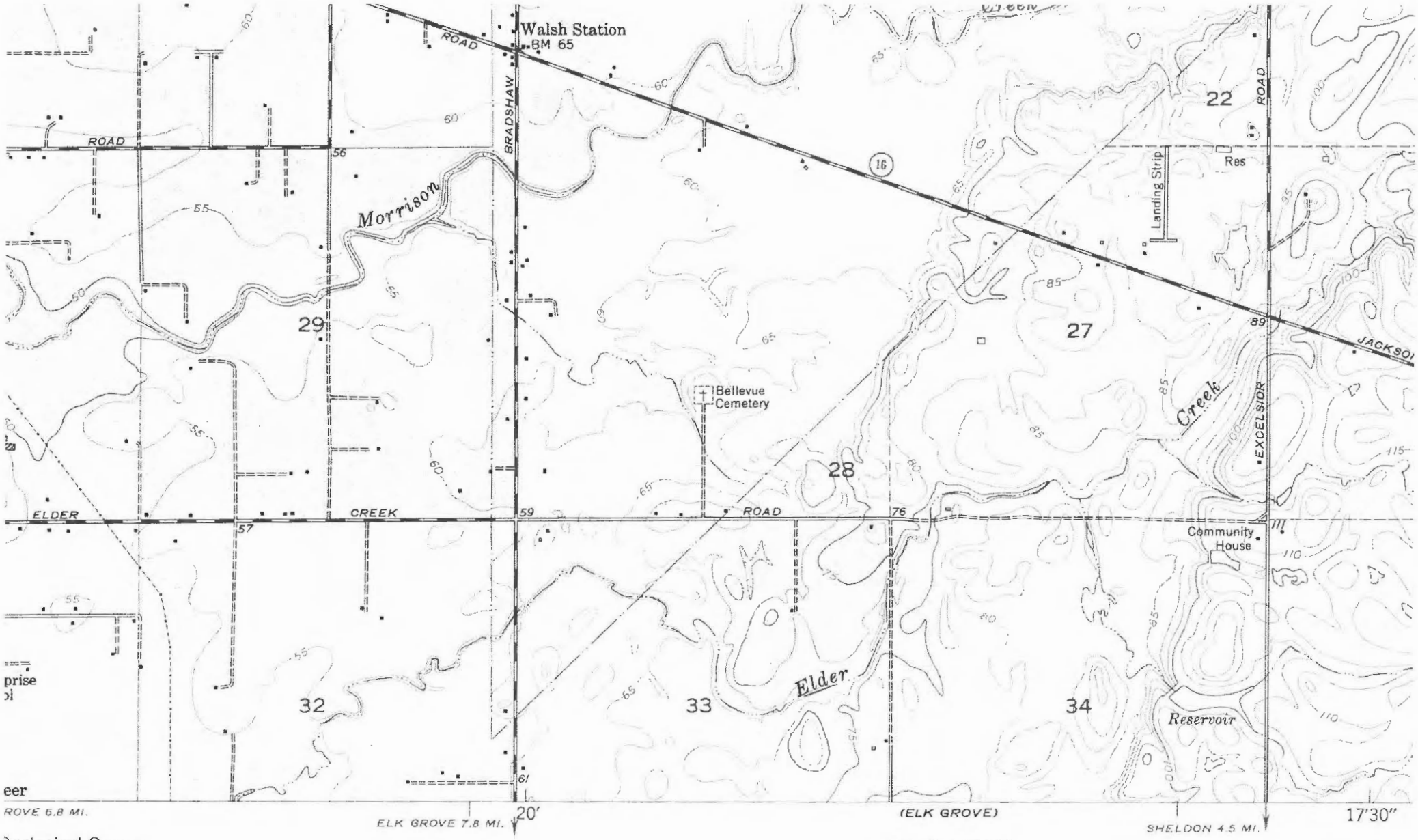
North Central Information Center Resource Listing

Primary No.	HRI No.	Trinomial	Name	Other IDs	Associated reports
P-34-001865					08912
P-34-001866					08912
P-34-001867		CA-SAC-1027H		Other 7050 Knox Road	08912

GLO PLAT FOR T8N R6E (1866)



USGS, CARMICHAEL (1954)



Geological Survey

SCALE 1:24000

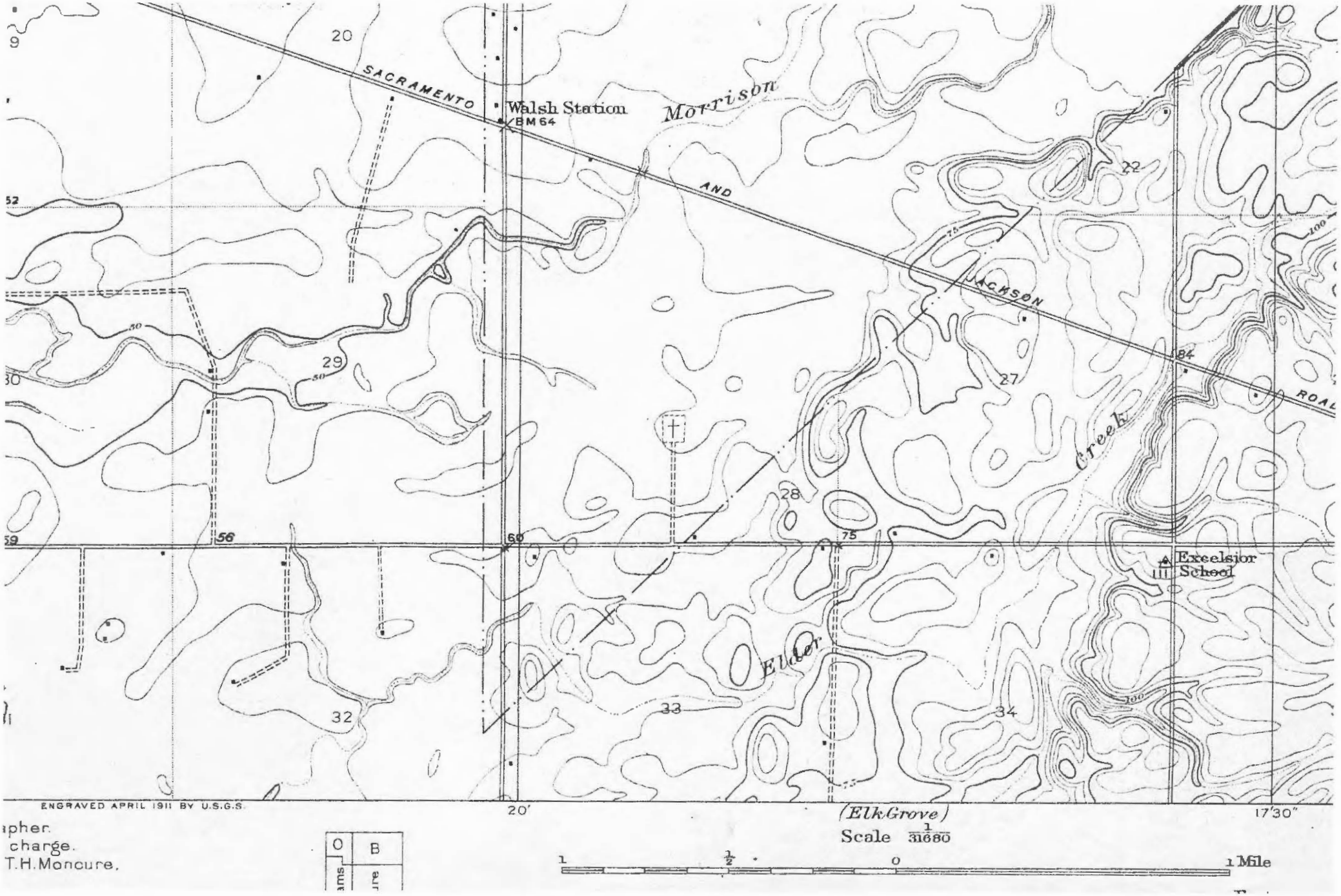
1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

18°

CR-1 - 42

USGS, MILLS (1911)



APPENDIX 4

Site Records

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1865
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 10,000 Elder Creek

P1. Other Identifier:

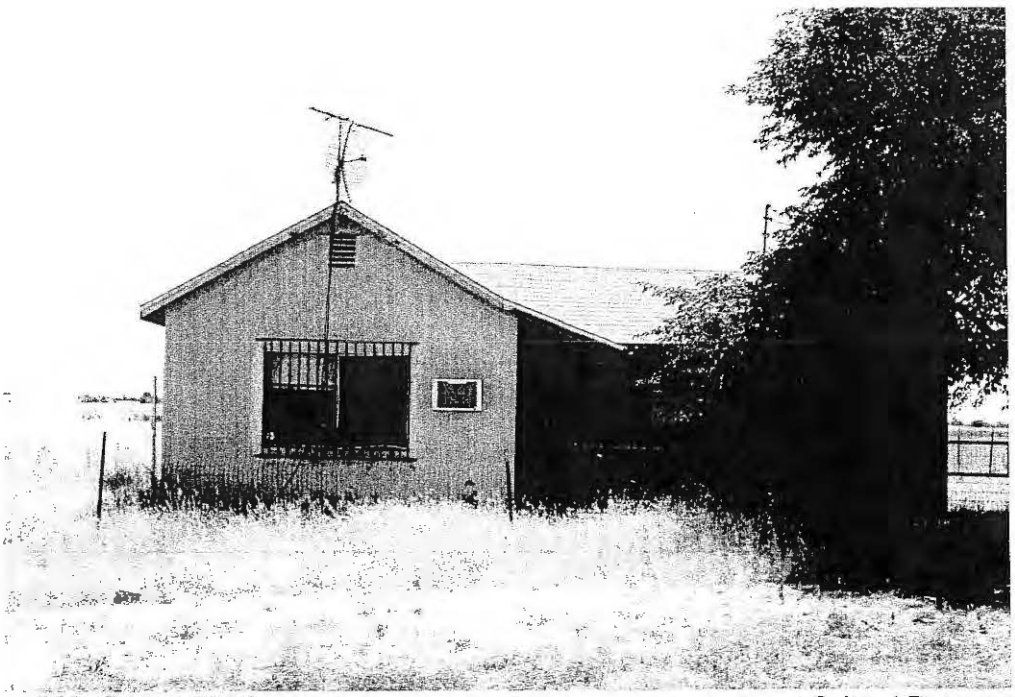
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ;R. 6E ; NE ¼ of NE ¼ of Sec. 33 ; MD B.M.
c. Address: 10,000 Elder Creek Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 46 820 mE/; 42 63 600 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
About half way between Bradshaw and Excelsior on the south side of Elder Creek Road. Just east of the buildings a private road leading south intersects Elder Creek. APN: 066-0020-006

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
A group of three buildings, tow of them modern. The larger residence dates to about 1970 and there is a garge/shed of cinder block construction. The smaller tesidence is the only one of the buildings that might have any historical importance, and it does not appear to be significant either. It is a *circa* 1940s Minimal Traditional one story frame residence. It has stucco siding and a composite roof. The only real clue to its age are the windows, which are one-over-one double hung sashes. There is a large addition on the west which is clearly later than the bulk of the house.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Looking south at north elevation of building. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
?
10,000 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: P-34-1865
HRI #:

Page 2 of 3 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 10,000 Elder Creek

B1. Historic Name:
B2. Common Name:
B3. Original Use: Residence B4. Present Use: Residence
B5. Architectural Style: Minimal Traditional
B6. Construction History: (Construction date, alterations, and date of alterations.)
Estimate of 1940s. There is an addition that is clearly later.

B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: Original Location:
B8. Related Features:
Two modern buildings: #1, a 1970s residence and #2, a cinder block shed/garage. The 1940s residence is #3 on the sketch.

B9a. Architect: Unknown b. Builder: Unknown
B10. Significance: Theme **Area**
Period of Significance **Property Type** **Applicable Criteria**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
This building is not associated with any known person or event of historic significance. The architectural style is very plain and there has been a major addition as well. There is no indication that archeological excavations would return any information of significance. The site does not satisfy any of the National Register criteria.

B11. Additional Resource Attributes: (List attributes and codes)

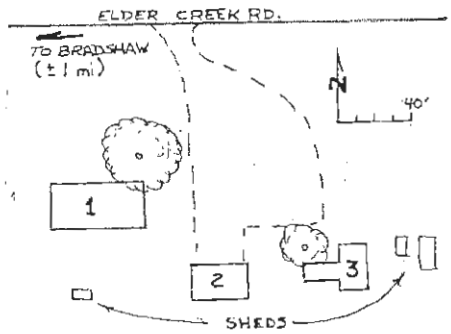
B12. References:

B13. Remarks:

B14. Evaluator: R. Gerry, Peak & Associates, Inc.

Date of Evaluation: 7/2/07

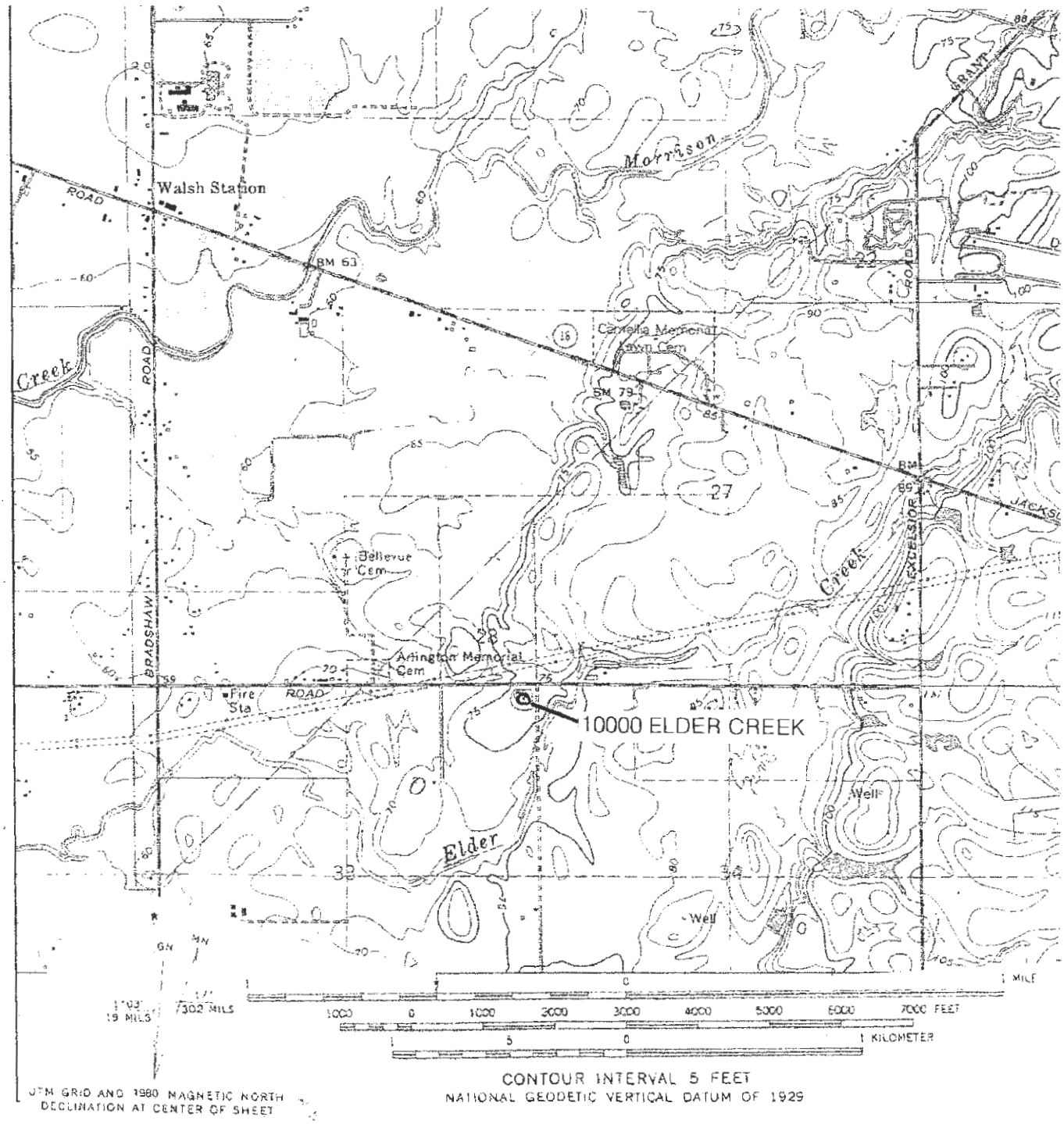
This space reserved for official comments.



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1865
HRI #:
Trinomial:

Page 3 of 3 **Resource Name or #:** (assigned by recorder) 10,000 Elder Creek
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1865
HRI #:
Trinomial:

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 10000 Elder Creek Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes in the condition of the buildings.

Easternmost building looking south

Central building looking south

Westernmost building looking southwest

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1866
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 10,151 Elder Creek

P1. Other Identifier:

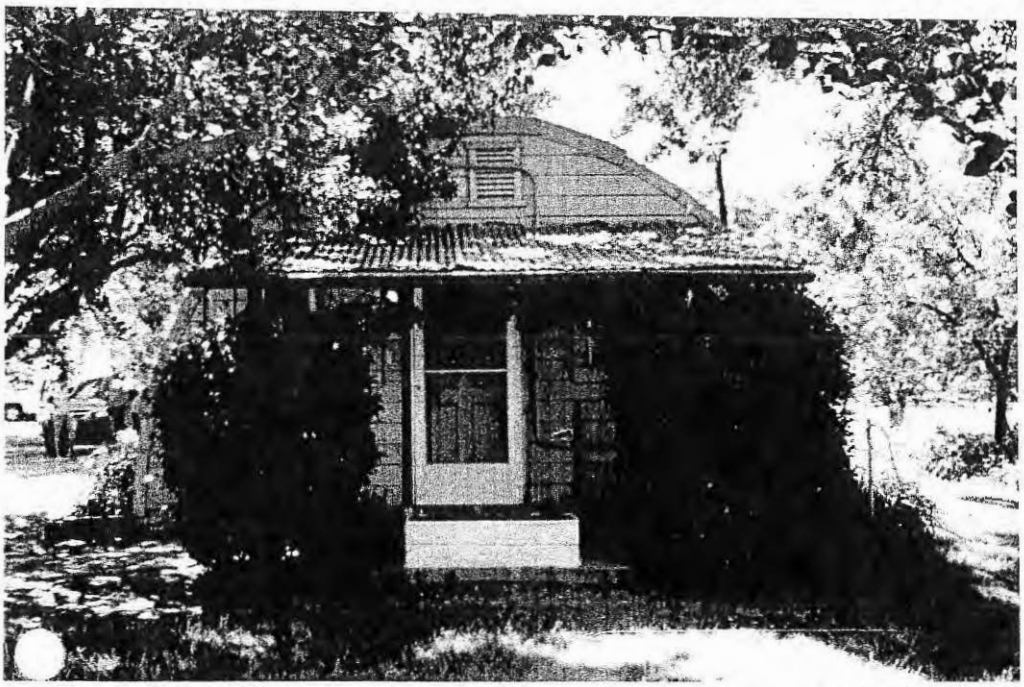
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ; R. 6E ; SW ¼ of SW ¼ of Sec. 27 ; MD B.M.
c. Address: 10,151 Elder Creek Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 47 175 mE/; 42 63 710 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
On the north side of Elder Creek Road. The buildings are in the "peninsula" formed by the main branch of Elder Creek, an east branck of Elder Creek and Elder Creek Road. APN: 063-0160-001

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
A quonset hut being used for a residence at a farm headquarters. There are several other buildings in the area, all modern. The building is oriented with the long axis east-west and it is entered from the east, via a modern aluminum door under a tacked-on porch roof. There is an addition, clearly later than the bulk of the structure, on the west end. This has lapped siding and includes another entrance from the north. The addition, entrances and a couple of aluminum framed slider windows that have been detract from the original appearance of the structure.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Looking west at eastern elevation. Because of the addition on the wet, this is the only view that shows the quonset shape. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
John Ardeto
10,151 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: P-34-1866
HRI #:

Page 2 of 3 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 10,151 Elder Creek

B1. Historic Name:
B2. Common Name:
B3. Original Use: Residence B4. Present Use: Residence
B5. Architectural Style: Quonset hut
B6. Construction History: (Construction date, alterations, and date of alterations.)
World War II, and probably moved from Mather Field. It was very common for these mass produced structures to be sold by the military after the war. They have been used, and many are still in use, throughout the country.

B7. Moved? ☐ No ☒ Yes ☐ Unknown Date: Late '40s Original Location: probably Mather Field
B8. Related Features:
Several modern buildings in the farm headquarters, including other residences.

B9a. Architect: Unknown b. Builder: Military
B10. Significance: Theme **Area**
Period of Significance **Property Type** **Applicable Criteria**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
This building is not associated with any known person or event of historic significance. The architectural style is entirely utilitarian: a mass produced prefabricated building built in quantities at WWII military installations throughout the world. This is not a good example because of the extensive additions and modifications. There is no indication that archeological excavations would return any information of significance. The site does not satisfy any of the National Register criteria.

B11. Additional Resource Attributes: (List attributes and codes)

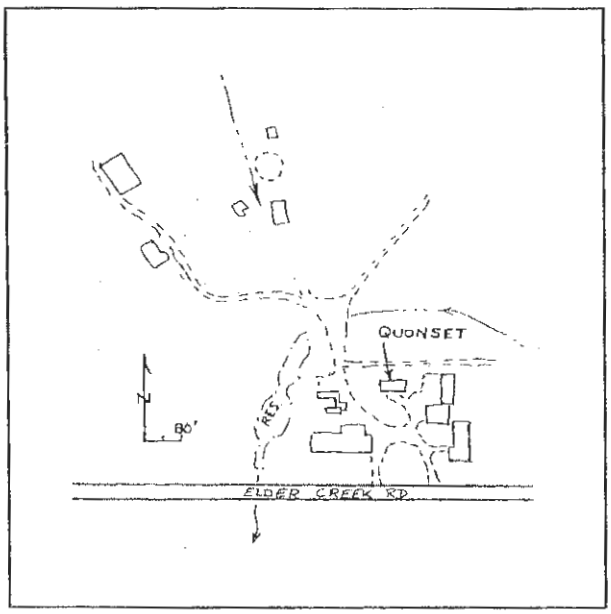
B12. References:

B13. Remarks:

B14. Evaluator: R. Gerry, Peak & Associates, Inc.

Date of Evaluation: 7/2/07

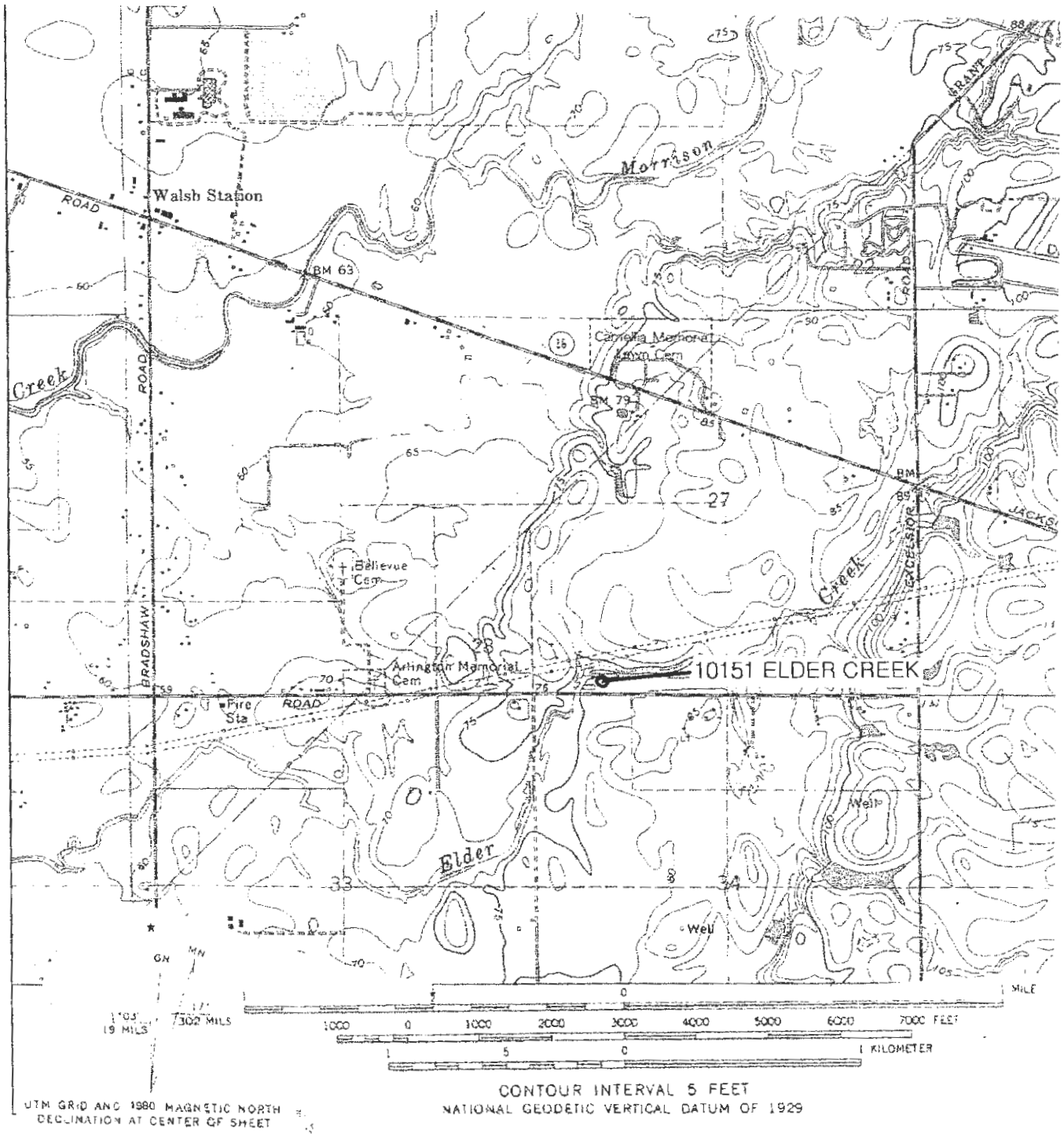
This space reserved for official comments.



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1866
HRI #:
Trinomial:

Page 3 of 3 **Resource Name or #:** (assigned by recorder) 10,151 Elder Creek
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1866
HRI #:
Trinomial:

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 10151 Elder Creek Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes to the buildings

Quonset hut looking west

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # P-34-1867
HRI#
Trinomial CA-SAC-1027-H
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 7050 Knox Road

P1. Other Identifier:

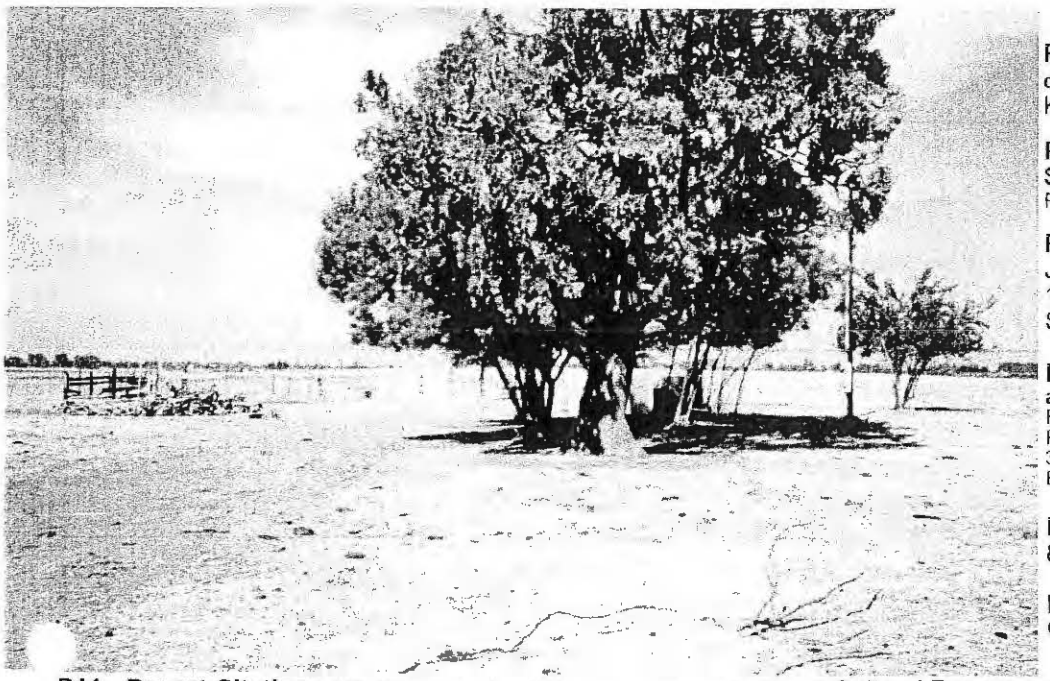
P2. Location: ☐ **Not for Publication** ☒ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967(PR80) T. 8N ; R. 6E ; NE ¼ of SE ¼ of Sec. 33 ; MD B.M.
c. Address: 7050 Knox Road City: Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 48 800 mE/; 42 62 685 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
Knox Road is a small access road running north from Florin Road half way between Bradshaw and Excelsior (one mile from each.) The site is on the west side about 900 feet north of Florin. APN: 066-0050-012

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The site of a fromer farm headquarters. It is now only foundation pads and some minor structural features. It is not clear when the structures were built, but there are only modern artifacts (trash) in the area now.

P3b. Resource Attributes: (List attributes and codes) HP-2, Single family property

P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☒ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)



P5b. Description of Photo: (View, date, accession #) Overview from Knox Road looking west. 8/19/06

P6. Date Construction/Age and Sources: Historic ☒ Prehistoric ☐ Both ☐

P7. Owner and Address:
John Downey
10,151 Elder Creek Road
Sacramento, CA 95829

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
8/19/06

P10. Survey Type: (Describe)
Complete, Project Related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Cultural Resources Assessment of Teichert Aggregate's Aspen VIII and IX Quarries, Sacramento County, California. Peak & Associates, Inc. 2007.

ATTACHMENTS: ☐ NONE ☒ Location Map ☒ Sketch Map ☐ Continuation Sheet ☐ Building, Structure, and Object Record ☒ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other:

(8912)

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
ARCHAEOLOGICAL SITE RECORD

Primary #: P-34-1867
HRI #:
Trinomial:

 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 7050 Knox Road

A1. Dimensions: a. Length 280 feet (E-W) X b. Width 260 feet (N-S)
Method of Determination: ☒ Paced ☐ Taped ☐ Visual estimate ☐ Other:
Method of Determination: (Check any that apply) ☐ Artifacts ☒ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut Bank ☐ Animal Burrow ☐ Excavation ☐ Property Boundary ☐ Other (Explain):

Reliability of Determination: ☒ High ☐ Medium ☐ Low ☐ Explain: Everything else is farm land

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☐ Disturbances ☐ Vegetation ☐ Other (Explain):

A2. Depth: ☒ None ☐Unknown Method of Determination: Structural remnants only

A3. Human Remains: ☐ Present ☒ Absent ☐ Possible ☐ Unknown (Explain):

A4. Features: (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map):
1 Wood fence
2 Brick pile (stoop?)
3 Concrete pad #1
4 Raised area indicating building location
5 Stock tank
6 Water tank
7 Pump house (?) foundation = concrete slab
8 Concrete slab #2
9 Building site = flattened area and concrete walk.

A5. Cultural Constituents (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features):
Modern trash, and little of that.

A6. Were Specimens Collected? ☒ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated):

A7. Site Condition ☐ Good ☐ Fair ☒ Poor (Describe disturbances): All buildings have been razed.

.8. Nearest Water (Type, distance, and direction): Elder Creek 800 feet northwest

A9. Elevation: 77 feet

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.):
Slightly rolling grass land

A11. Historical Information:
At or near a residence appearing on the 1909 USGS map, but nothing visible today is anything close to that age.

A12. Age: ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☒ 1914-1945
☐ Post 1945 ☐ Undetermined **Describe position in regional prehistoric chronology or factual historic dates if known:**

A13. Interpretations (Discuss data potential, functions, ethnic affiliation, and other interpretations):
The site does not appear to have any data potential. It does not satisfy the National Register criteria.

A14. Remarks:

A15. References (Documents, informants, maps, and other references):

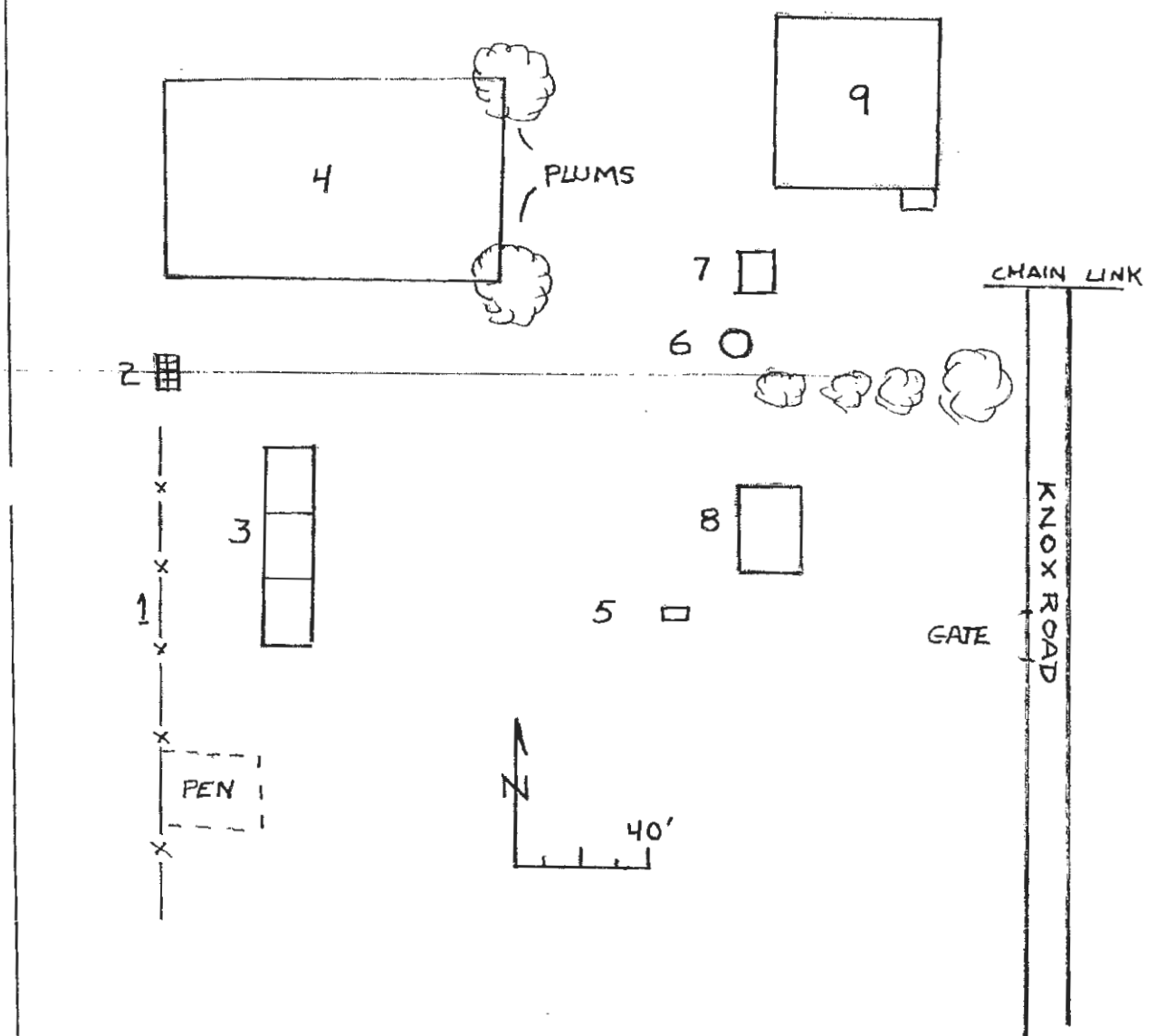
A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record)
Original Media/Negative Kept at: Peak & Associates, Inc.

A17. Form Prepared by: Robert Gerry **Date:** 7/2/07
Affiliation and Address: Peak & Associates, Inc., 3941 Park Drive, Suite 20-329, El Dorado Hills, CA 95762

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #: P-34-1867
HRI #:
Trinomial:

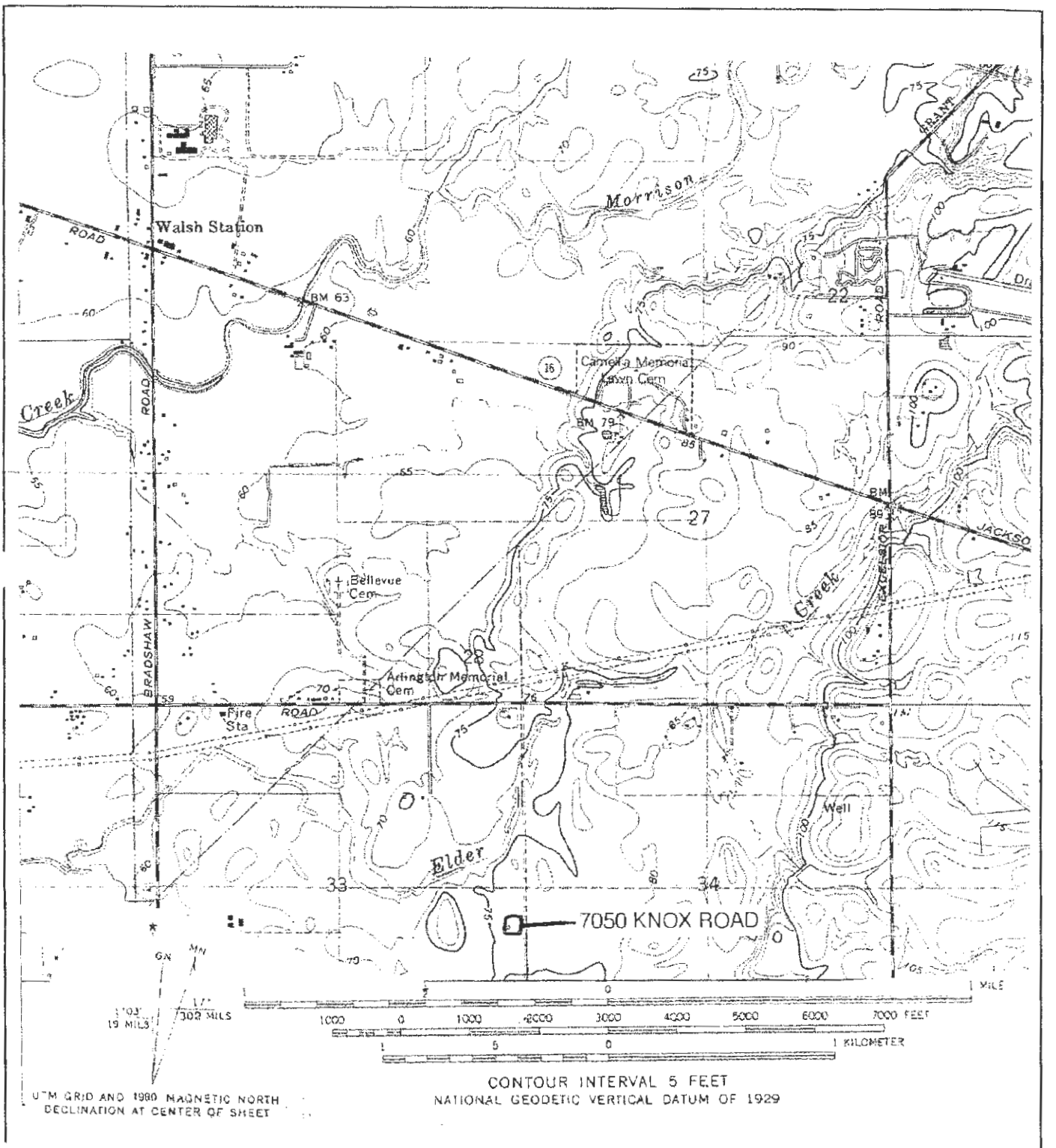
Page 3 of 4 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Drawn By: Gerry **Scale:** see graphic scale below **Date of Map:** 8/19/07



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #: P-34-1867
HRI #:
Trinomial:

Page 4 of 4 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Map Name: Carmichael **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P-34-1867
HRI #:
Trinomial: CA-SAC-1027-H

Page 1 **of** 1 **Resource Name or #:** (assigned by recorder) 7050 Knox Road
Recorded By: Gerry **Date:** 4/4/2014 ☐ Continuation ☒ Update

When revisited 4/4/2014 there were no evident changes in the site. No artifacts related to the occupancy of the site were observed..

4/4/14, looking northwest

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI#
Trinomial
NRHP Status Code 6Z

Other Listings:
Review Code: Reviewer: Date:

 Resource Name or #: (assigned by recorder) 9990 Elder Creek

P1. Other Identifier:

P2. Location: ☐ **Not for Publication** ■ **Unrestricted** (P2b and P2c or P2d. Attach a Location Map as necessary)

a. County: Sacramento
b. USGS 7.5' Quad: Carmichael Date: 1967 (PR80) T. 8N ;R. 6E ; DW ¼ of NE ¼ of Sec. 33 ; MD B.M.
c. Address: 9990 Elder Creek Road City : Sacramento Zip: 95829
d. UTM: (Give more than one for large and/or linear resources) Zone: 10 ; 06 46 410 mE/; 42 63 240 mN
e. Other Locational Data: (e.g. parcel #, directions to resource, elevation, etc., as appropriate)
APN 066-0020-006-0000. At the end of a quarter mile long access road leading south from Elder Creek Road.

P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property consists of a 1972 residence (County Assessor's records) and four older buildings constituting a farm/ranch headquarters. All of the buildings are plain, utilitarian structures with no architectural features of note and no unusual structural techniques or materials in evidence.

The garage/equipment shed is on south side of the complex. It has 1940s--50s-style construction with poured concrete floors, lap board siding, rusted corrugated steel roofs, and 1950s electrical fixtures. It is in fair condition. There is a modern roll up door on the west half. The one-over-one sash windows could be original. The west half of the structure, an equipment shed, appears to be an addition of nearly the same age.

The other equipment shed includes an indoor pen and equipment room. It has a poured concrete floor and features the same construction style and general appearance as the garage. There is a large industrial scale bolted to floor.

The chicken coop is similar in construction style and materials as the above, but with plexiglass replacement windows. It is in fair condition..

The barn is the most imposing structure of the complex. It is 40 feet wide by 80 feet long and is about 22 feet high. There are sliding doors on north end, but the south entry is damaged and the doors are missing. It has a poured concrete floor 15 feet wide with feeding troughs running down each side, where large animals can stand out of weather and feed. Roofing is rusted corrugated steel.

Aside from the damaged doors, it is in good overall condition. The fencing for a corral and pen extends behind and west of the barn.

P3b. Resource Attributes: (List attributes and codes) HP-2 Single Family Property

P4. Resources Present: ■ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of a District ☐ Other (Isolates etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects

P5b. Description of Photo: (View, date, accession #) Barn looking SE 4/4/14

P6. Date Construction/Age and Sources: Historic ■ Prehistoric ☐ Both ☐
WW II era. USGS maps

P7. Owner and Address:
Teichert Aggregates
3500 American River Drive
Sacramento, CA 95864-5805

P8. Recorded By: (Name, affiliation, and address)
Robert Gerry, Michael Lawson
Peak & Associates, Inc.
3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762

P9. Date Recorded:
4/4/2014

P10. Survey Type: (Describe)
Complete, project related

P11. Report Citation: (Cite Survey report and other resources, or enter "none") Determination of Eligibility and Effect for the Aspen VIII and Aspen IX Projects, Sacramento County, California. Peak & Associates, Inc. 2014.

ATTACHMENTS: ☐ NONE ■ Location Map ■ Sketch Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other:

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #: _____
HRI #: _____

Page 2 **of** 5 ***NRHP Status Code:** 6Z Resource Name or #: (assigned by recorder) 9990 Elder Creek

B1. Historic Name: Dick Harry Ranch

B2. Common Name: _____

B3. Original Use: Farm/ranch headquarters B4. Present Use: same

B5. Architectural Style: Utilitarian agricultural buildings

B6. Construction History: (Construction date, alterations, and date of alterations.)
The residence was built in 1972 according to County Assessor's records. The other buildings are older, but all are roughly World War II or later This is based on construction materials and styles and the fact that the buildings are on the 1954 USGS, but not earlier editions.

B7. Moved? ☒ No ☐ Yes ☐ Unknown Date: _____ Original Location: _____

B8. Related Features: Swimming pool at the residence. Various pens and fencelines.

B9a. Architect: N/A b. Builder: Unknown

B10. Significance: Theme _____ **Area** _____
Period of Significance _____ **Property Type** _____ **Applicable Criteria** _____
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
The older buildings in the complex still appear to be World War II era and have no unusual features. The buildings are depicted on the 1954 edition of the USGS map, but not on earlier editions. The property is not associated with any known person or event of historic significance.

There is no indication that archeological excavations would return any information of significance due to the recent age of the structures. The site is not eligible for the National Register of Historic Places or the California Register of Historical Resources.

B11. Additional Resource Attributes: (List attributes and codes) _____

B12. References: The renter on site stated that this was the former Dick Harry Ranch

B13. Remarks:

B14. Evaluator: Melinda A. Peak & Associates, Inc.

Date of Evaluation: _____

This space reserved for official comments.

See Attached maps

Garage/Shed looking north

Looking south at coop (left) shed (right) and garage shed (background)

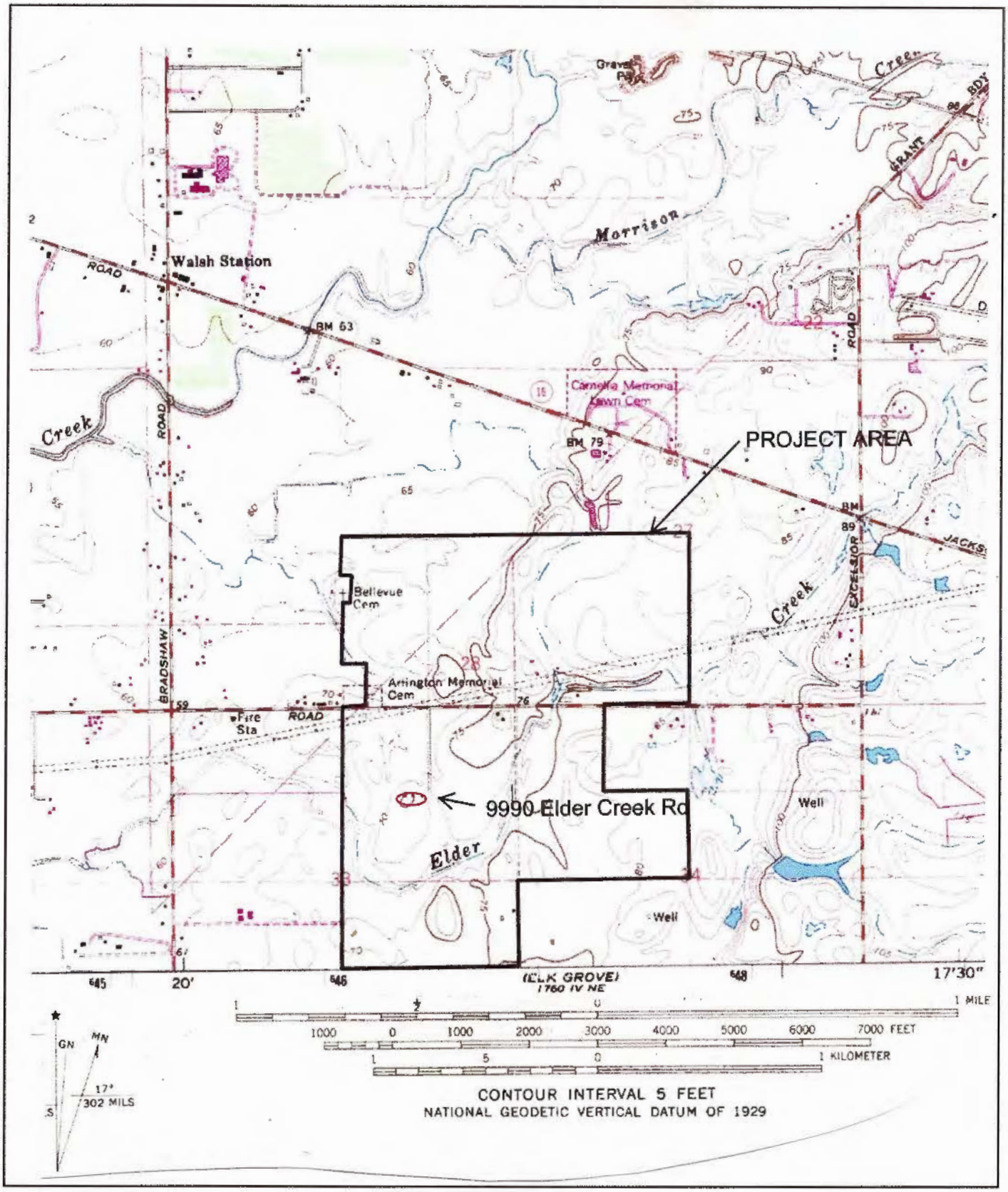
To Elder Creek Road
BARN
SHED
COOP
RESIDENCE
GARAGE
120 ft
© 2014 Google
Google earth

R

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #:
HRI #:
Trinomial:

Page 5 of 5 **Resource Name or #:** (assigned by recorder) 9990 Elder Creek Road
Map Name: Capmichael 7.5' **Scale:** 1 : 24,000 **Date of Map:** 1967 (PR80)



RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

Sacramento County
Department of Community Development
Planning and Environmental Review
Division

COUNTY MAIL CODE: 01-225
No Fee – For the Benefit of Sacramento County (Code 6103)

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

COUNTY OF SACRAMENTO

DEPARTMENT OF COMMUNITY DEVELOPMENT

PLANNING AND ENVIRONMENTAL REVIEW DIVISION

MITIGATION MONITORING AND REPORTING PROGRAM

CONTROL NUMBER: PLNP2014-00201

NAME: ASPEN VIII AND IX MINING USE PERMIT

LOCATION: The project site is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community.

ASSESSOR'S PARCEL NUMBER(S): 063-0180-005, 063-0180-006, and 063-0160-001 (Aspen VIII); 066-0020-006, 066-0030-001, and 066-0050-003 (Aspen IX), and 063-0190-027 (Conveyor extension to Aspen V South) 063-0040-067, 063-0040-018, 063-0040-034, 063-0040,016, 063-0040-030, 063-0190-029, 063-0190-028, 063-0190-015, 063-0190-014, 063-0030-016, 063-0030-017, 063-0060-048, 063-0060-037, 063-0060-032, 063-0060-050, 063-0060-040, 063-0052-018, 063-0013-017, 063-0013-012, 063-0012-012, 063-0012-007, 063-0012-011, 063-0012-017, 063-0014-002, and 078-0201-008 (Existing conveyors currently being utilized on other parcels)

OWNER:

Teichert Land Company and
Triangle Properties
Attention: Ron Gatto

APPLICANT:

Teichert Materials
Attention: John Lane

PROJECT DESCRIPTION:

1. A **Use Permit** to allow surface mining on approximately 353 acres of a 683-acre project site.
2. A **Use Permit** to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.
3. A **Community Plan Amendment and Rezone** to add the Surface Mining Combining Zone (SM) to 682 acres of IR, AG-80, AG-80 (F), AG-160 and AG-160 (F) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.
4. A **Reclamation Plan** to include open space grassland uses as the end use of the mine.
5. A **Development Agreement** between the applicant and the County of Sacramento.

TYPE OF ENVIRONMENTAL DOCUMENT: ENVIRONMENTAL IMPACT REPORT

PREPARED BY: Sacramento County Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225
Sacramento, CA 95814

PHONE: (916) 874-6141

MITIGATION MONITORING AND REPORTING PROGRAM

ADOPTED BY: **DATE:**

ATTEST:_____

SECRETARY/CLERK

California All-Purpose Acknowledgment

Pursuant to SB 1050 (Chapter 197, Statutes of 2014), Civil Code section 1189 has been amended to provide that any certificate of acknowledgment taken within the State of California shall be in the following form:

> *A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California)
)
County of _____)

On _____ before me, _____ (Insert name and title of officer) _____, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

_____ (Seal)

(Signature)

DECLARATION OF AGREEMENT

This Mitigation Monitoring and Reporting Program applies to certain real property, a Legal Description of which is attached as Exhibit A. I (We) the undersigned agree that this Mitigation Monitoring and Reporting Program applies to the real property described in Exhibit A. I (We) the undersigned am (are) the legal owner(s) of that property, and agree to comply with the requirements of this Mitigation Monitoring and Reporting Program (Summary and Mitigation Measures attached).

IN WITNESS WHEREOF, this declaration is hereby executed by the undersigned named legal owner(s) of the subject property on this ____ day of _____, 20_____.

OWNER(S): _____ _____

(Print name and title above) **(Signature above)**

_____

(Print company, corporation, or organization name above, if applicable)

California All-Purpose Acknowledgment

Pursuant to SB 1050 (Chapter 197, Statutes of 2014), Civil Code section 1189 has been amended to provide that any certificate of acknowledgment taken within the State of California shall be in the following form:

> *A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.*

State of California)
)
County of _____)

On _____ before me, _____ _____, personally appeared _____ who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

_____ (Seal)

(Signature)

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PURPOSE AND PROCEDURES

Pursuant to Section 21081.6 of the Public Resources Code and Chapter 20.02 of the Sacramento County Code, a Mitigation Monitoring and Reporting Program has been established for the project entitled Project Name (Control Number: PLNP2014-00201).

PURPOSE

The purpose of this program is to assure diligent and good faith compliance with the Mitigation Measures which have been recommended in the environmental document, and adopted as part of the project or made conditions of project approval, in order to avoid or mitigate potentially significant effects on the environment.

NOTIFICATION AND COMPLIANCE

It shall be the responsibility of the project applicant/owner to provide written notification to the Environmental Coordinator, in a timely manner, of the completion of each Mitigation Measure as identified on the following pages. The Environmental Coordinator will verify that the project is in compliance with the adopted Mitigation Monitoring and Reporting Program (MMRP). Any non-compliance will be reported to the project applicant/owner, and it shall be the project applicant's/owner's responsibility to rectify the situation by bringing the project into compliance and re-notifying the Environmental Coordinator. Any indication that the project is proceeding without good-faith compliance could result in the imposition of administrative, civil and/or criminal penalties upon the project applicant/owner in accordance with Chapter 20.02 of the Sacramento County Code.

PAYMENT

TIME AND MATERIALS

It shall be the responsibility of the project applicant/property owner to reimburse the County for all expenses incurred in the implementation of the Mitigation Monitoring and Reporting Program (MMRP), including any necessary enforcement actions. The applicant/property owner shall pay an initial deposit of $22,000.00. This deposit includes administrative costs of $800.00, which must be paid to the Department of Community Development, Planning and Environmental Review Division prior to recordation of the MMRP and prior to recordation of any final parcel or subdivision map. The remaining balance will be due prior to review of any plans by the Environmental Coordinator or issuance of any building or grading permits or work authorization permits. Over the course of the project, Department of Community Development, Planning and Environmental Review Division will regularly conduct cost accountings and submit invoices to the applicant/property owner when the County monitoring costs exceed the initial deposit.

Recordation

In order to record the adopted Mitigation Monitoring and Reporting Program with the County Recorder as required by Section 20.02.050(b)(2) of the Sacramento County Code, the project applicant/owner shall provide to the Department of Community Development, Planning and Environmental Review Division a Legal Description for the real property that is the subject of the project.

Completion

Pursuant to Section 20.02.060 of the Sacramento County Code, upon the determination of the Environmental Coordinator that compliance with the terms of the approved Mitigation Monitoring and Reporting Program has been achieved, and that there has been full payment of all fees for the project, the Environmental Coordinator shall record and issue a Program Completion Certificate for the project.

Property Transfer

The requirements of this adopted Program run with the real property that is the subject of the project, as described in Exhibit A. Successive owners, heirs and assigns of this real property are bound to comply with all of the requirements of the adopted Program.

Prior to any lease, sale, transfer or conveyance of any portion of the real property that is the subject of the project, the record owner(s) at the time of the application for the project, or his or her successor's in interest, shall provide a copy of the adopted Program to the prospective lessee, buyer, transferee, or one to whom the conveyance is made.

Penalties

Chapter 20.02 of the Sacramento County Code permits civil remedies and criminal penalties to be imposed in the event of non-compliance with an adopted Mitigation Monitoring and Reporting Program. The civil remedies, which are found in Section 20.02.090 of the Sacramento County Code, include injunctive relief, stop work orders, revocation of any special permit granted concurrently with the approval of a Program, and the abatement of any resulting nuisance. The criminal penalties, which are found in Section 20.02.080 of the Sacramento County Code, include a fine not to exceed five hundred dollars or imprisonment in the County jail not to exceed six months, or both.

Plans that are inconsistent with the adopted Mitigation Measures will not be approved.

In the event of an ongoing, serious non-compliance issue, the Environmental Coordinator may call for a "stop work order" on the project.

STANDARD PROVISIONS

Page one of all Project Plans must include the following statement in a conspicuous location:

> "All Plans associated with this project are subject to the conditions of Mitigation Monitoring and Reporting Program PLNP2014-00201. For any questions regarding compliance with the MMRP document, contact MMRP staff at (916) 874-6141."

All Project Plans and any revisions to those Plans shall be in full compliance with the adopted Mitigation Monitoring and Reporting Program (MMRP). The project applicant/owner shall submit one copy of all such Plans and any revisions to the Environmental Coordinator prior to final approval by the Sacramento County Building Permits and Inspection Division (BPID) or Site Improvement and Permit Section (SIPS). If the Environmental Coordinator determines that the Plans are not in full compliance with the adopted MMRP, the Plans shall be returned to the project applicant/owner with a letter specifying the items of non-compliance, and instructing the applicant/owner to revise the Plans, and then resubmit one copy of the revised Plans to the Environmental Coordinator, for determination of compliance, prior to final approval by BPID or SIPS.

Additionally, the project applicant/owner shall notify the Environmental Coordinator no later than 48 hours prior to the start of construction and no later than 24 hours after its completion. The applicant/owner shall notify the Environmental Coordinator no later than 48 hours prior to any/all Final Inspection(s) by the County of Sacramento.

☐ MITIGATION MEASURE A: AGRICULTURAL FARMLAND IMPACTS

Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted in Phase A (as shown in Plate PD-5 in the Project Description chapter of the EIR) of the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, said easement shall be located in Sacramento County and shall provide mitigation for not less than 16 acres of prime farmland, 88 acres of statewide importance farmland, and 33 acres of local importance farmland located within Sacramento County.

Prior to the commencement of mining on Phase B (as shown in Plate PD-5 in the Project Description chapter of the EIR) of the Aspen VIII portion of the project site, grant an agriculture easement for the farmland converted as part of this phase to an accredited land conservancy that is acceptable to the County, said easement shall be located in Sacramento County and shall provide mitigation for not less than 18 acres of prime farmland, 78 acres of statewide importance farmland, and 21 acres of local importance farmland located within Sacramento County.

Prior to the commencement of mining in Phase C (as shown in Plate PD-5 in the Project Description chapter of the EIR) of the Aspen IX portion of the project site, grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited land conservancy that is acceptable to the County, said easement shall be located in Sacramento County and shall provide mitigation for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County.

All the agricultural easements shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Implementation and Notification (Action by Project Applicant):

1. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

1. Review the Project Plans prior to the issuance of Work Authorization Permit. Approve Project Plans that are determined to be in compliance with all required mitigation.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE B: VIEWSHEDS**

A. Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (*Quercus lobata*) and interior live oak (*Quercus wislizenii*); and the following shrubs; western redbud (*Cercis occidentalis*), toyon (*Heteromeles arbutifolia*), hoary coffeeberry (*Rhamnus tomentella*), snowdrop bush (*Styrax officinalis*), and Howard McMinn' manzanita (*Arctostaphylus densiflora*). The placement of landscaping shall be as show in Plate AE-7. The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height.

B. Additional berms and landscaping, or an 8-foot tall solid fence, shall be placed to screen the view of the mining pit for the benefit of those properties located west of Aspen VIII, including the residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and the cemeteries at 9899 Elder Creek Road, on assessor parcel number 063-0180-029. This shall consist of a berm and landscaping combination, or a fence to visually screen, to the satisfaction of the Department of Community Development with input from the neighboring property owners.

Implementation and Notification (Action by Project Applicant):

2. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

2. Monitor compliance during periodic site inspections.
3. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE C: REDUCING IMPACTS ASSOCIATED WITH LIGHTING**

Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.

Implementation and Notification (Action by Project Applicant):

3. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

4. Monitor compliance during periodic site inspections.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE D: MULTI-USE INTERCONNECTED TRAIL SYSTEM EASEMENT**

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant intends to fully comply with mitigation measure B and C below to the satisfaction of Sacramento County Department of Community Development.

B. Prior to sign-off of the reclamation plan, the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek as indicated on Plate PS-3 and to the satisfaction of Southgate Recreation and Park District.

C. Prior to signoff of the reclamation plan the applicant shall improve the trail easement area by constructing a trail surface 20-foot wide, which will include a 12-foot wide section of suitably compacted base rock foundation for the multi-use trail along Elder Creek, to the satisfaction of Southgate Recreation and Park District; it is anticipated that the trail easement should be consistent with Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7.

Implementation and Notification (Action by Project Applicant):

4. Comply fully with the above measure.
5. Include the above measure verbatim as a Construction Note and incorporate it into all Plans and Specifications for the project, and submit one copy to the Environmental Coordinator for review and approval prior to the start of any construction work (including clearing and grubbing).

Verification (Action by the Environmental Coordinator):

5. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE E: KNOX/VINEYARD ROAD

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by the Sacramento County Department of Transportation, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Transportation.

B. Prior to signoff of the reclamation plans, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements, the applicant shall dedicate those easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation.

C. Prior to signoff of the reclamation plan, the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of Transportation. The applicant shall return-to-grade and rough grade an area sufficient to accommodate the intersection of Knox/Vineyard Road and Elder Creek Road to the satisfaction of Sacramento County Department of Transportation.

Implementation and Notification (Action by Project Applicant):

6. Comply fully with the above measure.
7. Include the above measure verbatim as a Construction Note and incorporate it into all Plans and Specifications for the project, and submit one copy to the Environmental Coordinator for review and approval prior to the start of any construction work (including clearing and grubbing).

Verification (Action by the Environmental Coordinator):

6. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE F: REDUCING ROG AND NOX

To mitigate construction-related ozone precursor emissions, the following shall apply:

A. Prior to approval of the Work Authorization Permit, an equipment inventory must be submitted to the Sacramento Metropolitan Air Quality Management District and approved demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOx reduction, 20% ROG reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be discontinued immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. By May 1st of each year and for the duration of the project, an annual summary of all off road equipment used on the site, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the Sacramento Metropolitan Air Quality Management District representing the previous years use. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

<u>Implementation and Notification (Action by Project Applicant):</u>

8. Comply fully with the above measure.

<u>Verification (Action by the Environmental Coordinator):</u>

7. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure G: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions

Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including:

- All disturbed areas on site shall be treated with appropriate dust suppressants, watered regular, vegetated or otherwise treated to minimize fugitive dust. Comply with Zoning Code Section 4.8.14.H.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material off the site and onto public roadways. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Visible trackout of mud or dirt onto adjacent public roads shall be prevented through the incorporation of rumble strips, gravel aprons, appropriate dust suppressant, long sinuous driveway, or a combination thereof. It these measures are not adequate the applicant shall work with the County and SMQAMD to implement additional measures. If Trackout is present on public roads adjacent to the mine entrances, wet power vacuum street sweepers shall be used to remove any visible trackout mud or dirt. Use of dry power sweeping is prohibited.
    - Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- All disturbed areas on site shall be treated with appropriate dust suppressants, watered regularly, vegetated, or otherwise treated to minimize fugitive dust.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

UNPAVED ROADS (ENTRAINED ROAD DUST)

- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Implementation and Notification (Action by Project Applicant):

9. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

8. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE H: MEDIAN NOISE LEVELS**

A. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

B. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.

C. For excavation operations that occurs within 400 feet of the property line of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) or Residence 4 (9897 Elder Creek Road: APN 063-0180-021), the number of scrapers shall be limited to a maximum of three until the mining pit has reached a sufficient depth that the scrapers are shielded from view of these residences.

D. An 8-foot tall earthen berm or temporary noise barrier shall be constructed at the property line between initial excavation operations and Residence 3 (9895 Elder Creek Road: APN 063-0180-022) and between initial excavation operations and Residence 4 (9897 Elder Creek Road: APN 063-0180-021) as shown in Plate NO-1.

Implementation and Notification (Action by Project Applicant):

10. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

9. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure I: Increases in Ambient Noise

See Mitigation Measures H.

Implementation and Notification (Action by Project Applicant):

11. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

10. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE J: ELDER CREEK BASE FLOOD ELEVATIONS**

Prior to approval of the Work Authorization Permit, the applicant shall prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:

The applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.

- Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.

- Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit.

This mitigation measures shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to initiating work in the FEMA floodplain.

Implementation and Notification (Action by Project Applicant):

12. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

11. Monitor compliance during periodic site inspections.
12. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE K: RECLAMATION SLOPES AND BERMS

A. Reclamation slopes shall be constructed at 2H:1V or flatter.

B. To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment/berm located adjacent to Elder Creek, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources.

C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources.

D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes.

E. At the beginning of each year (in the month of January) a written report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. The report shall indicate whether such slopes were constructed in a manner consistent with the Geocon Seepage and Stability Evaluation. The report shall also include a performance evaluation of all slopes built adjacent to Elder Creek to date and appropriate measures to correct any deficiencies, if necessary. This report shall be prepared by a registered and licensed civil engineer in good standing.

F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.

Implementation and Notification (Action by Project Applicant):

13. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

13. Monitor compliance during periodic site inspections.
14. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE L: TOPSOIL MANAGEMENT

Comply with the topsoil handing and stockpiling measures contained in Section 6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.

Implementation and Notification (Action by Project Applicant):

14. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

15. Monitor compliance during periodic site inspections.
16. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure M: Paleontological Resources Unanticipated Discoveries

See Mitigation Measure CC: Cultural Resources Unanticipated Discoveries.

Implementation and Notification (Action by Project Applicant):

15. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

17. Monitor compliance during periodic site inspections.
18. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE N: SANFORD'S ARROWHEAD

A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a suitable habitat that is within 2 miles of the project site with preference given to the Elder Creek watershed. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants.

B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.

Implementation and Notification (Action by Project Applicant):

16. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

19. Monitor compliance during periodic site inspections.
20. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE O: INVERTEBRATES

Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods" (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall:

A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife.

B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands.

C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction.

E. Prior to issuance of the Work Authorization Permit, the Applicant shall demonstrate to the Environmental Coordinator that all areas which are required to be preserved in perpetuity as part of the Section 404 permit are protected by, and placed within a permanent conservation easement approved by the USACE.

Implementation and Notification (Action by Project Applicant):

17. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

21. Monitor compliance during periodic site inspections.

22. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE P: WESTERN SPADEFOOT TOAD

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat.

C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Implementation and Notification (Action by Project Applicant):

18. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

23. Monitor compliance during periodic site inspections.
24. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE Q: WESTERN POND TURTLE

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.

C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Implementation and Notification (Action by Project Applicant):

19. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

25. Monitor compliance during periodic site inspections.
26. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE R: NESTING WHITE-TAILED KITE, SWAINSON'S HAWK, NORTHERN HARRIER AND OTHER RAPTORS

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction.

B. The survey shall include a focused survey for Swainson's hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.

C. If no active nests are found in the survey area, no further mitigation is necessary.

D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of construction activity.

E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.

Implementation and Notification (Action by Project Applicant):

20. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

27. Monitor compliance during periodic site inspections.
28. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE S: NESTING OR ROOSTING BURROWING OWL

A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14.

The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting.

Implementation and Notification (Action by Project Applicant):

21. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

29. Monitor compliance during periodic site inspections.
30. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure T: Nesting Birds Protected Under the Migratory Bird Treaty Act

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.

B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.

Implementation and Notification (Action by Project Applicant):

22. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

31. Monitor compliance during periodic site inspections.
32. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE U: LOSS OF FORAGING HABITAT FOR TRICOLORED BLACKBIRD, WHITE-TAILED KITE AND SWAINSON'S HAWK**

Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat must occur.

A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).

B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat.

C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.

The implementation of mitigation for the loss of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat may be addressed separately for each of the three project phases (as shown in Plate PD-5 in the Project Description chapter of the EIR). The total foraging habitat to be mitigated in Phase A is 137.1 acres, Phase B is 126.2 acres and Phase C is 107.9 acres. In total, 371.2 acres of tricolored blackbird, white-tailed kite, and Swainson's hawk foraging habitat must be provided.

Implementation and Notification (Action by Project Applicant):

23. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

33. Monitor compliance during periodic site inspections.
34. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE V: DISTURBANCE TO NESTING LOGGERHEAD SHRIKE

To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Implementation and Notification (Action by Project Applicant):

24. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

35. Monitor compliance during periodic site inspections.

36. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure W: Disturbance to Nesting or Roosting Yellow-Billed Magpie

To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.

Implementation and Notification (Action by Project Applicant):

25. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

37. Monitor compliance during periodic site inspections.

38. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure X: Disturbance to Nesting Tricolored Blackbird

To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun.

Implementation and Notification (Action by Project Applicant):

26. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

39. Monitor compliance during periodic site inspections.
40. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure Y: Loss of Foraging Habitat for Tricolored Blackbird

See Mitigation Measure U: Loss of foraging habitat for tricolored blackbird, white-tailed kite and Swainson's hawk.

Implementation and Notification (Action by Project Applicant):

27. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

41. Monitor compliance during periodic site inspections.
42. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE Z: WETLANDS AND WATER OF THE U.S

To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required. Proof of mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.

B. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

Implementation and Notification (Action by Project Applicant):

28. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

43. Monitor compliance during periodic site inspections.
44. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE AA: NATIVE TREE AND TREE CANOPY PROTECTION

The removal of 23 inches dbh of valley oak trees shall be compensated for by planting native oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus), California sycamore (Platanus racemosa), California black walnut (Juglans californica, which is also a List 1B plant), Oregon ash (Fraxinus latifolia), western redbud (Cercis occidentalis), gray pine (Pinus sabiniana), California white alder (Alnus rhombifolia), boxelder (Acer negundo), California buckeye (Aesculus californica), narrowleaf willow (Salix exigua), Gooding's willow (Salix gooddingii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), shining willow (Salix lucida), Pacific willow (Salix lasiandra), and dusky willow (Salix melanopsis).

A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved;
2. Method of irrigation;
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage;

4. Planting, irrigation, and maintenance schedules;

5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period;

6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento Tree Foundation).

Implementation and Notification (Action by Project Applicant):

29. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

45. Monitor compliance during periodic site inspections.
46. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure BB: Local Policies Protecting Biological Resources

See Mitigation Measures N through AA.

Implementation and Notification (Action by Project Applicant):

30. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

47. Monitor compliance during periodic site inspections.
48. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ Mitigation Measure CC: Cultural Resources Unanticipated Discoveries

If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

Implementation and Notification (Action by Project Applicant):

31. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

49. Monitor compliance during periodic site inspections.
50. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ MITIGATION MEASURE DD: UNINTENDED DISCOVERY

See Mitigation Measure CC: Cultural Resources Unanticipated Discoveries.

Implementation and Notification (Action by Project Applicant):

32. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

51. Monitor compliance during periodic site inspections.
52. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

☐ **MITIGATION MEASURE EE: TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS**

A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities.

B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff.

C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.

Implementation and Notification (Action by Project Applicant):

33. Comply fully with the above measure.

Verification (Action by the Environmental Coordinator):

53. Monitor compliance during periodic site inspections.
54. Participate in any Final Inspection(s) as necessary.

Comments:

Completion of Mitigation Verified:

Signature: _____ Date: _____

COUNTY OF SACRAMENTO
CALIFORNIA

PLANNING COMMISSION REPORT

Control No.: PLNP2014-00201
Type: UPB-CZB-REB-DGB
Hearing Date: July 25, 2016

TO: COUNTY PLANNING COMMISSION
(Final Decision by Board of Supervisors)

FROM: DEPARTMENT OF COMMUNITY DEVELOPMENT

SUBJECT: **ASPEN VIII AND IX MINING USE PERMIT, COMMUNITY PLAN AMENDMENT AND REZONE, RECLAMATION PLAN, AND DEVELOPMENT AGREEMENT**

CONTACT: *Mark Michelini, Senior Planner, 874-5648; michelinim@saccounty.net*

PROJECT DESCRIPTION

PLNP2014-00201. Aspen VIII and IX Mining Use Permit, Community Plan Amendment and Rezone, Reclamation Plan, and Development Agreement. Request for a Use Permit to allow surface mining on approximately 353 acres of a 683-acre project site, a Use Permit to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant, a Rezone to add the Surface Mining Combining Zone to 682 aces of IR, AG-80, and AG-160 land (Note: the acreage to be rezoned (682) is 1 acre less than the 683-acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone), a Reclamation Plan to include open space grassland as the end use of the mine, and a Development Agreement between the application and the County of Sacramento. The subject property is currently zoned IR (Industrial Reserve) F (Flood Combing Zone), AG-80 (Agriculture zone) F (Flood Combing Zone), and AG-160 (Agriculture zone) F (Flood Combing Zone). The property is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community. APN: 063-0180-005, 063-0180-006, and 063-0160-001 (Aspen VIII); 066-0020-006, 066-0030-001, and 066-0050-003 (Aspen IX), and 063-0190-027 (Conveyor extension to Aspen V South) 063-0040-067, 063-0040-018, 063-0040-034, 063-0040,016, 063-0040-030, 063-0190-029, 063-0190-028, 063-0190-015, 063-0190-014, 063-0030-016, 063-0030-017, 063-0060-048, 063-0060-037, 063-0060-032, 063-0060-050, 063-0060-040, 063-0052-018, 063-0013-017, 063-0013-012, 063-0012-012, 063-0012-007, 063-0012-011, 063-0012-017, 063-0014-002, and 078-0201-008 (Existing conveyors currently being utilized on other parcels): Environmental Document: Draft Environmental Impact Report. Supervisor District 5: Don Nottoli

APPLICANT:

Teichert Materials
3500 American River Drive
Sacramento, CA 95864
Attention: John Lane

ENGINEER:

Cunningham Engineering
2940 Spafford Street, Suite 200
Davis, CA 95618
Attention: Steve Greenfield

OWNER:

Teichert Land Company and
Triangle Properties
3500 American River Drive
Sacramento, CA 95684
Attention: Ron Gatto

DETAILED REQUEST:

1. A **Use Permit** to allow surface mining on approximately 353 acres of a 683-acre project site.
2. A **Use Permit** to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.
3. A **Community Plan Amendment and Rezone** to add the Surface Mining Combining Zone (SM) to 682 acres of IR (*Industrial Reserve*), AG-80 (*Agricultural*), AG-80(F) (*Flood Combining*), AG-160 and AG-160(F) land. Note: the acreage to be rezoned (682) is 1 acre less than the 683-acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.
4. A **Reclamation Plan** to include open space grassland uses as the end use of the mine.
5. **Adopt** an ordinance amending the Zoning Code to incorporate a **Development Agreement** between A. Teichert and Son, Inc., Teichert Land Company and the County of Sacramento.
6. **Adopt** a **Resolution** to authorize the Director of Community Development to execute the Development Agreement between A. Teichert and Son, Incorporated, Teichert Land Company and the County of Sacramento.

Overview:
The proposed project consists of two separate mining pits, Aspen VIII and Aspen IX. Aspen VIII's mine pit is approximately 255 acres in size while Aspen IX's covers approximately 98 acres. The project site is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community.

Summary of Key Issues:
Key issues for this project are air quality and aesthetics impacts. A Draft Environmental Impact Report (attached to this staff report) was prepared and concluded that aesthetics (changing the landform) and air quality (No_x) issues were significant and unavoidable.

CPAC Recommendation:
The Vineyard Community Planning Advisory Council (CPAC) met on April 5, 2016 and recommended **APPROVAL** (5 - 0) of the proposed project. The Cordova Community Planning Advisory Council (CPAC) met on May 19, 2016 and heard a presentation about the proposed project as part of information sharing for the project.

Hearing Body:
The Board of Supervisors will hear this project, after a recommendation from the Planning Commission.

Recommendations:
Staff recommends **APPROVAL** of the proposed project.

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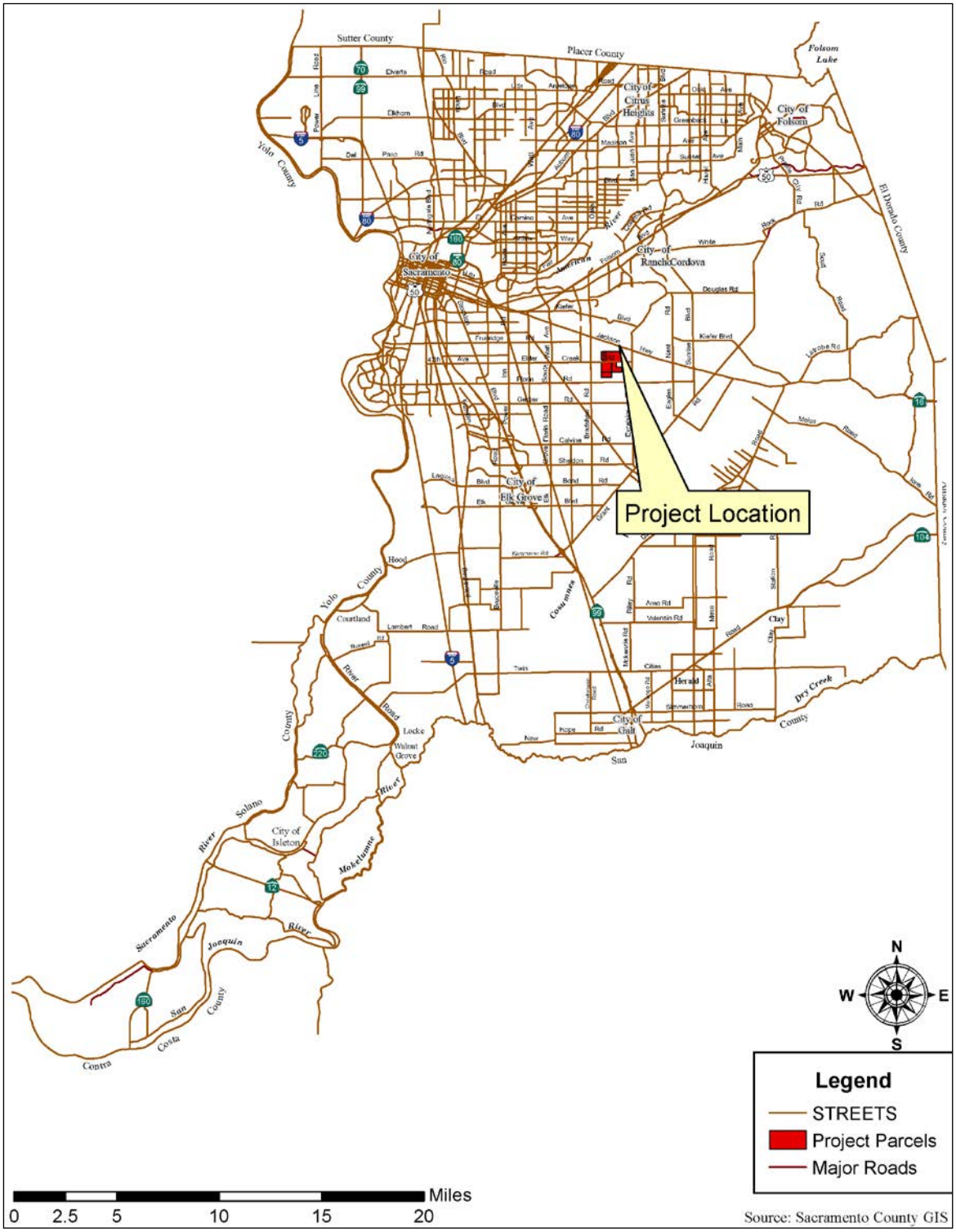
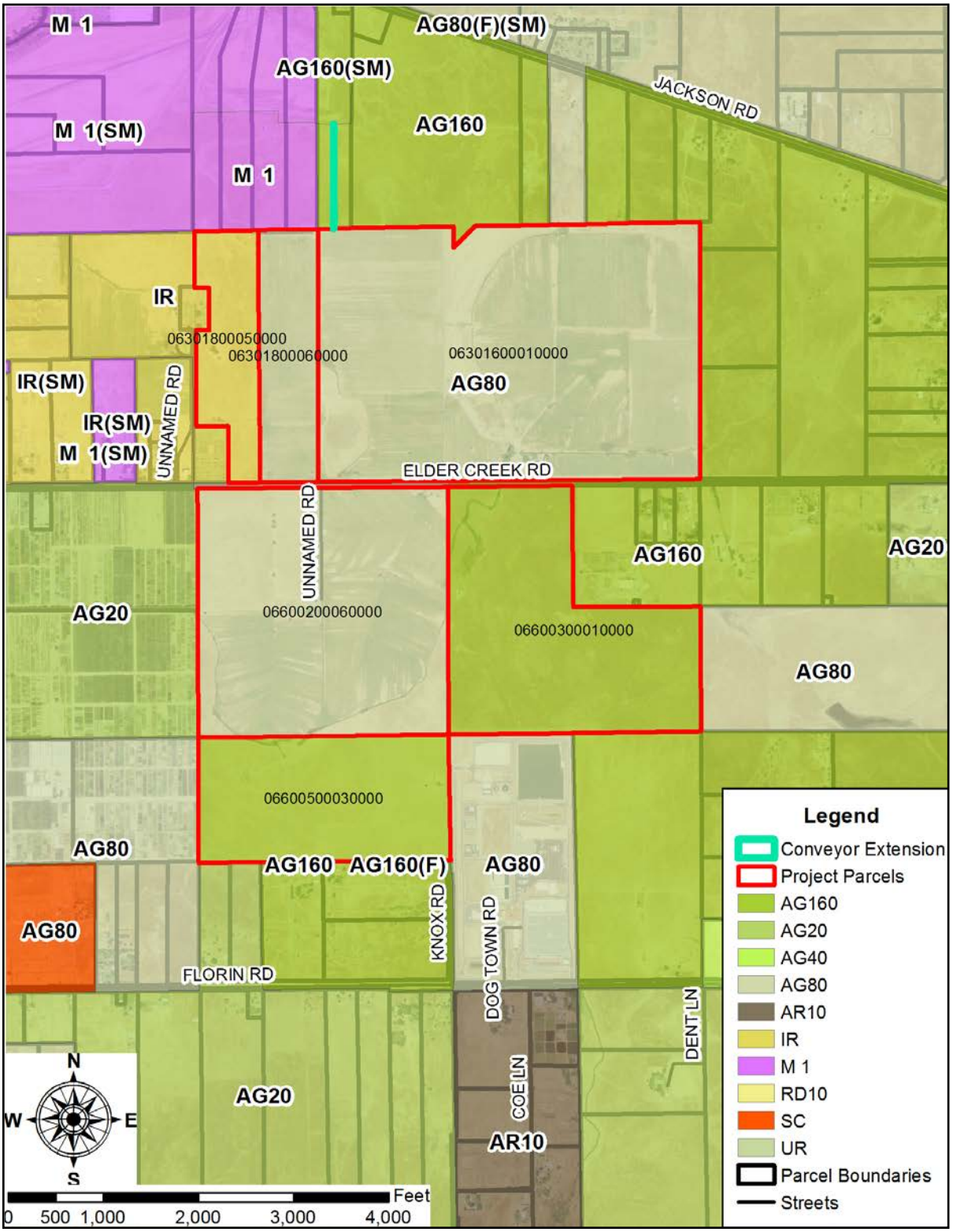
I. LOCATION MAP



Zoning Map


M 1
AG80(F)(SM)
AG160(SM)
JACKSON RD
M 1(SM)
AG160
M 1
IR
06301800050000
06301800060000
06301600010000
IR(SM)
UNNAMED RD
AG80
IR(SM)
M 1(SM)
ELDER CREEK RD
UNNAMED RD
AG160
AG20
AG20
06600200060000
06600300010000
AG80
06600500030000
AG80
AG160
AG160(F)
AG80
KNOX RD
DOG TOWN RD
AG80
FLORIN RD
DENT LN
COE LN
AG20
AR10
N
W
E
S
Feet
0 500 1,000 2,000 3,000 4,000
Legend
Conveyor Extension
Project Parcels
AG160
AG20
AG40
AG80
AR10
IR
M 1
RD10
SC
UR
Parcel Boundaries
Streets

II. PROJECT ANALYSIS

A. Adjacent Land Uses and Zoning:

	Existing Land Use	Zoning and Community Plan Designations
Subject Property	Agricultural Uses with Residential	IR, AG-80(F), AG-160(F)
North	Agricultural Uses with Residential	AG-160(SM), M-1(SM)
South	Agricultural Uses	AG-80, AG-160
East	Agricultural Uses with Residential	AG-80, AG-160(F)
West	Agricultural Uses	IR(F), AG-20(F), AG-80

B. History/Background: County records indicate that parcel 063-0180-005 was zoned A-1-C. The site was rezoned to A-2 per ordinance number 1111 and then on June 12, 1985, as part of the Vineyard Zoning Consistency, was rezoned to its current IR zoning. Parcel 063-0180-006 was rezoned from AG-20 to its current AG-80 in 1976. Parcel 063-0160-001 was rezoned from A-20 to AG-20 on January 27, 1965 and on May 27, 1970 the site was rezoned to its current AG-80 zoning. Parcel 066-0020-006 was rezoned form A-1-C to AG-20, then on May 21, 1969 the site was rezoned to AG-80 and finally on February 28, 1980 the site was rezoned to its current AG-80(F) zoning. Parcel 066-0030-001 and 066-0050-003 were rezoned form A-1-C to AG-20, then on May 8, 1979 the Flood (F) combining zoned was added and finally on February 28, 1980 the parcels were rezoned to their current AG-160 (F) zoning. Parcel 063-0190-027 was rezoned to its current AG-160 on February 28, 1980.

Sacramento County Zoning Code Section 3.2.5, Table 3.1, Industrial Uses, A, 3, 3.8.1.C contains the requirements for surface mining. Use standard 3.8.1.C states, "Surface mining operations shall be regulated by the Surface Mining Combining Zone pursuant to Section 4.8". Use standard 3.8.1.C further states that, "Conveyor systems may be extended off of the mine site if approved as part of a mining use permit and reclamation plan".

Zoning Code Section 4.8 is the Surface Mining (SM) Combining Zoning District. Zoning Code Section 4.8.4.A allows surface mining combining zone to be combined with Agricultural and Industrial Reserve zoned land. Furthermore, mining operations are permitted in the Surface Mining Combing Zone subject to approval by the Board of Supervisors after recommendation for the Planning Commission and upon approval of a reclamation plan and financial assurances pursuant to Chapter 20.40 of the County Code.

C. Project Description: The applicant is requesting a use permit to allow surface mining on approximately 353 acres of a 683-acre project area, a use permit to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site

processing plant, a Rezone to add the Surface Mining Combining Zone to 682 acres of IR, AG-80, AG-80 (F), AG-160, and AG-160 (F) land (Note: the rezone does not include the parcel (063-0190-027) with the conveyor extension), a Reclamation Plan to have open space grassland as the end use of the mine, and a Development Agreement between the applicant and the County of Sacramento.

The project area is 683 acres in size and there will be two mining pits, Aspen VIII and Aspen IX. Aspen VIII is located north of Elder Creek Road and Aspen IX is located south of Elder Creek Road. Mining will be done in three phases; the first two phases will be conducted on the Aspen VIII site and the third phase will be on the Aspen IX site. The first phase of mining is approximately 133 acres and the second phase is 122 acres thus the total area proposed for excavation on Aspen VIII is approximately 255 acres. The third phase will take place on Aspen IX and is approximately 98 acres.

Aspen VIII's total area is approximately 319 acres and the mine pit for Aspen VIII will be approximately 255 acres. Aspen IX's total area is 363 acres and the mine pit for Aspen IX will be approximately 98 acres. The applicant is proposing to mine sand and gravel (aggregate material) by removing the aggregate material and conveying via an electric conveyor system to an off-site processing plant. After mining is completed, the site will be reclaimed to open space grassland uses per the approved reclamation plan.

Mining will start on the Aspen VIII portion of the project site and will progress south toward Aspen IX. The applicant proposes a 15 year timetable to complete the mining with a mining termination date of December 31, 2031. Two additional years are included for reclamation of the site to open space grassland. Mining activities include: removal of topsoil, removal of overburden, removal of aggregate materials by means of scrapers, loaders, dozers and excavators, transport of material to processing plant via electrical conveyor system, and reclamation to open space grassland.

The material mined from the site will be transported via an electric conveyor belt to Teichert's Perkins processing plant located approximately four miles to the northwest. The conveyor will exit the Aspen VIII site near the northwest corner of the site and will extend into Aspen V South (063-0190-027) where it will be tied into the existing electric conveyor system. The existing conveyor system is located on other mining sites; some of the mining sites have been closed out and reclaimed while others are active mines. The use permit requested will allow the conveyor system to be used at the project site and on the other mining sites. The reclamation obligation for the entire conveyor system will be transferred to this project, the Aspen VIII and IX Mining Use Permit as part of the approved reclamation plan. The reclamation plan will require the entire conveyor system to be removed and the area where it was located shall be re-vegetated in accordance with the approved reclamation Plan. A condition in this staff report lists all the APNs where the conveyor system is located

upon. As the mining progresses southward, a conveyor tunnel will be constructed underneath Elder Creek Road to transport aggregate material mined from Aspen IX (south of Elder Creek Road). Once mining operations are completed, the conveyor will be removed and reclaimed in accordance with the approved reclamation plan.

The applicant is proposing to install native landscaping along Elder Creek Road. Electric transmission towers are located along the western half of the Elder Creek Road's northern side. The native landscaping that is to be installed under these transmission towers will be limited in height to 15 feet tall.

Aggregate mining operations will commence with the removal of approximately five to ten feet of topsoil/clay/silt overburden that overlies the sand and gravel. The topsoil and other overburden will be used for reclamation. Topsoil that cannot be utilized immediately for reclamation will be stockpiled and re-vegetated on site. The applicant is requesting authorization to haul a maximum of 500,000 cubic yards of this overburden material from the Aspen VIII site via internal haul roads to the Aspen V South mine directly north. The overburden haul route is approximately a two mile round trip and does not utilize the County roadway system. There will be no overburden material removed from Aspen IX and all material will be utilized in reclamation.

With the topsoil and overburden removed, the sand and gravel are exposed and extraction of the aggregate resources will begin. Aspen VIII will be mined first and mining will then generally proceed south onto Aspen IX. The Aggregate deposit, which may vary in thickness from 20 to 35 feet, will be mined with a variety of heavy equipment (loader, bulldozer, scraper, and excavator). The depth of mining will depend upon the location, quality and quantity of aggregate reserves present. According to the reclamation plan, the anticipated maximum final depths of any location on the project site will not exceed 60 feet below ground surface; typical final depths are anticipated to be 30 to 50 feet below ground surface. The applicant estimates there are approximately 15-23 million tons of aggregate material within the project site and proposes to mine between 1 and 3 million tons of material per year depending on market conditions at the time of mining.

<u>Reclamation Plan</u>: The Surface Mining and Reclamation Act (SMARA) require that all mines have a reclamation plan for the end use. Reclamation refers to the restoration of a mined site to a useable end use. For this project, the end use will be open space grassland. The mined area including the conveyors will be reclaimed for open space grassland. The salvage topsoil will be used in reclamation to provide a suitable growing medium on the pit floors. Side slops of the mining pits will be grade to 2H 1V (2 units of horizontal to 1 unit of vertical).

The applicant is requesting the ability to use drying beds as part of the reclamation process for the site. "Drying beds" involve the distribution of a silt-like material obtained from washing aggregate at its Aspen IV prewash facility (property located west of the project site) and spreading the silt-like material along the pit floor in order

to raise the grade/elevation of the pit floor. County staff has approved an amendment to Aspen IV that allowed this mine to use the drying bed method as a component of the reclamation plan.

Setbacks: Currently there are three residences on the project site. One residence is located on the Aspen VIII parcel, 063-0160-001 (10151 Elder Creek Road); this residence will not be removed and is currently occupied. Some of the agricultural out buildings associated with this home will be removed. Aspen IX has the other two existing residences located on parcel 066-0020-006 (9990 Elder Creek Road). Both of these residences will be removed as part of this project. Furthermore, the electrical transmission lines and towers will also remain on the project site.

On the Aspen VIII portion of the project site, the electrical transmission towers will be setback 100 feet from the mining pit face. The one home to remain (10151 Elder Creek Road) will be setback over 250 feet from the mine pit face to the north. The southern setback from the home along Elder Creek Road is 25 feet. To the west the mine face is setback from the home at least 400 feet, and to the east of the home there is no mining proposed.

The Aspen VIII mine pit is setback 10 feet from the north, east, and west property lines. It is also setback 250 feet from any wetlands. The southern setback along Elder Creek Road will be 25 feet and include a landscaped area. On the eastern side of the project site, along Elder Creek Road and Elder Creek, the setback will be 150 feet to the creek or 30 feet to the 200 year flood limit whichever is greater. There will be a 25-foot landscaped area along Elder Creek Road.

On Aspen IX, the electrical transmission towers along Elder Creek road will be setback 100 feet from the mining pit face. North along Elder Creek Road, the setback will be 25 feet and include a 25-foot landscaped area. The setback to the mine pit face along the eastern side of the site will be 10 feet from the property line. The setbacks to the mine pit face along the west and south side will be 250 feet from any wetlands.

Access: The applicant is not proposing to haul overburden or other materials on the County roadway system. In other words, there will be no haul trucks using either access driveway. The access driveways are intended for mine employees or other visitors to access the site. The access driveway to Aspen VIII will be created along Elder Creek Road approximately 1,200 feet west of the existing home. The driveway will be 12 feet wide and approximately 1,000 feet in length. The vehicles that are exiting Aspen VIII will first roll across a 10-foot long rumble strip area that contains approximately seven metal rumble strips. Next there is a 50-foot long gravel exit area. These are intended to remove the mud and dirt off the truck tires and undercarriage. These sweeping turns are intended to remove the mud and dirt out of the groves of the tires.

Aspen IX will be accessed via a driveway directly across from Aspen VIII's entrance driveway; this driveway will not have the same features as the entrance for Aspen VIII. The aggregate materials will be conveyed off of Aspen IX via an electric conveyor system. The applicant will create a tunnel under Elder Creek Road for the conveyor system to pass through. The new tunnel will be approximately 225 feet east of the existing access road located at 9990 Elder Creek Road (APN 066-0020-006).

Elder Creek Culvert: The applicant will install a replacement culvert under Elder Creek Road that will aid drainage. The applicant proposes to redesign and replace the existing culvert with a larger concrete box culvert to allow for up to a 200-year storm flow to pass completely under Elder Creek Road. The installation of the new culvert will assist in preventing water from flowing into the proposed mining pits.

D. Consistency with General Plan: As stated within the County's General Plan:

"The General Plan contains a set of goals, policies and programs that address important community issues such as housing and transportation needs, economic development, public safety, natural resources protection, sewer and water infrastructure, roadways, schools, and parks. It is the basis for land use and public policy decisions made by the Board of Supervisors and other policy makers. As a long-term guide for future growth, the plan helps both County leaders and residents make decisions about the location size, and quality of new development, the improvement of existing neighborhoods and commercial areas, the revitalization of commercial corridors, the extension and upgrade of utilities and infrastructure, and the future of the County's parks, public spaces, and natural areas. It also provides the foundation for other planning documents, public works projects and zoning decisions – all of which must be consistent with the General Plan."

The following table provides a General Plan consistency analysis for the proposed Aspen VIII and IX mining project.

Key Policy	Consistency
AG-5 Projects resulting in the conversion of more than 50 acres farmland shall be mitigated within Sacramento County, except as specified in the paragraph below, based on a 1:1 ratio, for the loss of the following farmland categories through the specific planning process or individual project entitlement requests to provide in-kind or similar resources value protection (such as easements for agricultural purposes): • Prime, statewide importance, unique, local importance, and grazing farmlands located outside the USB;	Yes. The project is over the 50-acre threshold. Mitigation measures are recommended based on a 1 to 1 ratio. See Section E, Agricultural Resources for an expanded discussion.

Key Policy	Consistency
• Prime statewide importance, unique and local importance farmlands located inside the USB. The Board of Supervisors retains the authority to override impacts to Unique, Local, and Grazing farmlands, but not with respect to Prime and Statewide farmlands.	
NO-2 Proposals for new development within Sacramento County which may be affected by aircraft noise shall be evaluated relative to Table 4: *Land Use Compatibility for Aircraft Noise*	Yes. The project's noise was evaluated relative to Table 4. It was determined that the impacts are less than significant.
NO-6 Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise standards of Table 2 at existing noise-sensitive areas in the project vicinity.	Yes. The project's noise will exceed the exterior noise standards for the resident of 9895 Elder Creek Road. Mitigation measures are recommended to lessen the impact.
CO-39 Surface mining operations shall be subject to appropriate mitigation measures and shall avoid creating any significant nuisances, hazards, and adverse environmental impacts, unless the Board of Supervisors makes the findings to override as required by CEQ Guidelines Section 15091.	Yes. Mitigation measures are included.
CO-40 Extractive uses and associated processing uses and facilities shall maintain adequate minimum setbacks to protect adjoining land uses.	Yes. The project area is set back at least 10 feet from adjacent property lines and at least 25 feet from adjacent to right-of-ways. The setbacks are consistent with the Zoning Code requirements.
CO-41 Surface mining shall not be allowed without adequate plans for reclamation of mined areas. Reclamation plans should be based on a plan for post-mining land use that is consistent with the land use strategies of the General Plan.	Yes. A Reclamation Plan has been proposed and is consistent with Zoning Code and General Plan requirements.

Key Policy	Consistency
CO-57 In areas where topsoil mining is permitted, it shall be done so as to maintain the long-term productivity of the soil.	Yes. The topsoil will be salvaged for reclaiming the site to open space grassland.

The proposed project does not conflict with the General Plan Polices above. The project site is setback in accordance with Sacramento County Zoning Code standards. The mine has a Reclamation Plan that salvages the topsoil and utilizes it for reclaiming the land to open space grassland. Additionally, the project is consistent with the requirements of the Surface Mining and Reclamation Act and County Code related to mining.

E. Environmental Analysis: The project was reviewed using the California Environmental Quality Act (CEQA) statue and guidelines. The Draft Environmental Impact Report (DEIR) analyzed the project's environmental impacts for a variety of topics such as air quality and noise impacts. Below is a basic overview of the project's environmental impacts; the full DEIR can be found attached to this staff report. The DEIR contains topical chapters that analyze a variety of impacts. The DEIR also contains the technical studies and models used in determining the project's impacts.

Significant and Unavoidable Impacts: The implementation of the project would result in NO_x emissions over the thresholds established by the Sacramento Metropolitan Air Quality Management District (SMAQMD). NO_x is the combined emissions of nitric oxide and nitrogen dioxide and is a brownish highly reactive gas. Combustion devises such as heavy equipment, emit primary nitric oxide (NO), which reacts through oxidation in the atmosphere to form nitrogen dioxide (NO_2). The heavy equipment used at the mine site is the major source of the NO_x emissions. The DEIR recommended feasible mitigation to reduce the NO_x emissions to a less than significant level; unfortunately the mitigation does not reduce the impact to less than significant. Therefore, the project's impacts associated with NO_x emissions are significant and unavoidable.

The project's aesthetic impacts were also analyzed as part of the CEQA process. The project will excavate a large pit to extract aggregate material. The large pit is a significant impact because it is an irreversible change to the landform of the project site. Mitigation measures such as landscaping that help screen the project are included in the DEIR but even with mitigation the impacts are deemed significant and unavoidable.

Mitigated Impacts: The CEQA analysis for the project also concluded that agricultural resources, public services, transportation, air quality, noise, hydrology, geology, biological resources, cultural resources, and hazardous materials have

potentially significant or significant impacts that can be reduced to less than significant with mitigation.

Agricultural Resources: The agricultural resources chapter of the DEIR indicates that the project will convert farmland to a mining use. The project will convert 39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of farmland of local importance. This totals 355 acres of farmland impacted by the project's implementation. The converted farmland is required by General Plan Policy AG-5 to mitigate for the converted farmland at a 1:1 basis. Mitigation has been added to the DEIR that will reduce the conversion of farmland impacts to less than significant.

Public Services: The DEIR indicates that the project will result in impacts to public services but with mitigation the impacts are less than significant. The proposed project site is in the Southgate Recreation and Park District (Southgate) service area. The Southgate master trails plan includes a multi-use trail located on the project parcels along Elder Creek. The project's mining pit has the potential to limit the opportunities for placement of the trail at-grade. Therefore, as a precaution, mitigation has been added requiring a 20-foot wide easement for the multi-use trail along Elder Creek.

Transportation: The transportation chapter of the DEIR indicates that the project will not result in significant impacts to transportation or traffic. The project applicant proposes to haul a maximum of 500,000 cubic yards of overburden via internal access roads to the mine (Aspen V) located directly north of Aspen VIII. Since the haul trips are not utilizing the county roadway system the impacts to the county roadway system will be minimal.

Furthermore, the Circulation Element of the General Plan includes a Transportation Plan that has the Knox/Vineyard Road running through the project site in a north south direction. The Knox/Vineyard Road is designated as an arterial with four lanes, post 2030. Similar to the impacts for the placement of the multi-use trail, the proposed project's two large mining pits could limit the County's ability to place the future roadway consistent with the County's Transportation Plan. Therefore, mitigation is recommended to ensure that the roadway easement is in place prior to on-site excavation and that the Sacramento County Department of Transportation (SacDOT) has the flexibility to modify the future roadway as needed to achieve their transportation goals.

Air Quality Issues: As noted above, the NO_x emissions are a significant and unavoidable impact. The air quality chapter of the DEIR also indicates that the project will result in impacts to ROG and particulate matter (PM). ROG emissions are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. The majority of the ROG impacts associated with the project are from the heavy equipment used to excavate the site. Mitigation measures are

included in the DEIR and this mitigation will reduce the ROG emission to less than significant. Additionally, the DIER indicates there are PM impacts from the proposed project. PM emissions are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. The project's PM emissions where analyzed and the impacts where determined to be a significant impact. Mitigation has been added to reduce the PM impacts to less than significant.

Noise Issues: The project's noise impacts have been determined to be in excess of the County's outside noise level standards and ambient noise in excess of standards. The heavy equipment utilized for the mining operation has the greatest potential for noise impacts. The noise impacts that exceed the County's outside noise levels are near the residence to the west of the proposed Aspen VIII mining pit at 9895 Elder Creek Road (063-0180-022). The applicant has worked with this resident on mitigation measures that will lessen the impacts to less than significant. The project will also exceed the ambient noise level standards. The ambient noise levels will increase due to the use of heavy equipment at the mining site. Mitigation that prohibits the amount of heavy equipment that can be used near the perimeter of the mine has been included in the DEIR. The mitigation will reduce the ambient noise levels to less than significant.

Hydrology Issues: The DEIR indicates the project may have impacts associated with altering the existing drainage pattern. The model to determine if there are hydrologic impacts from the project being implemented is in the process of being evaluated by the Sacramento County Department of Water Resources (DWR). The DWR 2016 model indicates increased water surface elevations in Elder Creek downstream of the project site and this would be a potential hydrologic impact. DWR found that the water surface elevation increases by more than 0.1 feet downstream of Bradshaw Road and there are increases ranging up to 0.17 feet between Bradshaw Road and the western project boundary. DWR staff noted, however, that the model is in flux and that variable results can be expected until the model is finalized.

Based on the analysis, the proposed project could substantially alter the existing drainage patterns of the project area. Thus, the drainage and flooding impacts are potentially significant. Mitigation measures are included in DEIR to reduce the impacts to less than significant.

Geology: The DEIR indicates that the project will result in impacts to slope stability, topsoil erosion, and paleontological resources. The project will excavate the site to create two mining pits and part of the reclamation plan has the side slopes being stable and vegetated. The engineering consultant provided specific mitigation measures that will lessen the impacts to the side slopes to less than significant.

The topsoil will be removed from the site prior to mining. When the mining operation is complete, the site will be reclaimed as open space grassland using the

topsoil from the site that has been salvaged and maintained for reclamation. The potential for the topsoil to get mixed up with overburden or otherwise eroded is a significant issue because the topsoil is the growth media of the soil. Furthermore, if the topsoil stockpile is not properly maintained, the topsoil has the potential to blow away with the wind or run off in a rain event. The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil handling measures in that plan are therefore recommended to mitigate this potentially significant impact.

Paleontological Resources: The area is not known to contain paleontological resources (fossil remains). However, the project excavation creates the possibility for unanticipated discoveries. Therefore, standard mitigation been added to the DEIR.

Biological Resource Issues: The DEIR indicates that the project will result in biological resources impacts to special status species, wetlands and Waters of the U.S., and trees but with mitigation included in the DEIR the impacts are considered less than significant.

Special Status Species: The implementation of the project would result in temporary, direct, and/or indirect impacts on a number of special-status plant and animal species and their habitats. Mitigation will reduce the impacts to less than significant.

- Sanford's Arrowhead: Sanford's arrowhead is a plant that was identified at the site through protocol-level rare plant surveys performed in 2014.
- Vernal Pool Invertebrates: The andrenid bee, vernal pool fairy shrimp, mid-valley fairy shrimp, hairy water flea, Rickesecker's hydrochara, vernal pool tadpole shrimp, and California linderiella occur in or utilize seasonally inundated depressions such as vernal pools, seasonal wetlands, and seasonal wetland swale.
- Western Spadefoot: The western spadefoot is a frog and it has an irregular and localized distribution in Sacramento County. The western spadefoot is known from similar habitats less than four miles away from the project site at the Mather Field Vernal Pool Complex.
- Western Pond Turtle: The western pond turtle is a reptile that typically occurs in natural or semi-natural still or slow-moving aquatic sites. The western pond turtle sometimes appears in ponds, marshes, and slow-moving perennial drainages where there is water, basking sites, and food.
- White Tailed Kite or Swainson's Hawk: White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the project area. Though there is no evidence to suggest that either of these species have nested within the project site, it is possible that nests could be sited in the larger trees on and adjacent to the site.

- Northern Harrier: Northern harrier is a bird that is known to nest in grassland, weedy fields, and emergent marshes. The northern harrier most likely nests in Sacramento County given the sittings observed during the peak nesting season and may nest at the project site in taller, denser grasses.
- Nesting Raptors**:** Common raptors (i.e., species not designated as special-status species) that are known to nest near the project site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the project area, but some individuals especially red-tailed hawk and great-horned owl may occasionally nest in "stand alone" trees.
- Burrowing Owls: The burrowing owl has not been documented within the project site. Nonetheless, potentially suitable nesting and roosting habitat for burrowing owl is provided by California ground squirrel burrows that are located throughout the project site and the species is known from other locations to be in the project vicinity. As such, the species could occur on the project site.
- Nesting Birds Migratory Bird Act: Other nesting birds have not been documented within the project site, but are expected at the site. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Wildlife Code (particularly while nesting). Some of these species would nest in the on-site woody vegetation such as trees and shrubs, but other species would nest on or near the ground on mostly the non-irrigated, annual grassland.
- White-Tailed Kite and Swainson's Hawk Foraging Habitat: White-tailed kite and Swainson's hawk are both known to nest in the vicinity of the project site. Foraging habitat associated with nearby nest territories for these species may include the project site.
- Merlin and Ferruginous Hawk: Merlins and ferruginous hawks are known to winter throughout the Central Valley in small numbers including in the vicinity of the project area.
- Loggerhead Shrike**:** The Loggerhead shrike has not been documented nesting within the project site but it has been documented at nearby locations in Sacramento County during the nesting season.
- Yellow Billed Magpie**:** Yellow-billed magpie has not been documented nesting or communally roosting within the project site. However, it has been documented at many locations throughout Sacramento County (as close as one mile from the project site).

- Tricolored Black Bird: Tricolored blackbird nests as a colonial species at scattered locations throughout Sacramento County where there is suitable nesting habitat such as stands of cattail, tule, willow, California blackberry, Himalayan berry, wild rose, grain fields, milk thistle, stinging nettle, etc., that provide protection from nest predators adjacent to large open expanses of non-irrigated, annual grassland; irrigated pasture/hay; or alfalfa that support large numbers of prey species (e.g., grasshopper, butterfly larvae, etc.). The species is known to nest in four small Himalayan blackberry stands in the central and southeastern portions of Aspen VIII on the project site.

Wetlands and Waters of the U.S.: The DEIR analysis indicted that the project site has a total of 27.796 acres of jurisdictional wetlands and Waters of the U.S. The project when implemented will result in the loss 5.373 acres of wetlands, including vernal pool, seasonal wetland, seasonal swale, freshwater march, perennial stream, ephemeral stream, pond and ditch wetland habitats. These wetlands will be excavated for aggregate materials and therefore lost as wetlands. Mitigation has been included in the DEIR that gives the applicant options for mitigating for the loss of wetlands and with mitigation the impacts are less than significant.

Trees: The project site contains a total of 102 trees representing 17 species that could be affected by the proposed mining operation. There are three valley oaks and nine California black walnut trees that are of sufficient size to be protected by the Sacramento County Tree Ordinance. These trees will be removed as part of the project. The total diameter at breast height (dbh) for the oak trees is 23 inches and 157 inches for the California black walnut trees.

In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. Therefore, approximately 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. Impacts to native trees (valley oak and California black walnut) and tree canopy are considered to be significant. Mitigation measures are included to reduce the impacts to less than significant.

Cultural Resources Issues: The area is not known to contain cultural resources. However, the DEIR indicates that the project has the potential for impacts associated with cultural resources that are similar to the paleontological impacts discussed above. The project's excavation creates the possibility for unanticipated discoveries. Therefore, standard mitigation for cultural discoveries has been added to the DEIR.

Hazardous Materials: The DEIR indicated that the project may result in impacts associated with storage or disposal of hazardous materials. The project's mining operation will excavate aggregate materials from the site using heavy equipment such as scrapers and loaders. The heavy equipment will be serviced by mobile maintenance trucks and fuel trucks as needed. The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has

indicted no storage or disposal of hazardous materials will occur at the project site. Mitigation measures are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all applicable standards.

F. Community Plan Amendment and Rezone: The applicant is requesting to rezone the project parcels and amend the Vineyard Community Plan. Currently the site is zoned IR (industrial reserve), AG-80, AG-80(F), AG-160, and AG-160(F) and the rezone will encompass 682 acres. The project site is 683 acres which is 1 acre more than the rezone. This is due to the fact that the parcel for the conveyor extension does not require to be rezoned in order to use the conveyor system. The rezone will add the Surface Mining (SM) Combining Zoning District to the subject parcels. This is in addition to the Zoning Designations; for example the new zoning designation will become AG-80 (F), (SM). This is required by Zoning Code Section 4.8 to protect the mineral resources from incompatible land use; to manage mineral resources; to assure the county of an adequate supply of aggregate resources, and provide for the restoration of mined lands for future use. The project does not conflict with the Vineyard Community Plan and the rezone is consistent with the proposed mining project.

G. Development Agreement: A Development Agreement (DA) is a formal agreement between a developer and a local jurisdiction, and is intended as a planning tool utilized for large complex projects to provide security for the developer in an uncertain economy. The DA is also beyond the realm of what is considered "CEQA mitigation" in this case. Development Agreements approved for the Teichert Quarry and Stoneridge Quarry include provisions for Net Gains and Dedications. These dedications are in the form of payments to the County in the amount of $400,000 for each quarry. These funds are to be used for open space and community support. The Teichert Quarry funding will be used for the American River Foundation. Furthermore, the DA's for the quarries have a Truck Management Plan Participation component. This plan will provide for traffic solution and financing associated with routing quarry trucks so as to maintain the quality of life in the cities of Folsom and Rancho Cordova.

The DA for Aspen VIII and IX does not have the same component in the Net Gains and Dedications as the other two DA's for the quarries. The Aspen VIII and IX mine will only be in operation for 15 years which is less than the Teichert Quarry (25 years) and substantially less time than the Stoneridge Quarry (100 years). Moreover, the Aspen VIII and IX mine will excavate far less aggregate materials than the quarries. The quarries also have processing plants associated with the operations but Aspen VIII and IX does not have an on-site processing plant. The processing plant for Aspen VIII and IX is located off-site to the west at Teichert's Perkins processing plant. Therefore, the Aspen VIII and IX mine does not have an initial funding requirement because the amount of aggregate proposed is much less than the quarries and the length of time the mine is in operation is also less.

The quarry DAs and the Aspen VIII and IX DA also differ in the Truck Management Plan Participation requirement. The quarries will make use of trucks to transport the aggregate materials on county roadways. The DA for the quarries has a provision in the Truck Management Plan Participation Section of the DA that requires the owner of the quarries to participate in a Truck Management Plan when it is adopted. Aspen VIII and IX does not include the use of haul trucks on the county roadway system. Therefore the DA for Aspen VIII and IX does not have the Truck Management Plan Participation component.

The DA's for all the mines have the same Cents per Ton Funding Section. The Cent per Ton Funding Section states that the mining operators pay a cent per ton fee pursuant to the table in the DA. These funds shall be paid for each ton of aggregate material sold by the mining operator. This Cents per Ton Fee is the same for all three DA's.

All the DA's have a section for the Use of Cents per Ton Funding. This section differs with each DA and mine. For example, the Stoneridge Quarry DA requires 25 percent of the cents per ton funding to be used within the Consumes Community and the Teichert Quarry has 10 percent of the cents per ton funding to be used within the Cosumnes Community. The Aspen VIII and IX DA states the cents per ton funds shall be forwarded by the applicant to a non-profit foundation for the purpose of furthering open space and connectivity projects and programs throughout the County. Furthermore, within 12 months of the approval of this DA, the County and the applicant shall determine an appropriate non-profit foundation to administer the funds and develop a process for how such funds shall be distributed to projects and programs. The non-profit foundation and implementation process shall be reviewed and adopted by the Board of Supervisors after a public meeting.

H. Community Outreach: It is Sacramento County policy to encourage applicants to conduct community outreach for projects prior to or concurrent with the filing of a planning application, and to provide a written description of the outreach.

Through the entitlement process, surrounding property owners within 500 feet of the project parcel are notified of all public hearings. Additionally, a Notice of Preparation scoping meeting was held on February 17, 2015. The applicant met with citizens who have an interest in the project. For example the applicant met with the residence of the home (9895 Elder Creek Road; APN: 063-0180-022) that will be closest to the mining pit and worked out a way to screen the home from the mining pit; the agreement was mutually agreed upon.

Furthermore, the project was heard on April 5, 2016 by the Vineyard Community Planning Advisory Committee (CPAC), which recommended unanimous approval (5-0) of the proposed project. The project was also presented for information sharing on May 19, 2016 at the Cordova Community Planning Advisory Committee (CPAC).

III. STAFF RECOMMENDATIONS

The request is consistent with the County General Plan, the Vineyard Community Map, and the Sacramento County Zoning Code. The proposed project is compatible with surrounding land uses and the project site will be reclaimed to open space grassland. The project is set back from adjacent parcels in accordance with Sacramento County Zoning Code standards. The mine has a reclamation plan that salvages the topsoil and utilizes it for reclamation. Additionally, the project is consistent with the requirements of the Surface Mining and Reclamation Act and County Code related to mining. Finally, the proposed project will provide needed aggregate material to Sacramento County. For these reasons, staff recommends **APPROVAL** of this proposal.

A. Recommended Planning Commission Actions: These actions are recommendations to the Board of Supervisors:

1. A Use Permit: **APPROVE** the requested Use Permit for Aspen VIII and IX Mine as requested, subject to the findings listed in Section III.B and the conditions listed in Section III.C of this report.

2. Reclamation Plan: **APPROVE** the requested Reclamation Plan for the Aspen VIII and IX Mine as requested, subject to the findings listed in Section III.B and the conditions listed in Section III.C of this report

3. A Use Permit: **APPROVE** the requested Use Permit for a conveyor system to transport the mined materials as requested, subject to the findings listed in Section III.B and the conditions listed in Section III.C of this report.

4. Community Plan Amendment and Rezone: **APPROVE** the requested amendment and rezone, subject to the findings listed in Section III.B, and the conditions listed in Section III.C of this report.

5. Environmental Documentation: Determine that the environmental analysis is adequate and complete and that the **DRAFT ENVIRONMENTAL IMPACT REPORT** is appropriate. The report identifies that the project will result in significant and unavoidable impacts to aesthetics visual impacts and air quality NO_x emissions.

6. Mitigation Monitoring and Reporting Program: **ADOPT.**

7. Development Agreement: **ADOPT** an ordinance amending the Zoning Code to incorporate a Development Agreement (provided as Attachment A) between A. Teichert and Son, Inc., Teic41hert Land Company and the County of Sacramento.

8. Resolution: **ADOPT** a Resolution to authorize the Director of Community Development to execute the Development Agreement between A. Teichert and Son, Inc., Teichert Land Company and the County of Sacramento.

B. Recommended Findings: The staff recommendations are based upon the following considerations:

1. The request is consistent with the County General Plan Map and text in that no policy conflicts have been identified.
2. The request is consistent with the Vineyard Community Plan Map.
3. The proposed development conforms to applicable Zoning Code regulations.
4. Identified environmental effects and the suggested mitigation measures have been taken into consideration in the recommended actions and conditions of approval.
5. The proposed project is constant with polices of the Vineyard Community Plan in that the site has been identified to contain significant mineral resources. The manner in which the site is reclaimed will ensure adequate protection and buffering of adjacent land uses.
6. Staff has identified no effects from the proposal which would result in a significant detrimental impact on adjoining or neighboring properties if the conditions, as recommended by staff, are adopted.
7. The proposed project will provide easements for a multi-use trail system that will connect with other trails.
8. The granting of the Use Permit will not, under the circumstances of the particular case, be detrimental to the health, safety, peace, morals, comfort, or general welfare of persons residing or working in the neighborhood of such proposed use or be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County in that:
    a. Noise levels from the mining operations can be adequately controlled at the site boundaries.
    b. There are few residential uses in the area and the adjacent parcels are of sufficient size to allow for appropriate setbacks for residential dwellings.
    c. All applicable Zoning Code standards for aggregate mining will be met.
    d. The project site will be reclaimed to open space grassland.

C. Recommended Conditions: The Use Permit and Reclamation Plan shall be subject to the following conditions:

1. The final development plans shall be in substantial compliance with Exhibit "1" (Reclamation Plan), Exhibit "2" (Rezone), Exhibit "3" (Site Plan C01), Exhibit "4" (Existing Site C02), Exhibit "5" (Aspen VIII Mining Plan C03), Exhibit "6" (Aspen XI Mining Plan C04), Exhibit "7" (Aspen VIII Roadway C05), Exhibit "8" (Aspen IX Roadway C06), Exhibit "9" (Aspen VIII Cross Sections A, B, &, C C07), Exhibit "10" (Aspen VIII Cross Sections D, E, F, &G C08) Exhibit

"11" (Aspen VIII and IX Roadway Profile C09), Exhibit "12" (Aspen IX Cross Section C10), Exhibit "13" (Future Roadway Profile C11), Exhibit "14" (Entrance and Culvert Details C12), and Exhibit "15" (Landscaping and Culvert Details C13). ***(Sacramento County Planning and Environmental Review Division)***

2. This action does not relieve the applicant of the obligation to comply with all ordinances, statutes, regulations and procedures. Any required subsequent procedural actions shall take place within 36 months of the date on which the permit became effective or this action shall automatically be null and void. ***(Sacramento County Planning and Environmental Review Division)***

Mitigation Measures

3. AG-1: Agricultural Farmland Impacts Mitigation Measure

Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted on the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 34 acres of prime farmland, 166 acres of statewide importance farmland, and 54 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions: Statement of purpose, including that the land is to remain in productive agricultural and/or open space use

- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Prior to any work south of Elder Creek Road, grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and

improvements that do not contribute to the agricultural production on the property

- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration ***(Sacramento County Planning and Environmental Review Division)***

4. AE-1: Viewsheds Mitigation Measure

   Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees; valley oak (Quercus lobata) and interior live oak (Quercus wislizenii); and the following shrubs; western redbud (Cercis occidentalis), toyon (Heteromeles arbutifolia), hoary coffeeberry (Rhamnus tomentella), snowdrop bush (Styrax officinalis), and Howard McMinn' manzanita (Arctostaphylus densiflora). The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height.

   Additional berms and landscaping shall be placed to screen the view of the mining pit for the residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and west of Aspen VIII. This shall consist of a berm and landscaping combination to the satisfaction of the Department of Community Development with input from the resident of 9895 Elder Creek Road. ***(Sacramento County Planning and Environmental Review Division)***

5. AE-2: Reducing Impacts Associated with Lighting Mitigation Measure

   Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation. ***(Sacramento County Planning and Environmental Review Division)***

6. PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure

   a. Prior to issuance of Work Authorization Permit, the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek and to the satisfaction of Southgate Recreation and Park District.

   b. Prior to signoff of the reclamation plan the applicant shall install a 20-foot wide suitably compacted base rock foundation for the multi-use trail along

Elder Creek, the grade and slopes of which shall be designed to provide for a safe use and easy entry and exit. The 20-foot wide compacted base rock foundation shall be to the satisfaction of Southgate Recreation and Park District. ***(Sacramento County Planning and Environmental Review Division)***

7. AQ-1.1: Reducing ROG and NOx Mitigation Measure

To mitigate construction-related ozone precursor emissions, the following shall apply:

a. The project shall provide a plan for approval by the District demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet-average 20 percent NOx reduction, 20 percent ROG reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

b. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

c. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

d. To mitigate the additional emissions that cannot be offset through implementation of Mitigation Measure AQ-1.2, above, the following shall apply: Prior to the approval of improvement plans or the issuance of a Work Authorization Permit, the proponent will submit proof that the off-site air quality mitigation fee (estimated as $46,144.00) has been paid to SMAQMD, and that the construction air quality mitigation plan has been approved by SMAQMD and the lead agency. ***(Sacramento County Planning and Environmental Review Division)***

8. AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to reduce PM Emissions Mitigation Measure

- Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including:
- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

UNPAVED ROADS (ENTRAINED ROAD DUST)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance. ***(Sacramento County Planning and Environmental Review Division)***

9. NO-1: Median Noise Levels Mitigation Measure

- One piece of heavy equipment (including but not limited to scrapers, excavators, water trucks, or bull dozers) shall be allowed to operate within 850 feet of 9895 Elder Creek Road (APN 063-0180-022) or 9897 Elder Creek Road (APN 063-0180-021) at any given time.
- All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.
- The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise. ***(Sacramento County Planning and Environmental Review Division)***

10. HW-1 Elder Creek Base Flood Elevations Mitigation Measure

Prior to approval of the Work Authorization Permit, the applicant shall prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project

will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:

- If the analysis demonstrates to the satisfaction of the County of Sacramento Department of Water Resources that the project related increase in base flood elevation of less than 0.1 feet, without mitigation, then no further mitigation is required.
- If the analysis concludes that the project may result in an increase in base flood elevation of 0.1 or greater, the applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.
- Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.
- Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit.

If mitigation measures are required to reduce the Project's increase in base flood elevations to below 0.1 feet, such measures shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. Dependent upon the measures selected, additional CEQA compliance may be required prior to implementation. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to the issuance of the Work Authorization Permit for the Project. ***(Sacramento County Planning and Environmental Review Division)***

11. GS-1: Reclamation Slopes and Berms Mitigation Measure

- Reclamation slopes shall be constructed at 2H:1V or flatter.
- To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment/berm located around the perimeter of the mine operation, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The

actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources.

- For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources.
- To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes.
- At the beginning of each year (in the month of January) a written maintenance plan that specifies specific actions that ensure the slopes are in good repair, stable and safe shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. The report shall also include an evaluation of the prior year recommended actions to ensure that the actions have gone into effect and how the actions corrected any deficiencies. This report shall be prepared by a registered and licensed civil engineer in good standing.
- Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review. ***(Sacramento County Planning and Environmental Review Division)***

12. GS-2: Topsoil Management Mitigation Measure

    Comply with the topsoil handing and stockpiling measures contained in Section 6.0, (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX. ***(Sacramento County Planning and Environmental Review Division)***

13. BR-1.1: Sanford's Arrowhead Mitigation Measure

    - The applicant shall transplant no less than 40 plugs (1 foot by 1 foot by 1 foot), with no fewer than three individual Sanford's arrowhead plants per plug, to a suitable habitat that is within 2 miles of the project site with preference given to the Elder Creek watershed. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants.
    - Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70 percent survivorship, transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species. ***(Sacramento County Planning and Environmental Review Division)***

14. BR-1.2: Invertebrates Mitigation Measure

    - Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods" (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall:
    - Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife.
    - Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento

County Environmental Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation.

- If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.
- The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction.
- Prior to issuance of the Work Authorization Permit, the Applicant shall demonstrate to the Environmental Coordinator that all areas which are required to be preserved in perpetuity as part of the Section 404 permit are protected by, and placed within a permanent conservation easement approved by the United States Army Corps of Engineers. ***(Sacramento County Planning and Environmental Review Division)***

15. BR-1.3: Western Spadefoot Toad Mitigation Measure

- Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.
- Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat.
- If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered. ***(Sacramento County Planning and Environmental Review Division)***

16. BR1.4: Western Pond Turtle Mitigation Measure

    - Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.
    - Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.
    - If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered. ***(Sacramento County Planning and Environmental Review Division)***

17. BR-1.5: Nesting White-Tailed Kite, Swainson's Hawk, Northern Harrier and Other Raptors Mitigation Measure

    - If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction.
    - The survey shall include a focused survey for Swainson's hawk nests within a ½-mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.
    - If no active nests are found in the survey area, no further mitigation is necessary.
    - If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of construction activity.

- A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife. ***(Sacramento County Planning and Environmental Review Division)***

18. BR1.6: Nesting or Roosting Burrowing Owl Mitigation Measure

- A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14.
- The pre- mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining- related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo- referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet).
- The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non- nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.
- Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio

(1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting. ***(Sacramento County Planning and Environmental Review Division)***

19. BR1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure

    - If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.
    - Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.
    - If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1. ***(Sacramento County Planning and Environmental Review Division)***

20. BR-1.8: Loss of Foraging Habitat for White-Tailed Kite and Swainson's Hawk Mitigation Measure

    - Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat must occur.
    - The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).
    - The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that

will include preservation of white-tailed kite and Swainson's hawk foraging habitat.

- Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead. ***(Sacramento County Planning and Environmental Review Division)***

21. BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure

To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun. ***(Sacramento County Planning and Environmental Review Division)***

22. BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure

    To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible

    Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

    If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

    Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun. ***(Sacramento County Planning and Environmental Review Division)***

23. BR-1.11: Disturbance to Nesting Tricolored Blackbird Mitigation Measure

    To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

    Alternatively if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist

immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun. ***(Sacramento County Planning and Environmental Review Division)***

24. BR-3: Wetlands and Water of the U.S. Mitigation Measure

To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife:

- Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods, subject to the approval of the Environmental Coordinator. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required.
- If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the

wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator. ***(Sacramento County Planning and Environmental Review Division)***

25. BR-4: Native Tree and Tree Canopy Protection Mitigation Measure

The removal of 23 inches dbh of valley oak trees shall be compensated for by planting native oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus), California sycamore (Platanus racemosa), California black walnut (Juglans californica, which is also a List 1B plant), Oregon ash (Fraxinus latifolia), western redbud (Cercis occidentalis), gray pine (Pinus sabiniana), California white alder (Alnus rhombifolia), boxelder (Acer negundo), California buckeye (Aesculus californica), narrowleaf willow (Salix exigua), Gooding's willow (Salix gooddingii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), shining willow (Salix lucida), Pacific willow (Salix lasiandra), and dusky willow (Salix melanopsis).

Replacement tree planting shall be completed prior to approval of Work Authorization Permit. A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

a. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved

b. Method of irrigation

c. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage

d. Planting, irrigation, and maintenance schedules;

e. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a three-year establishment period, and to replace any of the replacement trees which do not survive during that period.

f. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given

to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento Tree Foundation). ***(Sacramento County Planning and Environmental Review Division)***

26. CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure

    If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

    Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

    If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

    In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. ***(Sacramento County Planning and Environmental Review Division)***

27. HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure

    - Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities.

- Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff.
- All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage. ***(Sacramento County Planning and Environmental Review Division)***

28. MITIGATION MEASURE COMPLIANCE

    Comply with the Mitigation Monitoring and Reporting Program (MMRP) for this project as follows:

    - The proponent shall comply with the MMRP for this project, including the payment of a fee to cover the Department of Community Development, Planning and Environmental Review Division staff costs incurred during implementation of the MMRP. The MMRP fee for this project is $22,000.00. This fee includes administrative costs of $800.00.
    - Until the MMRP has been recorded and the administrative portion of the MMRP fee has been paid, no final parcel map or final subdivision map for the subject property shall be approved. Until the balance of the MMRP fee has been paid, no encroachment, grading, building, sewer connection, water connection, occupancy permit, or work authorization permit from Sacramento County shall be approved. ***(Sacramento County Planning and Environmental Review Division)***

Prior to Work Authorization Permit Issuance

29. Prior to approval of the Improvement Plans or prior to issuance of the Work Authorization Permit, show on the plans the proposed construction of the Class "C" intersections of the two proposed project driveways with Elder Creek Road in accordance with the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

30. Prior to approval of the Improvement Plans or prior to issuance of the Work Authorization Permit, show on the plans the proposed construction of the first 200 linear feet of the proposed project driveway north of Elder Creek Road with

a minimum of 2 inches of asphalt concrete over a minimum of 6 inches aggregate base in accordance with the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

31. Prior to approval of the Improvement Plans or prior to issuance of the Work Authorization Permit, the height of the proposed bridge structure (box culvert) shall be coordinated through Sacramento County Department of Water Resources and the Central Valley Flood Protection Board, if applicable, so that the soffit of the new bridge will provide adequate clearance over the design flood elevation for Elder Creek flows. ***(Sacramento County Department of Transportation)***

32. Prior to approval of the Improvement Plans or prior to issuance of the Work Authorization Permit, grant the County right-of-way on Elder Creek Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

33. Prior to approval of the Improvement Plans or prior to issuance of the Work Authorization Permit, grant the County a 20-foot easement for Public Utilities and Public Facilities on both sides of Elder Creek Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. Note: that in the future, the easement for Public Utilities and Public Facilities will contain landscaping, a 5-foot sidewalk and a 12-foot area for utilities. Also, the planting of protected oak tree species will not be allowed in areas that will conflict with the future installation of said sidewalk and utilities. ***(Sacramento County Department of Transportation)***

34. Prior to issuance of the work authorization permit, submit mining plans and a local drainage analysis to Water Resources for approval that demonstrates how the project will convey through drainage without adversely flooding offsite properties and that will protect offsite areas from erosion and water quality impacts. Incorporate the approved plans and drainage improvements into the approved Mining and Reclamation Plan. ***(Sacramento County Water Resources)***

35. Prior to issuance of the work authorization permit, provide an easement for floodplain or flowage over the Elder Creek Drainage Corridor to the benefit of the County of Sacramento. ***(Sacramento County Water Resources)***

36. Coincident with the approval of the grading plan, provide drainage easements as needed and pay any fee required by the Sacramento County Water Agency Code. ***(Sacramento County Water Resources)***

37. Prior to issuance of the work authorization permit, the property owner will enter into a maintenance agreement with Sacramento County requiring the property

owner to maintain and repair the Elder Creek channel and embankment in substantial conformance to as-built conditions. The purpose of the agreement is to ensure the channel functions without deterioration of the channel embankment and to prevent unstable conditions due to under seepage. ***(Sacramento County Water Resources)***

38. The owner must inform Environmental Management District (EMD) of the intended use of the existing inactive wells on APNs 063-0160-001, 066-0050-003, 066-0020-006, and 063-0190-027. If the wells are to be repaired and placed into use, all work must be done under permit from EMD. If the wells are not going to be used, they must be destroyed under permit from EMD. Contact Lisa Christy at 875-8466 or Chris Hunley at 876-7277. ***(Sacramento County EMD)***

39. An abandoned well survey must be performed by Environmental Management District (EMD) for APNs 063-0180-005, 006 and 066-0030-001. The results of the survey will determine if additional requirements are needed. Note: Currently, EMD will conduct the survey at no cost to applicant once permission is granted by the landowner. Contact Abandoned Well Program staff at 876-6584. ***(Sacramento County EMD)***

40. Install berm and landscaping between the mining pit and the residence at 9895 Elder Creek Road (063-0180-022) that will screen the view of the mining pit to the satisfaction of the Sacramento County Department of Community Development, Planning and Environmental Review, Aggregate Resources Manager. ***(Sacramento County Planning and Environmental Review Division)***

41. Appropriate County plan or permit approval must be obtained prior to any work within the County right-of-way or easements. ***(Site Improvement & Permits Section***

42. For new landscape installation that equals or exceeds 500sf, or landscape rehabilitation that equals or exceeds 2,500 sf, the applicant shall submit complete landscape planting and irrigation plans to the Department of Community Development for review and approval. Plans shall be consistent with the requirements of the State of California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO) and applicable Sacramento County Zoning Code requirements for landscaping and parking lot shading. ***(Sacramento County Planning and Environmental Review Division-Landscaping).***

Ongoing Operations

43. Should a traffic safety problem occur during the course of operations of the existing Aspen VIII and IX Mining Site, located on Elder Creek Road approximately 4,000 feet east of the intersection of Bradshaw Road, the

applicant will agree to cooperate with the Department of Transportation for the construction of appropriate improvements. These improvements can include, but are not limited to, horizontal realignments for site distance, turn lane, or warning signs. ***(Sacramento County Department of Transportation)***

44. The elevations and grade of the proposed bridge structure (box culvert) shall be designed to accommodate a future extension of the bridge structure to the ultimate roadway cross-section for a thoroughfare in the influence area of the intersection with an arterial to the satisfaction of the Department of Transportation and the Department of Water Resources. ***(Sacramento County Department of Transportation)***

45. The elevations and grade of the proposed conveyor tunnels under various roadways shall be designed to accommodate a future extension of the tunnels to the ultimate roadway cross-section for a thoroughfare in the influence area of the intersection with an arterial to the satisfaction of the Department of Transportation. Consideration should be given to the size, grade, elevation, and geometrics of the tunnel to accommodate future non-motorized (pedestrian and bicycle) access. ***(Sacramento County Department of Transportation)***

46. Any facility in Sacramento County that handles and/or stores a hazardous material equal to or greater than the minimum reportable quantities (55 gallons for liquids, 500 pounds for solids and 200 cubic feet (at standard temperature and pressure) for compressed gases) must obtain a permit and submit a Hazardous Materials Business Plan (HMBP) to the Environmental Management Department. The purpose of the HMBP Program is to protect public health and the environment and groundwater from risks or adverse effects associated with the storage of hazardous materials. ***(Sacramento County EMD)***

47. Any facility in Sacramento County that generates hazardous waste must obtain a permit from the Environmental Management Department. The purpose of the program is to ensure compliance with the Hazardous Waste Control Act, verify Hazardous Waste accumulation, labeling, container and tank management standards, and waste generator status, respond to complaints of illegal disposal of hazardous waste, and issue permits and inspects businesses that treat hazardous waste pursuant to permit by rule, conditional authorization, or conditional exemption laws and regulations. ***(Sacramento County EMD)***

48. Any new well or septic system must be installed under permit from Environmental Management Department (EMD). ***(Sacramento County EMD)***

49. Before initial topsoil removal Sacramento County Department of Community Development, Planning and Environmental Review, Aggregate Resources Manager shall be notified one week in advance. The Aggregate Resources Manager then has the option to inspect the topsoil removal and/or to insure the topsoil is being properly maintained on the site according to SMARA

Regulation 3711, Performance Standards for Topsoil Salvage, Maintenance and Redistribution. ***(Sacramento County Planning and Environmental Review Division)***

50. The electric conveyor system shall be permitted on the following APNs:

    Aspen IX: 066-0020-006, 066-0030-001, 066-0050-003
    Aspen VIII: 063-0180-005, 063-0180-006, 063-0160-001
    Conveyor Extension on Aspen V South: 063-0190-027
    Aspen V South: 063-0190-029, 063-0190-028, 063-0190-015, 063-0190-014
    Aspen VI: 063-0040-067, 063-0040-018, 063-0040-034
    Aspen V: 063-0040-016, 063-0040-030
    Aspen IV: 063-0030-016, 063-0030-017
    Aspen III: 063-0060-048, 063-0060-037, 063-0060-032, 063-0060-050, 063-0060-040, 063-0052-018, 063-0013-017, 063-0013-012
    Aspen II: 063-0012-012, 063-0012-007, 063-0012-011, 063-0012-017
    Aspen I: 063-0014-002
    Aspen I (In the city of Sacramento's Jurisdiction shown here for informational purposes only): 061-0150-004, 061-0150-003, 078-0202-008, 078-0202-007

    The above listed APNs (not including the city of Sacramento's) shall be included in the approved reclamation plan and in all the Financial Assurance Mechanisms (FAM) and all Financial Assurance Cost Estimates (FACE) associated with the Aspen VIII and IX mine operation. ***(Sacramento County Planning and Environmental Review Division)***

51. The Use Permits shall expire on December 31, 2031 and reclamation shall be complete within two years of Use Permits expiration and mine closure. ***(Sacramento County Planning and Environmental Review Division)***

Prior to Work in FEMA Floodplain

52. Prior to initiating work in the FEMA floodplain or work that will affect floodplain elevations, obtain a Conditional Letter of Map Revision (CLOMR) from FEMA. Work in the floodplain would include the planned upsizing of the culverts at Elder Creek Road. Floodplain elevations would be affected by the installation of berms that impede the diversion of flow from Elder Creek as identified in the Aspen VIII and IX Hydraulic Analysis of Elder Creek dated January 13, 2016 by Cunningham Engineering. Obtain a Letter of Map Revision from FEMA once all project work identified in the approved CLOMR has been completed. ***(Sacramento County Water Resources)***

53. Prior to initiating work that affects local through drainage, install drainage improvements consistent with the approved local drainage analysis and the approved Mining and Reclamations plan, provide any easements pursuant to the Sacramento County Floodplain Management Ordinance and the Sacramento

County Improvement Standards, and pay any fee required by the Sacramento County Water Agency Code. ***(Sacramento County Water Resources)***

Prior to Sign-Off of Reclamation Plan

54. Prior to sign-off of the Reclamation Plan, the applicant shall return-to-grade, dedicate, and rough grade an area sufficient to accommodate the intersection of Knox Rd/Vineyard Road and Elder Creek Road. At the time of dedication, the intersection shall be sized and engineered to the Sacramento County Improvement standards, including but not limited to, any future County Trail Policy, and to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

55. Prior to sign-off of the Reclamation Plan, the applicant shall dedicate and rough grade an area sufficient to accommodate the north/south arterial extension of Knox Rd/Vineyard Road through the Project Site. At the time of dedication, the arterial alignment and slope shall demonstrate compliance with the Americans with Disabilities Act. The area to be dedicated and graded shall be of sufficient width to accommodate a 74-foot wide arterial with a minimum of 20 feet on both sides for easements for Public Utilities and Public Facilities and engineered pursuant to then-applicable County policies and to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

56. Prior to sign-off of the Reclamation Plan and prior to said roadway dedication for Knox Rd/Vineyard Road, if the County adopts a trails master plan requiring easements for Public Utilities and Public Facilities that include expanded trails, the applicant shall dedicate and rough grade at a width consistent with said County policy. If, prior to such dedication, a trails master plan has not been adopted but is part of an ongoing master planning process, the applicant shall demonstrate the presence of sufficient fill material on-site so as not to preclude grading to the widths necessary to accommodate the trail system if and when adopted. ***(Sacramento County Department of Transportation)***

57. Prior to sign-off of the Reclamation Plan, the applicant shall dedicate the necessary slope easements (i.e. the width shall be adequate to include all of the slope embankments) on both sides of Knox Rd/Vineyard Road and Elder Creek Road. At the time of dedication, the slope easement shall be sized to the satisfaction of the Department of Transportation. ***(Sacramento County Department of Transportation)***

58. At the completion of mining activities and prior to the start of final reclamation, obtain a letter of Map Revision from FEMA that maps the mined area into the Zone A floodplain, or maps the mined areas into the Levee Protected Zone X floodplain if the levees are accredited by FEMA. ***(Sacramento County Water Resources)***

IV. ATTACHMENTS

A. Ordinance with Development Agreement

B. Context Photos (4)

C. CPAC Referral, Dated 4-5-16

D. Resolution Authorizing execution of the DA

V. EXHIBITS

1. Reclamation Plan (Text and Maps)
2. Rezone
3. Site Plan
4. Existing Site
5. Aspen VIII Mining Plan
6. Aspen IX Mining Plan
7. Aspen VIII Roadway
8. Aspen IX Roadway
9. Aspen VIII Cross Sections (8A, 8B, & 8C)
10. Aspen VIII Cross Sections (8D, 8E, 8F, & 8G)
11. Aspen VIII and IX Roadway Profile
12. Aspen IX Cross Section
13. Future Roadway Profile
14. Entrance and Culvert Details
15. Landscaping and Culvert Details

ENV DOC – Draft Environmental Impact Report

This staff report was prepared on June 13, 2016.

ORDINANCE NO. SZC 2016 - _____

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SACRAMENTO TO AMEND THE ZONING CODE TO INCORPORATE A DEVELOPMENT AGREEMENT FOR THE ASPEN VIII AND IX MINING USE PERMIT (PLNP2014-00201); ASSESSOR'S PARCEL NUMBERS 063-0180-005, 063-0180-006, 063-0160-001, 066-0020-006, 066-0030-001, and, 066-0050-003

The Board of Supervisors of the County of Sacramento, State of California, does ordain as follows:

SECTION 1: The Development Agreement attached hereto as Exhibit A is hereby adopted and, pursuant to Section 6.2.2.F. of the Sacramento Zoning Code, included within Appendix A of the Zoning Code as Section 2016-DA-002.

SECTION 2: This ordinance shall take effect and be in full force on and after 30 days from the date of its passage hereof, and, before expiration of 15 days from the date of its passage, it shall be published once with the names of the members of the Board of Supervisors voting for and against the same, said publication to be made in a newspaper of general circulation published within the County of Sacramento, State of California.

On a motion by Supervisor _____, seconded by Supervisor _____, the foregoing ordinance was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, this ____ day of _____ 201__, by the following vote:

AYES: Supervisors,

NOES: Supervisors,

ABSENT: Supervisors,

ABSTAIN: Supervisors,

RECUSAL: Supervisors,
(PER POLITICAL REFORM ACT (§ 18702.5))

_____
Chair of the Board of Supervisors
of Sacramento County, California

(SEAL)

ATTEST:_____
Clerk, Board of Supervisors

DEVELOPMENT AGREEMENT
BY AND BETWEEN THE COUNTY OF SACRAMENTO, A. TEICHERT & SON, INC. AND TEICHERT LAND COMPANY RELATIVE TO THE PROJECT KNOWN AS THE TEICHERT ASPEN VIII & ASPEN IX PROJECT

This Development Agreement (hereinafter "Agreement") is made and entered into this _____ day of September, 2016 by and between the County of Sacramento, a political subdivision of the State of California (hereinafter "County"), A. Teichert & Son, Inc., Triangle Properties, Inc. and Teichert Land Company (collectively hereinafter "Teichert" and/or "Property Owner"), pursuant to the authority of Sections 65864 through 65869.5 of the Government Code.

RECITALS

A. To strengthen the public land use planning and development process, to encourage private participation in that process, to reduce the economic risk of development, and to provide maximum utilization of resources, the Legislature enacted Government Code Section 65864 *et seq.* which authorizes the County and any person having a legal or equitable interest in real property to enter into a development agreement establishing certain vested development rights.

B. Property Owner is the fee owner of Property and, as such, has the exclusive right to mine rock and to perform all other related activities on the Property.

C. Teichert accordingly has a legal or equitable interest in that certain real property legally described in Exhibit "A" and depicted on the map set forth in Exhibit "B", located in the unincorporated area of the County of Sacramento (hereinafter "Property") sufficient to enter into this Agreement with County.

D. Teichert desires to create and operate an aggregate mine, known as the Aspen VIII and Aspen IX project (hereinafter "the Project"), on a portion of the Property as depicted on the map set forth in Exhibit "C" (hereinafter "Project Area"). This Development Agreement relates to that mining operation which is summarized as follows:

> The Project is an aggregate mine located on approximately 353 acres of the 682-acre site. Associated with the mine are an on-site access road and various stockpiles. The Project also includes a conveyor to transport the mined material from the Project site to Teichert Aggregates' existing Perkins Plant materials processing facility (hereinafter "Perkins Plant"), located along South Watt Avenue and west of the proposed Project site. The conveyor extends overland from the Project through the intervening Teichert's Aspen mine sites and Aspen IV pre-wash facility and on to the Perkins Plant. The conveyor alignment includes the above ground conveyor, water pipeline, electricity infrastructure, and an access road primarily for maintenance.
>
> Overburden may be transported from the Project site on haul trucks to Teichert's Aspen V South site, located immediately to the north, using an internal road sited

adjacent to the conveyor alignment. Mining would continue for up to 15 years through three mining phases as depicted on the map set forth in Exhibit “D”. Approximately 15 million tons of material may be mined over the life of the Project. At the conclusion of mining, a two-year final reclamation phase will extend the total Project lifespan to 17 years. Certain reclamation activities will be ongoing throughout the operational life of the Project. The Property will be reclaimed to open space grassland habitat.

E. Project Background: In October 2014, the Applicant submitted an application for the Project.

In December 2014, the Applicant modified the Project to include the existing conveyor alignment which will continue to serve the Project until mining is complete.

On December 7, 2015, the County of Sacramento rereleased the Notice of Preparation on the Draft EIR, reflecting project modification including but not limited to the elimination of the proposed sale and haul of up to 1,000,000 cubic yard overburden from the Project Site.

On April 5, 2016, the Vineyard Community Planning Advisory Council (CPAC) held a public hearing on the Project. After receiving public comments regarding the Project, the Vineyard CPAC voted unanimously (__to 0) to recommend approval of the Project.

On May 19, 2016, the Cosumnes CPAC considered the Project as an informational item and received public comments regarding the Project and DEIR. No action was taken.

On July 25, 2016, the Planning Commission held a public hearing on the Project. After receiving comments on the DEIR, the Planning Commission closed the comment period on the DEIR. After receiving public comments, the Planning Commission voted _ to _ to recommend approval of the Project.

On September 13, 2016, the Board of Supervisors held a public hearing regarding the Project. After receiving public comments on the Project, the Board certified the Final EIR, adopted findings and statement of overriding considerations for the Project entitlement, and approved the Project entitlements.

F. Project Entitlements:

County has granted Teichert the following entitlement approvals (hereinafter "Entitlements"):

1. A **Community Plan Amendment and Rezone** to add the Surface Mining Combining Zone (SM) to 682 acres of IR (*Industrial Reserve*), AG-80, AG-80(F), AG-160 and AG-160(F) (*Agricultural*) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.

2. **Use Permits** to allow surface mining on approximately 353 acres of a 682 acres project site and to allow for the extension and continued use of an electric conveyor system to transport the mined materials across adjacent parcels to the existing off-site Perkins Plant.

3. A **Reclamation Plan** to include open space grassland as the end use of the mine and associated uses.

G. County and Teichert contemplate that the mining and reclamation of the Project pursuant to this Agreement and the Entitlements will result in significant benefits to County and Teichert. This Agreement accordingly provides assurances to Teichert that it will have the ability to mine, process and reclaim a portion of the Property in accordance with this Agreement. This Agreement also provides assurances to County that it will receive certain public benefits. Specifically, Teichert has voluntarily agreed to enter into this Agreement with the County which provides various Net Gains and Dedications to the County and its residents beyond those attainable through conditions of project approval and mitigation measures. Those Net Gains and Dedications are described in Section 2.4.

NOW, THEREFORE, the parties hereto agree as follows:

AGREEMENT

ARTICLE 1. GENERAL PROVISIONS

Section 1.1. Incorporation of Recitals. Recitals A through G are hereby incorporated herein. In the event of inconsistency between the Recitals and the Sections of this Agreement, the provisions in the Sections shall prevail.

Section 1.2. Definitions. As used in this Agreement, the following terms, phrases, and words shall have the meanings and be interpreted as set forth in this Section.

Section 1.2.1. "Adopting Ordinance" means Sacramento County Ordinance No. _____ dated ____ and effective _____, which approves this Development Agreement as required by Government Code Section 65867.5.

Section 1.2.2. "Aggregate Material" means sand and gravel and shall include such material used by Teichert, or sold or transferred to affiliates or subsidiaries of Teichert, for the production of concrete, asphalt or other construction related products.

Section 1.2.3 "Agreement" means this Development Agreement by and between the County of Sacramento, A. Teichert & Son, Inc. and Teichert Land Company, including all terms of the Entitlements.

Section 1.2.4. "Approval Conditions" means the terms and conditions of approval attached to the Entitlements by action of the Board of Supervisors.

Section 1.2.5. "Board" means the Board of Supervisors of Sacramento County.

Section 1.2.6. "Commission" means the Planning Commission of Sacramento County.

Section 1.2.7. “County” means the County of Sacramento, a subdivision of the State of California.

Section 1.2.8. "County Code" means the County Code of Sacramento County.

Section 1.2.9. “Development Agreement Statute” means Sections 65864 et seq. of the Government Code of the State of California.

Section 1.2.10. “Development Agreement Ordinance” means Section 6.2.2 of the Sacramento County Zoning Code.

Section 1.2.11. "Director" means Director of the Department of Community Development, County of Sacramento, or the equivalent subsequent designation for this position, or his or her designee.

Section 1.2.12. “Entitlements” means the permits and other entitlements approved as described in Paragraph F. of the Recitals.

Section 1.2.13. "Effective Date" means the date of approval of the Adopting Ordinance for the Agreement.

Section 1.2.14. “EIR” means the Final Environmental Impact Report certified for the Project by the Board of Supervisors.

Section 1.2.15. "General Plan" means the General Plan, including text and maps, of the County of Sacramento in effect as of the effective date.

Section 1.2.16. “MMRP” means the Mitigation Monitoring and Reporting Plan adopted for the Project by the Board of Supervisors.

Section 1.2.17. “Net Gains” means the “non-nexus” or “beyond nexus requirements” benefits voluntarily provided to County by Teichert that are, in whole or in part, in excess of that legally required for the Project as CEQA mitigation, but which are made legally binding by this Agreement. The Net Gains are enumerated in Section 2.4.

Section 1.2.18. “Nexus Requirements” means conditions of approval and CEQA mitigation measures addressing impacts resulting from the Project.

Section 1.2.19. "Project" means development of the subject Property as described in the certified project EIR, and thereafter restricted by action of the Board of Supervisors pursuant to the Entitlements including incorporated exhibits thereto.

Section 1.2.20. "Project Area" means the real property depicted in Exhibit "C".

Section 1.2.21. "Property Owner" means A. Teichert & Son, Inc. and/or Teichert Land Company and any assignee(s) or successor(s) in interest.

Section 1.2.22. "Property" means the real property described and depicted in Exhibits "A" and “B”.

Section 1.2.23. “Reclamation Plan” means the reclamation plan adopted for the Project.

Section 1.2.24. “Teichert” means A. Teichert & Son, Inc., its assignee(s) or successor(s) in interest, and Teichert Land Company and any assignee(s) or successor(s) in interest.

Section 1.2.25. "Zoning Code" means the Zoning Code of Sacramento County in effect as of the Effective Date.

Section 1.3. Additional Defined Terms. If any of this Agreement's terms are not defined above, then such terms shall have the meaning otherwise ascribed to them in this Agreement.

Section 1.4. Exhibits. This Agreement refers to the following exhibits, which are attached hereto and hereby incorporated into this Agreement:

Exhibit Designation	Description	Referred to in Recital/ Section:
A	Legal description of real property in which Teichert has a legal or equitable interest.	Recital C; Section 1.2.22
B	Map of real property in which Teichert has a legal or equitable interest.	Recital C; Section 1.2.22
C	Map of Teichert Aspen VIII and Aspen IX mine and existing conveyor alignment.	Recital D; Section 1.2.20
D	Map of proposed Mining Phases	Recital D;
E	Cents per ton funding chart.	Section 2.4.1
F	Area of Construction Material Equalizer.	Section 2.5

Section 1.5. Citation. This Agreement shall be known as and may be cited as the "Teichert Aspen VIII and Aspen IX Development Agreement."

Section 1.6. Parties to Agreement. The Parties to this Development Agreement are: the County of Sacramento, A. Teichert & Son, Inc., Triangle Properties, Inc. and Teichert Land Company.

Section 1.7. Term of Agreement. This Agreement shall commence upon the Effective Date, and shall be in force for a period coterminous with the Entitlements thereafter unless extended or terminated as provided herein.

Section 1.8. Consistency with General Plan. In granting the Entitlements described herein, the Board of Supervisors expressly found that the Entitlements are

consistent with the County General Plan, and further finds that this Agreement is also consistent with the County General Plan.

Section 1.9. Amendment to Agreement. This Agreement may be amended from time to time by mutual consent of the parties, provided it is amended in the manner set forth in Government Code Section 65868 and the Development Agreement Ordinance. Any amendment to this Agreement shall be in writing and executed by the Parties or their successors and assigns.

Section 1.10. Assignment. Teichert and/or Property Owner have the right to sell, assign, or transfer Property interest subject to this Agreement. The conditions and covenants set forth herein shall run with the land and the benefits and burdens of this Agreement shall bind and inure to the successors of the parties. Teichert and/or Property Owner shall provide County with written notice of any sale, assignment or transfer of any of the Property within thirty (30) days after such sale, assignment or transfer.

Section 1.11. Recordation of Agreement. The Clerk of the Board shall, within ten (10) days after the Effective Date of this Agreement, record a copy of the Agreement with the County Recorder, County of Sacramento.

Section 1.12. Private Project. The parties agree that the mining and reclamation of the Property is a private project by Teichert; County has no interest herein except as authorized in the exercise of its governmental functions.

Section 1.13. No Joint Venture or Partnership. County and Teichert hereby renounce the existence of any form of joint venture or partnership between County and Teichert and agree that nothing contained herein or in any document executed in connection herewith shall be construed as making County and Teichert joint venturers or partners.

Section 1. 14. Consideration. The Parties acknowledge and agree that County's agreement to perform and abide by the obligations of County set forth herein, including the issuance of the Entitlements, is material consideration for Teichert's agreement to perform and abide by the obligations of Teichert set forth herein, and Property Owners' agreement to perform and abide by obligations of Property Owner set forth herein.

ARTICLE 2. TEICHERT'S OBLIGATIONS

Section 2.1. Property Development. If the Property is mined, it shall be mined and reclaimed according to the Entitlements. Teichert has no affirmative obligation to

commence mining of the Property or to mine for a specific duration or at a specified rate once the mining has commenced.

Section 2.2. Waiver. Teichert knowingly and specifically waives its right or rights to challenge by any legal action or other proceeding, at any time during the term of this Agreement, the question of whether or the extent to which there is any nexus or rough proportionality between any obligation imposed upon Teichert by the Entitlements or by this Agreement. Teichert further agrees, and knowingly and specifically waives its right or rights to challenge by any legal action or other proceeding, at any time during the term of this Agreement, County's ability to impose any fee, assessment, charge, or land dedication as provided for within this Agreement.

Section 2.3. Annexation. Teichert agrees not to seek, support or pursue in any way annexation of Property into any incorporated city within Sacramento County during the term of this Agreement.

Section 2.4. Net Gains. Teichert has offered, and County has accepted, the Net Gains described in this Section. County and Teichert agree the items described herein are contributions that are in whole or in part in excess of those which County could otherwise require of Teichert as CEQA mitigation. The following Net Gains offered by Teichert are made binding by this Agreement:

Section 2.4.1. Cents Per Ton Funding. Teichert agrees to pay cents per ton funding pursuant to the payment table attached as Exhibit “E”. These funds shall be paid for each ton of aggregate material sold by Teichert that is produced at the Property for the term of the Development Agreement.

Section 2.4.1.1. Use of Cents per Ton Funding. The cents per ton funds shall be forwarded by Teichert to a non-profit foundation (hereinafter "Foundation") for the purpose of furthering open space and connectivity projects and programs throughout the County. Within 12 months of the execution of this Agreement, County and Teichert shall determine an appropriate Foundation to administer the funds and develop a process for how such funds shall be distributed to projects and programs. Such Foundation and implementation process shall be reviewed and adopted by the Board of Supervisors after a public meeting.

The Foundation, once selected, shall provide to County and Teichert a report each year which shall be provided to the Board of Supervisors as part of the annual report required in Section 6.1 of this Agreement. Such report shall provide an accounting of how funds have been expended during the previous year.

Payment of cents per ton funding shall be made directly to the County until a Foundation is designated by the County Board of Supervisors. Payments to County shall be made to County of Sacramento and delivered to the County Executive Office, or such address as County may designate in writing. Payments made to County shall be held in a trust account and County shall forward such funds to the Foundation within 30 days of the establishment of the Foundation. Once the Foundation is designated, Teichert shall make payments directly to the Foundation at such address as the Foundation may designate in writing. All transmittals of payments to the Foundation shall be copied to the County Executive Office and County Department of Planning and Environmental Review.

Section 2.4.1.2. Credit for Work in Lieu of Cents per Ton Funding. Teichert may, at the County's discretion, receive a credit against the cents per ton funding for contributions of labor, equipment or materials toward open space or connectivity projects established by the Foundation as provided in Section 2.4.1.1 above. Before any contribution of equipment, labor, or materials pursuant to this section, the Administrator of the Municipal Services Agency or his or her designee shall establish the amount of the credit, method used to calculate the credit, and the period in which the credit may be taken. Teichert may appeal the decision of the Administrator to the Board of Supervisors within ten (10) days of the date of the Administrator's written decision.

Section 2.4.1.3. Calculation, Payment and Verification of Cents

per Ton Contributions. Payments required by Section 2.4.1 shall be made annually after the close of each calendar year. The first annual contribution shall be due at the end of the first year during which Teichert sends mined aggregate material from the Project Area to Perkins Plant for sale. Within 30 days of the close of the calendar year, Teichert shall provide County with a statement indicating the tons of Aggregate Material sold and a calculation of the cents per ton contribution to be made as a result of said production, including the use of any credits or reductions due to the Construction Material Market Equalizer provision in Section 2.5 below. Annual payments shall be based upon the tonnage produced and sold from the Project area and the rates provided for in Sections 2.4.1., above. In the event that Teichert produces and sells aggregate material from the Project area and Teichert Quarry within the same calendar year, the rate per ton as established in 2.4.1 and Exhibit "E" shall be determined based upon the combined tonnages from these two mining sites. Upon receipt of this accounting and calculation of payment due, County shall invoice Teichert for payment. Within 30 days of receipt of said invoice, Teichert shall make the required cents per ton payment to County or Foundation consistent with 2.4.1.1.

For the purpose of administering this section, County will establish procedures by which Teichert will report and account for the sale and/or transfer of all Aggregate Material for which contributions are due. Said procedures shall be consistent with the terms of this Agreement. The County may audit, as often as it determines is necessary, the tonnage of Aggregate Material being produced and sold at the Project site, and at Teichert Quarry, if simultaneously operational, and the contributions paid to County or Foundation to verify that the amount of payment correctly reflects actual tonnage sold. County hereby agrees to keep any proprietary information it may obtain from Teichert confidential to the maximum extent allowed by law. Teichert shall clearly mark any proprietary information provided County as confidential.

Section 2.5. Construction Material Market Equalizer. The requirements of Section 2.4 shall be automatically modified by certain specified actions which may be taken by County on other surface mining projects within the southeastern area of the County as depicted in Exhibit "F". Said automatic modifications shall occur if the County approves a conditional use permit or other development entitlement (including the renewal of an existing use permit) for the operation of any surface mining operation (excluding clay and top soil) that is located in the area depicted in Exhibit "F" that imposes less rigorous requirements than those contained in this Agreement, but specifically excludes County

recognition of vested rights to mine in the area. This includes, but is not limited to, a situation where a surface mining operator is not required to make cents per ton payments, as required of Teichert pursuant to Section 2.4 of this Agreement, in an amount equal to or greater than that required of Teichert. Said automatic modification shall result in the terms of this Agreement being adjusted to a level commensurate with the least rigorous obligation agreed to by any other surface mining operator (excluding clay and top soil) subsequently permitted within the Exhibit "F" area. In no case shall an automatic modification trigger a refund of prior payments made by Teichert.

Section 2.6. Application of Fees to All Material Produced from Project. Teichert agrees that the cents per ton funding per Section 2.4.1 shall be applicable to all aggregate materials produced from the Project regardless of the location from which the material is sold.

Section 2.7. Failure to Comply. Teichert's failure to comply with any aspect of this Agreement shall constitute a material breach and may result in proceedings as provided for in Article 5.

Section 2.8. Cessation of Operations and Reclamation of Project Site. Teichert agrees that all mining operations shall cease and all equipment, including the on- and off-site conveyor, be removed and reclaimed within two (2) years following the expiration of the Use Permit, unless County grants a permit extension or new permit to mine additional aggregate deposits. Teichert further agrees that the project area and conveyor alignment shall, in the event of any extended or new entitlements, be reclaimed in accordance with the approved Reclamation Plan or any subsequently approved Reclamation Plan.

Section 2.9. Location of Place of Sale within Unincorporated County. Teichert agrees, for the purposes of determining the "place of sale" within the meaning of California Revenue and Taxation Code section 6010.5, to maintain said "place of sale" within the unincorporated portion of the County of Sacramento for the Term of this Agreement consistent with the provisions of the California Revenue and Taxation Code. If the sphere of influence of any city is later amended to include the Property, and the "place of sale" is annexed or incorporated into a city, Teichert shall not be responsible for an equivalent revenue stream to the County. Teichert, however, shall object to the annexation into a city of that portion of the Property where the "place of sale" is located for the term of this Agreement.

ARTICLE 3 County Obligations.

Section 3.1. Vesting of Teichert's Rights. County agrees that the right to utilize the Project Area on the Property in a manner consistent with the Entitlements is vested in Teichert by this Agreement without further action by Teichert for the period for which the Entitlements have been granted. The permitted mining, reclamation and associated activities shall be those as set forth in the Entitlements. After the period for which the Entitlements have been granted expires, Teichert's vested right, as described herein, expires, whether or not the permitted uses have been fully exercised.

Section 3.2. County Processing and Review. County agrees it will accept for processing and expeditious review and action any complete applications for amendments of the Entitlements or other entitlements that may be necessary to implement the Entitlements.

Section 3.3. Cooperation Between County and Teichert. County shall cooperate in good faith with Teichert in securing all permits that may be required for the development and operation of the Project.

Section 3.4. Inspections. County shall have the right to inspect the Property (at Teichert's expense) at any time without prior notice, in order to ensure compliance with applicable regulations and this Agreement. At a minimum the County shall inspect the Property annually and report all findings to the Board of Supervisors. Failure by the County to do so shall not constitute a breach of this Agreement.

Section 3.5. Inapplicability of Subsequent Legislation. Excepting for any referendum of the Adopting Ordinance, if an ordinance, resolution or other measure is enacted, whether by action of the Board, by voter initiative, or otherwise, that would prevent the mining, processing or reclamation on the Property consistent with the Entitlements and this Agreement, including moratoria, County herein agrees that such ordinance, resolution or other measures shall not apply to the Property or limit the mining, processing and reclamation set forth in this Agreement and the Entitlements.

ARTICLE 4. PROJECT DEVELOPMENT

Section 4.1. Permitted Uses and Development Standards. The permitted uses, the intensity of use, the maximum area and depth of mining, annual limits on tonnage, provisions for reservation and dedication of land for public purposes, the construction, installation and extension of improvements, and other conditions of development of the Property shall be those set forth in the Entitlements and applicable law.

Section 4.2. Applicable Rules and Regulations. During the term of this Agreement, and any extension thereof, the rules, regulations and official policies applicable to and governing the mining, processing and reclamation of the Property shall

be the Entitlements as defined herein, the County General Plan in effect at the time this Agreement is executed, the County Code, County Zoning Code in effect at the time this Agreement is executed, and all other relevant codes, ordinances, resolutions, programs, policies, rules, regulations, and building improvement standards in effect as of the Effective Date.

Nothing herein shall limit the authority of County to exercise its legislative and/or administrative authority to adopt and enforce regulations, particularly as it may apply to County's exercise of its legislative, administrative, and enforcement powers, to protect public health and safety from any condition which is found to create immediate and/or unreasonable risk of injury, and/or which would constitute a nuisance.

The express purpose of this Section is to identify with finality the rules, regulations and official policies that will govern the mining, processing and reclamation of the Project. These rules, regulations and official policies shall govern regardless of future actions which may result in their amendment, including actions by County, whether by ordinance or resolution, or by voter initiative or by other means.

Section 4.3. Binding Effect. To the extent permitted by law, this Agreement shall be binding on any existing city or governmental agency or newly incorporated city or newly created governmental agency with jurisdiction over the Property during the term of this Agreement.

Section 4.4. Conflicts. In the event of a conflict between this Agreement and the Entitlements, this Agreement will control. Notwithstanding the foregoing, the conditions approved by the Board of Supervisors shall apply.

Section 4.5. Minor Deviations. The Municipal Services Agency Administrator and Teichert may agree to minor deviations from the terms of this Agreement without formally amending this Agreement. The Director may approve minor deviations, as provided in the County Zoning Code, from the Entitlements as requested by Teichert without amending this Agreement. As used herein, minor deviations are those modifications that as a whole do not increase the environmental impacts of the Project as determined in the EIR or increase the intensity of use of the Property, and may, for instance, relate to phasing. A description of the deviation(s) shall be reduced by County to writing and a copy placed in County's official file of this Agreement. County shall provide a copy to Teichert.

Section 4.6. Application, Processing and Inspection Fees. The County may revise application fees, processing fees, and inspection fees during the term or any extension of this Agreement, and the revised fee shall apply to the mining, processing

and reclamation of the Project if: (a) such revised fee is applicable to all similar private projects or works, and; (b) the application of such fee is prospective only.

ARTICLE 5. BREACH OF AGREEMENT, ENFORCEMENT, TERMINATION, INDEMNIFICATION, CHALLENGES, TOLLING, RELEASE

Section 5.1. Breach. Failure or delay by either party to perform any provision of this Agreement shall constitute a breach of the Agreement, provided, however, any breach by a successor-in-interest shall not be considered a breach by Teichert or any other non-breaching successor-in-interest of Teichert. In the event of breach, the party alleging such breach shall give the other party not less than thirty (30) days (first 30 days) notice in writing specifying the nature of the alleged breach and the manner in which the alleged breach may be cured. If the breach is not cured prior to the expiration of the notice, or, in the case of a breach which cannot be cured within 30 days, if the breaching party does not diligently commence to cure the breach within 30 days and cause the breach to be cured in the least time reasonably feasible, the Board of Supervisors shall, within the next thirty (30) days (second 30 days), convene a hearing to consider and take action on the matter of the alleged breach.

If no resolution of the matter is reached, the party alleging the breach may institute legal proceedings as provided in Section 8.13 to cure or remedy the breach or may give written notice of termination. The party alleging the breach shall give written notice of legal proceedings within thirty (30) days after the decision by the Board of Supervisors or may give written notice of termination to be effective thirty (30) day (third 30 days) after the decision by the Board of Supervisors.

Section 5.2. Enforcement of Entitlements Provisions. Nothing in this Agreement shall limit County's ability to enforce the provisions of the Entitlements or this Agreement, as provided in Government Code Section 65865.4.

Section 5.3. Enforced Delay, Extension of Times of Performance. Neither party shall deem performance of the terms of this Agreement to be in breach where delays or defaults are due to war, insurrection, strikes, walkouts, riots, floods, earthquakes, fires, casualties, acts of God, or enactment of conflicting state or federal laws or regulations, new or supplementary environmental regulation enacted by the state or federal government. For such cause, County shall not unreasonably withhold a grant of an extension of time for the period of the enforced delay or longer, as may be mutually agreed.

Section 5.4. Termination Prior to Completion of Development. In the event this Agreement for any reason terminates prior to the Entitlements' termination date, Teichert shall have 24 months to pay all fees in full and perform all reclamation

activities, to the satisfaction of the Director, relating to mining that occurred prior to the effective date of the termination.

Section 5.5. Indemnification. Teichert shall indemnify, defend, and hold harmless County and each of County's officers, employees, representatives, agents, successors and assigns, from and against any and all loss, cost, expense (including, but not limited to, attorneys' fees and court costs), damage, injury, liability, cause of action, or claim of any kind or character to any person or property (collectively, "Losses") related to, arising out of, or resulting from, directly or indirectly, any act, negligence, willful misconduct, or breach of any agreement of Teichert or its officers, directors, affiliates, employees, agents, licensees, invitees, contractors or subcontractors, or by any one or more persons directly or indirectly employed by, or acting on behalf of or as agent for Teichert or any of Teichert's contractors or subcontractors ("Teichert Related Parties") relating to, directly or indirectly, development of the Property pursuant to this Agreement, including, but not limited to, any Losses arising from or caused by: (i) the approval of this Agreement; (ii) any use of the Property; (iii) any construction on the Property by Teichert or Teichert Related Parties; (iv) any defect in the design or construction of, or materials used in, the development of the Property pursuant to this Agreement; (v) any defect in soils or in preparation of soils or in the design and accomplishment of grading; (vi) any contamination of the soils, surface water, or groundwater on or below the Property, by any Hazardous Substance, or any other impact or contamination that results in, or is alleged to result in, a nuisance; (vii) any violation or alleged violation by Teichert or Teichert related parties of any law existing as of the date of this Agreement or hereinafter enacted; or (viii) the breach of any covenant or the inaccuracy or incorrectness of any representation and warranty of Teichert to County under this Agreement.

Section 5.6. Challenge to Agreement or Entitlements. In the event of any legal action instituted by a third party challenging the validity of any portion of this Agreement or the Entitlements, including the proceedings taken for approval (including the requirements of the California Environmental Quality Act), or any other act undertaken by the parties hereto in furtherance of this Agreement or its terms, the parties agree to cooperate in the defense of the action. In the event of any such legal action being instituted, the parties hereby agree to cooperate with each other in good faith to defend said action and the validity of each provision of this Agreement. However, the parties hereby agree that each party will independently evaluate the merits of any action against this Agreement. In all such litigation, County shall either defend such litigation or tender its defense to Teichert. In the event that County determines to defend the action itself, Teichert shall be entitled, subject to court approval, to join in or intervene in the action on its own behalf, or to advocate in favor of the validity of this Agreement or the Entitlements. In such an event, each party shall bear its own attorney's fees and costs.

In the event County determines to tender the defense of the action to Teichert, Teichert shall defend the action on its behalf and on behalf of the County, and shall bear all attorney's fees and costs associated with such defense from and after the date of the tender. County, however, may at any time elect to assume representation of itself, and in that event, from and after the date the County gives notice of its election to do so, County shall be responsible for its own attorney's fees and costs incurred thereafter. The filing of such third party legal action shall not delay or stop the mining of the Property pursuant to this Agreement, unless the third party obtains a court order preventing the activity or unless Teichert elects not to mine pursuant to Sections 5.7 and 5.8 below. The County shall not stipulate to the issuance of such order without first obtaining the written consent from Teichert, which may be withheld in Teichert's absolute discretion. If any such injunction or temporary restraining order issues, the term of this Agreement and the Entitlements shall automatically be extended for a period equal to the duration of such injunction and temporary restraining order.

Section 5.7. Tolling of Time Periods to Exercise Approvals. In the event litigation is initiated by any party other than Teichert that challenges any of the approvals for the Project or the environmental document for those approvals and an injunction or temporary restraining order is not issued, the time period in which to exercise these approvals shall be tolled, i.e., suspended for a period not to exceed four (4) years, during the pendency of said litigation, upon request of Teichert. The tolling shall commence upon receipt by the County of written notice from Teichert invoking this right to tolling. The tolling shall terminate upon the earliest date on which either a final order is issued upholding the challenged approvals or said litigation is dismissed with prejudice by all plaintiffs.

Section 5.8. Tolling of Term of Use Permit. In the event litigation is initiated by any party other than Teichert that challenges any of the approvals for the Project or the environmental document for those approvals and an injunction or temporary restraining order is not issued, the expiration date of the Use Permit shall be tolled, i.e., suspended for a period not to exceed four (4) years, during the pendency of said litigation, upon request of Teichert. The tolling shall commence upon receipt by the County of written notice from Teichert invoking this right to tolling. The tolling shall terminate upon the earliest date on which either a final order is issued upholding the challenged approvals or said litigation is dismissed with prejudice by all plaintiffs.

Section 5.9. Release. Teichert, on behalf of itself and its successors and assigns, waives its right to recover from, and forever releases and discharges, County and County's agents from any and all demands, claims, legal or administrative proceedings, losses, liabilities, damages, penalties, fines, liens, judgments, costs or expenses whatsoever (including, without limitation, attorneys' fees and costs), whether direct or indirect, known or unknown, foreseen or unforeseen, that may arise on

account of or in any way be connected with: (i) the physical condition of Property (including, without limitation, the grading and slope conditions thereof and any drainage problems, whether caused by flood, surface or underground water, or any other condition, affecting or relating to the Property); and (ii) the presence in, on, or about the Property or any surrounding property of any Hazardous Substance caused by Teichert's permitted activities. As used herein, Hazardous Substance means any substance, material, or waste that is designated, classified, or regulated as being "toxic" or "hazardous" or a "pollutant," or which is similarly designated, classified, or regulated, under any law regulating Hazardous Substances.

ARTICLE 6. REVIEW

Section 6.1. Annual Report and Review. Once a Work Authorization Permit has been issued and mining has begun, Teichert shall, on an annual basis submit evidence of compliance with all terms of this Agreement pursuant to Government Code Section 65865.1. This annual report shall be combined with the annual report required for compliance with SMARA, the Approval Conditions, and compliance with the adopted CEQA mitigation measures. The report shall also include an accounting of cents per ton funding and how such funds have been expended pursuant to Section 2.4.1.

ARTICLE 7. NOTICES & TERMINATION UPON COMPLETION OF DEVELOPMENT

Section 7.1. Notices. Notices, demands, correspondence, and other communication between County and Teichert shall be sufficiently given if dispatched by prepaid first-class mail as follows:

To County: County of Sacramento
Department of Community Development
827 7th Street Room 230
Sacramento, CA 95814
Attn: Director

To Teichert: A. Teichert & Son, Inc.
3500 American River Drive
P.O. Box 13308
Sacramento, CA 95813
Attn: President

A party may, from time to time, advise the other party of a new address for notices, demands, or correspondence.

Section 7.2. Termination Upon Completion of Development. This Agreement shall terminate conterminously with the Entitlements, in accordance with Section 1.7 of this Agreement, and the Property Owner's and Teichert's vested right to continue mining shall thereupon cease.

ARTICLE 8. MISCELLANEOUS PROVISIONS.

Section 8.1. Representation by Counsel. Each Party specifically affirms that they have received and read a complete copy of this Agreement dated _____ that each Party was represented by counsel, and that they fully understand the provisions of this Agreement. Accordingly, this Agreement shall not be construed against either party.

Section 8.2. Construction of Agreement. The language in all parts of this Agreement shall, in all cases, be construed as a whole and in accordance with its fair meaning. The captions of the paragraphs and subparagraphs of this Agreement are for convenience only and shall not be considered or referred to in resolving questions of construction. This Agreement shall be governed by the laws of the State of California.

Section 8.3. Entire Agreement. This Agreement, together with the documents incorporated by reference and exhibits, constitutes the entire agreement between the parties with respect to the subject matter of this Agreement.

Section 8.4. Further Actions and Instruments. Each of the parties shall cooperate with and provide reasonable assistance to the other to the extent contemplated hereunder in the performance of all obligations under this Agreement and the satisfaction of the conditions of this Agreement. Upon the request of either party at any time, the other party shall promptly execute, file or record any required instruments and writings necessary to evidence or consummate the transactions contemplated by this Agreement, and take any actions as may be reasonably necessary under the terms of this Agreement to carry out the intent and to fulfill the provisions of this Agreement.

Section 8.5. Covenant of Good Faith and Fair Dealing. Neither party shall do anything which shall have the effect of harming or injuring the right of the other party to receive the benefits of this Agreement; each party shall refrain from doing anything which would render its performance under this Agreement impossible; and each party shall do everything which this Agreement contemplates that such party shall do to accomplish the objectives and purposes of this Agreement. Where the consent or approval of a party is required or necessary under this Agreement, such consent or approval shall not be unreasonably withheld.

Section 8.6. No Waiver. No delay or omission by either party in exercising any

right or power accruing upon non-compliance or failure to perform by the other party under the provisions of this Agreement shall impair any such right or power or be construed to be a waiver thereof. A waiver by either party of any of the covenants or conditions to be performed by the other party shall not be construed as a waiver of any succeeding breach or non-performance of the same or other covenants and conditions hereof.

Section 8.7. Applicable Law and Jurisdiction. This Agreement shall be construed and enforced in accordance with the laws of the State of California. Notwithstanding the provisions of Code of Civil Procedure Section 394, Teichert and County agree that the jurisdiction for any legal proceeding involving this Agreement shall be the Superior Court of the State of California in and for the County of Sacramento.

Section 8.8. Recording. The County shall cause a copy of this Agreement to be recorded with the County of Sacramento Recorder no later than ten (10) days following execution of this Agreement by County, which execution will take place no sooner than the effective date of the Adopting Ordinance.

Section 8.9. Invalidity of Agreement. If this Agreement, in its entirety, is determined by a court to be entirely invalid or unenforceable, then this Agreement shall be deemed terminated as of the date of entry of final judgment.

Section 8.10. Invalidity of Provisions of Agreement. If any provision of this Agreement shall be finally adjudicated by a court to be invalid and unenforceable, the remainder of the Agreement shall stay in effect. However, if a court determines that any fee, assessment, charge, or land dedication described herein is invalid, this Agreement shall terminate and the permits described herein shall be rescinded unless the operator agrees in writing to continue providing funds and/or land dedication equal to those in existence prior to the initiation of the litigation.

Section 8.11. Future State and Federal Laws. If future state and federal laws or regulations render any provision of this Agreement invalid or unenforceable, such provisions shall, in the discretion of the Board of Supervisors, be modified or suspended as may be necessary to comply with such state or federal laws and regulations, and the remainder of the Agreement shall continue in full force and effect.

Section 8.12. No Third Party Beneficiary. No person or entity other than the parties to this Agreement shall have any right of action based upon any provision in this Agreement.

Section 8.13. Additional Rights of the Parties. In addition to any other rights or remedies specified herein, either party may institute legal proceedings to cure, correct

or remedy any breach, or to specifically enforce any covenant or agreement herein, or to enjoin any threatened or attempted violation of the provisions of this Agreement, in accordance with Government Code Section 65865.4.

Section 8.14. Authority to Execute. The person or persons executing this Agreement on behalf of Teichert Aggregates Inc. warrant and represent that they have the authority to execute this Agreement on behalf of such parties and represent that they have the authority to bind such parties to the performance of their obligations hereunder.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

A. Teichert & Son Inc.,
a California Corporation

By:_____

Ron Gatto
Executive Vice President and Chief Financial Officer

By:_____

Anne S. Haslam
Secretary

-AND-

COUNTY OF SACRAMENTO, a political subdivision of the State of California

(SEAL)

ATTEST:_____
_____, Clerk
Board of Supervisors

By:_____
_____, Chair
Board of Supervisors

Approved as to form:

By: _____
_____
Supervising Deputy

----------ACKNOWLEDGEMENT----------

STATE OF CALIFORNIA

COUNTY OF _____

On _____ (date) before me _____
(Notary Public), personally appeared
_____
_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____ (SEAL)
Notary Public Signature

Title or Type of Document _____

Date of Document _____ Number of Pages _____

EXHIBITS:

----------ACKNOWLEDGEMENT----------

STATE OF CALIFORNIA

COUNTY OF _____

On _____ (date) before me _____
(Notary Public), personally appeared
_____
_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

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WITNESS my hand and official seal.

_____ (SEAL)
Notary Public Signature

Title or Type of Document _____

Date of Document _____ Number of Pages _____

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----------ACKNOWLEDGEMENT----------

STATE OF CALIFORNIA

COUNTY OF _____

On _____ (date) before me _____
(Notary Public), personally appeared
_____
_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____ (SEAL)
Notary Public Signature

Title or Type of Document _____

Date of Document _____ Number of Pages _____

EXHIBITS:

----------ACKNOWLEDGEMENT----------

STATE OF CALIFORNIA

COUNTY OF _____

On _____ (date) before me _____
(Notary Public), personally appeared
_____
_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

_____ (SEAL)
Notary Public Signature

Title or Type of Document _____

Date of Document _____ Number of Pages _____

EXHIBITS:

1.Looking northeast from Elder Creek Road at Aspen VIII.

2. Looking southeast from Elder Creek Road at Aspen IX.

CONTEXT PHOTO NOS.: 1 & 2	CONTROL #: PLNP2014-00201 PROJECT NAME: Aspen VIII and IX Mining Use Permit	PARCEL NO.: 063-0180-005, 006, 063-0160-001, 066-0020-006, 066-0030-001 and 066-0050-003 DATE: 3-18-15 PC ATTACHMENT B Page 1 of 2

3. Looking northwest for Elder Creek Road at Aspen VIII.

4.. Looking north from Florin Road at Aspen IX.

CONTEXT PHOTO NO.: 3 & 4	CONTROL PLNP2014-00201 PROJECT NAME: Aspen VIII and IX Mining Use Permit	PARCEL NO.: 063-0180-005, 006, 063-0160-001, 066-0020-006, 066-0030-001 and 066-0050-003 DATE: 3-18-15 PC ATTACHMENT B Page 2 of 2

HRG. DATE:	
PLANNER	
NOTICES	

CPAC REFERRAL

CPAC COMMUNITY		
ER RELEASE	Y ☐	N ☐

Aspen 8 and 9 Use Permit, Community Plan Amendment and Rezone, Reclamation Plan, and Development Agreement

Date | PROJECT NAME | **PLNP2014-00201** CONTROL NO.

APPLICANT: Teichert Materials

A.P.N.: 063-0180-005, 006, 063-0160-001, 066-0020-006, 066-0030-001, 066-0050-003, and 063-0190-027

ZONING: IR, AG-80 and AG-160

ADDRESS: 3500 American River Drive
Sacramento, CA 95864
Attention: John Lane

CONTACT: John Lane

TELEPHONE: 916-484-3256

COM. PLAN: Agricultural

GEN. PLAN: General AG

REQUEST:

1) A Use Permit to allow surface mining on approximately 357 acres of a 690 acres project site.
2) A Use Permit to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.
3) A Rezone to add the Surface Mining Combining Zone to 690 acres of IR, AG-80 and AG-160 land.
4) A Reclamation Plan to include agricultural uses as the end use of the mine.
5) A Development Agreement to between the applicant and the County of Sacramento.

☒ PRIMARY CPAC **Vineyard**

☐ ADJACENT CPAC (If Applicable)

HEARING BODY: Planning Commission

REVISED APPLICATION: ☐ DATE:

Planning Division Contact:	**Mark Michelini**	**RETURN BY:** (Date)

ADVISORY COUNCIL COMPLETE THIS SECTION - PLEASE PRINT OR TYPE

1. Meeting date(s) at which proposal discussed: April 5, 2014
2. Number of council members present: 5 Quorum: YES ☑ NO ☐
3. Is the proposal compatible with the area or neighborhood in which proposed: YES ☐ NO ☐
4. Summarize neighborhood response or reaction: Mixed reaction. Concerned that Teichert has dug below 60ft. in the past. Teichert has violated dust limits in past. Teichert trucks throw rocks and break resident windsheilds with no recourse →
5. Motion by: Jag Nagendra Seconded by: John Costa
6. Council recommendation: **APPROVAL** ☑ **DENIAL** ☐ **CONTINUE** ☐ Date: 4/5/16
7. Council vote on motion to reflect recommendation
   YES: 8 **NO:** _____ **ABSTAIN:** _____ **ABSENT:** _____
8. Comments/conditions on recommendation:

REVISED 01/02/13

Tim Murphy — Investigating Member

Sophia Trotter-Goetze — Chairperson or Secretary

4/5/16 — Date

FOR ADDITIONAL SPACE PLEASE USE REVERSE SIDE

Return to: SACRAMENTO COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
827 7th Street, Room 230, Sacramento, CA 95814
ATTN: CPAC Secretary

for residents. Concerned that when Teichert digs below 60ft they will effect private residential wells. What will happen, what recourse will residents have? Teichert caused so much damage on Sunrise and Florin that cars that used those roads were damaged. It took about 5 years for Teichert to repair these roads. Residents are concerned that mining will have a negative long-term impact on property values.

RESOLUTION NO.

AUTHORIZING THE DIRECTOR OF COMMUNITY DEVELOPMENT TO EXECUTE A DEVELOPMENT AGREEMENT BETWEEN A. TEICHERT & SON INCORPORATED, TEICHERT LAND COMPANY AND THE COUNTY OF SACRAMENTO CONTROL NUMBER PLNP2014-00201

WHEREAS, on July 25, 2016, public hearing have been held before the County of Sacramento Planning Commission; and

WHEREAS, the County of Sacramento Planning Commission forwarded its recommendation to this Board; and

WHEREAS, the County of Sacramento has adopted the Development Agreement for the Aspen VIII and IX Mining Use Permit; and

WHEREAS, County of Sacramento is amending the Zoning Code to incorporate the Development Agreement between A. Teichert & Son, Inc. Teichert Land Company and the County of Sacramento; and

NOW, THEREFORE, BE IT RESOLVED that the County of Sacramento Zoning Code has been amended to incorporate the Development Agreement.

BE IT FURTHER RESOLVED that the Board hereby authorizes the Director of Community Development to execute the Development Agreement with A. Teichert & Son, Teichert Land Company, and the County of Sacramento as shown on Exhibit "A" attached to corresponding Ordinance SZC-2016-00xx.

On a motion by Supervisor _____, seconded by Supervisor _____, the foregoing Resolution was passed and adopted by the Board of Supervisors of the County of Sacramento this 13th day of September 2016, by the following vote, to wit:

AYES: Supervisors,

NOES: Supervisors,

ABSENT: Supervisors,

ABSTAIN: Supervisors,

RECUSAL: Supervisors,
(PER POLITICAL REFORM ACT (§ 18702.5.))

_____
Chair of the Board of Supervisors
of Sacramento County, California

(S E A L)

ATTEST: _____
Clerk, Board of Supervisors

Aspen VIII and IX
Mining and Reclamation Plan

Sacramento County, California

Prepared For:

County of Sacramento
Planning and Environmental Review
827 7th Street
Sacramento, CA 95814

Prepared By:

Teichert Materials
3500 American River Drive
Sacramento, CA 95864
Contact: Barry Baba, (916) 480-5505
Jasmine Greer, (916) 484-3230

~~December 2015~~
~~Revised, January 2016~~
Revised, February 2016

PC EXHIBIT 1

Aspen VIII & IX
Mining and Reclamation Plan
Sacramento County, California

SUMMARY

Teichert Materials (Teichert) proposes to mine a portion the Aspen VIII and IX Property, located in unincorporated Sacramento County, for sand and gravel resources. Currently, the Property is utilized for grazing and rural residences. In order to return the affected land to beneficial use, a reclamation plan (Plan) has been prepared pursuant to the State Surface Mining and Reclamation Act (SMARA) of 1975 and associated regulations (updated January 2012), as codified in Public Resources Code (PRC), Division 2, Chapter 9, Section 2710 et seq., and the Sacramento County Code Chapter 20.04 (Surface Mining & Reclamation) and Zoning Code Title II, Article 4 (Surface Mining Combining Land Use Zone). For purposes of this document, state regulations are referenced as "SMARA" or "PRC" sections and local County ordinances are referenced as "Code". SMARA policies were prepared in accordance with the Administrative Procedures Act (Government Code) and are found in California Code of Regulations (CCR), Title 14, Division 2, Chapter 8, Subchapter 1. This Plan was developed in accordance with the reclamation standards developed by the State of California, Department of Conservation, Division of Mines and Geology pursuant to SMARA and describes the information needed for the final reclamation of the Aspen VIII and IX Property.

In preparation of this document, information was collected from onsite field surveys, visits to nearby reclamation areas, and from Teichert's previous reclamation projects. The reclamation plan embraces the Legislative intent that mined land is returned to a valid, quantifiable, and desirable post-mining use. This reclamation plan describes a process that will minimize environmental impacts during and resulting from mining, implement reclamation activities as soon as possible, and return the mined lands to a beneficial end use suitable for open space grassland.

This Reclamation Plan has been divided into seven general sections by discipline:

I. Mining Operations and Closure;

II. End Land Use;

III. Geotechnical Requirements;

IV. Soils, Hydrology, and Water Quality;

V. Environmental Setting and Protection of Fish and Wildlife Habitat;

VI. Resoiling and Revegetation; and

VII. Administrative Requirements

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SECTION 1.0 MINING OPERATION AND CLOSURE

1.1 Name and Address of Operator – *SMARA 2772(c)(1); Sacramento County Code (Code) § 20.04.060(B)(1)*

Land Owner	Operator
Teichert Land Company (Aspen VIII)	A. Teichert & Son (Teichert Materials)
Triangle Properties & Teichert Land Co. (Aspen IX)	PO Box 15002
PO Box 15002	Sacramento, CA 95851
Sacramento, CA 95851	

1.2 Type and Quantity of Minerals to be Mined – *SMARA 2772(c)(2); Code § 20.04.060(B)(2)*

The Aspen VIII and IX properties contain significant amounts of high quality portland cement concrete-grade (PCC-grade) aggregate material (or material of a similar strength). Based on drill-hole investigations, the total quantity of material to be mined is estimated to be 15 to 23 million tons. Production rates will vary as a function of market demand. However, the estimated maximum production rate from the mining proposed in this application is approximately 4 million tons (2.7 million cubic yards) per year, with a total of approximately up to 23 million tons (34.5 million cubic yards) to be mined over the life of the operation.

1.3 Initiation and Termination Date – *PRC 2772(c)(3); Code § 20.04.060(B)(3)*

Mining is anticipated to commence immediately following approval of the Project and will continue for up to 15 years from the commencement of mining. The Aspen VIII and IX Project will have a termination date of 31 December 2031.

1.4 Maximum Anticipated Depth of Mining – *PRC 2772(c)(4); Code § 20.04.060(B)(4)*

Maximum mining depths will vary in different locations based on the depth of overburden and ultimate depth of aggregate reserves. If overburden depths are encountered that are excessive, then further mining may not occur in that area. Based on the drill-hole data, it is anticipated that the final depths of any location on the proposed site will not exceed 60 feet below ground surface (bgs) elevations (15 feet AMSL [Above Mean Sea Level] [NGVD 29]). Typical final depths are anticipated to be 30 to 50 feet bgs (45 to 25 feet AMSL). Ultimate allowances related final depth of the mine will be based on maintaining adequate clearance between the bottom of the pit and the depth of on-site groundwater. Data collected in February 2014 from existing on-site groundwater wells show groundwater between 112 to 118 feet below existing grade (37 to 43 BMSL [Below Mean Sea Level).

1.5 Project Site Description – *SMARA 2772(c)(5); Code § 20.04.060(B)(5)*

The proposed Project site is located approximately 0.5 mile south of Jackson Highway and 0.5 mile east of Bradshaw Road (Figure 1). The Project consists of two properties, known as Aspen VIII and Aspen IX,

which are collectively referred to as "the Site." Elder Creek Road bisects the Site, with Aspen VIII to the north and Aspen IX to the south. The Site is located within Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series *Carmichael, California* quadrangle.

The 319-acre Aspen VIII property (Sacramento County Assessor's Parcel Numbers (APNs) 063-0180-005, -006 and 063-0160-001) is bounded by Elder Creek Road to the south, Bellevue and Arlington Cemeteries to the west, and agricultural land to the east (Figure 2). The Aspen IX property (APNs 066-0020-006, 066-0030-001 and 066-0050-003) consists of 363 acres south of Elder Creek Road, east of Bradshaw Road, north of Florin Road and west of Excelsior Road (Figure 2). Access to the Site is available from driveways off Elder Creek Road.

The Site is underlain by Pliocene-Age Laguna Formation. The Laguna Formation consists of consolidated alluvium derived from fluvial and glacial deposits. Site soil conditions generally consist of two characteristic layers: clayey overburden and underlying silty/clayey gravel with cobbles. The overburden at the site ranges in thickness from about 6 to 20 feet and generally consists of interbedded layers of clay and sand. Material deposits below the overburden typically consists of medium dense to very dense clayey gravel and poorly graded gravel with cobbles up to 8 inches. The gravel and cobble units typically include weathered to fresh metavolcanics and cemented sandstones and are the aggregate source for the Project. The strata proposed for mining overlays variably weathered, fin-clastic deposits of sandstone, siltstone, mudstone, and claystone.

The Site is located within boundaries of the Morrison Creek and Elder Creek Watersheds (Figure 3). The Morrison Creek watershed occupies approximately 199 acres in the western portion of the Site, while the Elder Creek Watershed includes approximately 483 acres in the southern and eastern portions (Figure 3). Although Morrison Creek itself does not traverse the Site, its southern watershed boundary lies within the western portion of Aspen VIII and along the northwestern portion of Aspen IX before transitioning into the Elder Creek watershed to the south. Elder Creek occurs on both Aspen VIII and IX, whereby it enters Aspen VIII on the southeast and exits Aspen IX on the west (Figures 2 and 3). The creek is channelized throughout the Aspen VIII portion of the Site, where it eventually enters an artificial expansion "pond" before flowing under Elder Creek Road and into Aspen IX. Once entering Aspen IX, the creek maintains its natural course before exiting the Site on the west where it is once again channelized.

Elder Creek originates near the intersection of Kiefer Boulevard and Eagles Nest Road and eventually discharges into Morrison Creek near Brookfield Drive in the City of Sacramento, approximately 8 miles west of the Property site. Historically, Elder Creek was probably an ephemeral to intermittent watercourse, seasonally supported by winter precipitation and runoff from the surrounding uplands. Today, however, the majority of Elder Creek can be characterized as a semi-perennial creek fed primarily by runoff from ranches, residential areas, and irrigated pasture lands. Within the Site, Elder Creek is bordered by irrigated pastures, which are supported by a groundwater release and recycling system that provides year-round irrigation to fields. In this system, groundwater is first supplied to pastures during the early summer months and allowed to sheet across fields. This water eventually drains into a

network of surrounding ditches and irrigation ponds for capture and reutilization, while excess irrigation runoff flows to Elder Creek.

1.6 Mine Plan and Phasing – *PRC 2772(c)(6); Code § 20.04.060(B)(6)(a)*

Teichert proposes to mine a total of 352.5 acres. This mining will occur in three phases, with Phase A (132.2 acres) and Phase B (122.3 acres) occurring in Aspen VIII and Phase C (98.0 acres) in Aspen IX (Figure 4). A timetable of 15 years is proposed to complete mining and reclamation of all three phases. In general, mining will begin at the northwestern section of Phase A and progress south and eastward into Phase B (Aspen VIII). After completion of mining in the first two phases, mining will commence in Phase C (Aspen IX). A tunnel under Elder Creek Road will connect Phase C to mining areas north of the road, and will allow for the extension and utilization of the conveyor system.

Activities in each phase of operations include:

- Removal and stockpiling of topsoil by means of a variable combination of scrapers, loaders, dozers and excavators;
- Extension of existing electric conveyor system into Aspen VIII ;
- Removal and internal transfer and/or exportation of overburden by means of a variable combination of scrapers, loaders, dozers and excavators;
- Removal of aggregate material by means of a variable combination of scrapers, loaders, dozers and excavators;
- Transport of aggregate material to Teichert's processing plant using electrical conveyor system; and
- Reclamation concurrent and/or following completion of mining.

1.6.1 Electric Conveyor Belt System

Material mined from the Site will be transported via an electric conveyor belt system to Teichert's Perkins processing plant, approximately 4 miles to the northwest. Teichert will construct a new conveyor segment which will exit the Site near the northwestern corner of Aspen VIII, and tie in with the existing conveyor system located on the currently active Aspen V South mine site, located immediately north of Aspen VIII. This new portion of conveyor, serving as a connection between Aspen VIII and the existing conveyor on Aspen V South, has been included as part of the Project Site (Figure 1). The reclamation obligations described in this document which addresses requirements for a return to open space grassland will likewise apply to the area disturbed by this new portion of conveyor proposed to be located on Aspen VIII, Aspen IX and a portion of Aspen V-South.

The existing conveyor system crosses several Teichert owned parcels and other mining areas before reaching the Perkins processing plant. Teichert will extend and continue operating the existing conveyor system to transport materials from the Aspen VIII and IX project site to the Perkins processing plant. Pursuant to the use permit for the Aspen VIII and Aspen IX project, the conveyor will continue to

operate at its existing alignment on the other mining and non-mining areas even after their respective use permits expire and the mines close.

Furthermore, upon approval of the reclamation plan for Aspen VIII and IX, the reclamation obligations and financial obligations for the entire electric conveyor system will be transferred to the Aspen VIII and IX reclamation plan including the on-going financial assurance mechanism (FAM) and the financial assurance cost estimate (FACE).

Table 1 specifies the reclamation requirements for Aspen VIII, Aspen IX and the conveyor extension to Aspen V-South. Table 2 specifies the reclamation requirements for the existing conveyor system on active mine sites.

TABLE 1. CONVEYOR RECLAMATION STANDARDS FOR NEW PORTION OF CONVEYOR LOCATED ON ASPEN VIII, ASPEN IX AND A PORTION OF ASPEN V-SOUTH

Mine Name	APN	Reclamation Plan Standards
Aspen IX	066-0020-066	Section 6.0 of this Reclamation Plan
Aspen IX	066-0030-001	Section 6.0 of this Reclamation Plan
Aspen IX	066-0050-003	Section 6.0 of this Reclamation Plan
Aspen VIII	063-0180-005	Section 6.0 of this Reclamation Plan
Aspen VIII	063-0180-006	Section 6.0 of this Reclamation Plan
Aspen VIII	063-0160-001	Section 6.0 of this Reclamation Plan
Aspen V South Conveyor Extension	063-0190-027	Section 6.0 of this Reclamation Plan

TABLE 2. CONVEYOR RECLAMATION STANDARDS FOR EXISTING CONVEYORS COVERED UNDER SMARA

Mine Name	APN	Reclamation Plan Standards
Aspen VI	063-0040-067	Section 1.6.2 of this Reclamation Plan
Aspen VI	063-0040-018	Section 1.6.2 of this Reclamation Plan
Aspen VI	063-0040-034	Section 1.6.2 of this Reclamation Plan
Aspen V	063-0040-016	Section 1.6.2 of this Reclamation Plan
Aspen V	063-0040-030	Section 1.6.2 of this Reclamation Plan
Aspen V South	063-0190-029	Section 1.6.2 of this Reclamation Plan
Aspen V South	063-0190-028	Section 1.6.2 of this Reclamation Plan
Aspen V South	063-0190-015	Section 1.6.2 of this Reclamation Plan
Aspen V South	063-0190-014	Section 1.6.2 of this Reclamation Plan
Aspen IV	063-0030-016	Section 1.6.2 of this Reclamation Plan
Aspen IV	063-0030-017	Section 1.6.2 of this Reclamation Plan

1.6.2 Conveyor Reclamation Standards for Existing Off-site Conveyor System

Following the cessation of mining on the Aspen properties, the conveyor system shall be completely removed. On those off-site parcels identified in Table 2, which require reclamation under SMARA due to the fact that they are current active mine sites, the area(s) used for the conveyor and roadway shall be graded and revegetated as follows:

Site Preparation

All areas shall be graded such that the drainage of each area will be allowed to collect at within retention areas (sumps) to minimized surface ponding areas. Any roadbase materials used on access roads shall be removed prior to ripping and revegetation. Prior to seeding, all areas shall be ripped to a minimum of 12 inches to de-compact ground surface previously compressed by various equipment. Ripped areas will also be disked with a tractor to break up any large clods left from ripping.

Revegetation Plan

Final revegetation of the site will consist of various annual grasses and other forage species characteristic of the area. Each phase, including both slopes and reclaimed pit floor, will be broadcast seeded in early fall (by October 15th) when environmental conditions are most favorable for success. A seed mix and application rate is summarized in Table 3 below. All seeding rates are measured as "pure live seed" (PLS).

TABLE 3. RECLAMATION SEED MIX AND APPLICATION RATE

Type	Common Name	Botanical Name	Pounds per Acre
Grasses	Soft-chess brome	Bromus hordeaceus	15.0
	Wild oat	Avena fatua	9.0
	Annual (Zorro) fescue	Vulpia myuros	7.0
	Italian ryegrass	Lolium multiflorum	5.0
Forbs	Rose clover	Trifolium hirtum	7.0
	Crimson clover	Trifolium incarnatum	3.0
	Red-Stem filaree	Erodium botrys	2.0
	Totals		48.0

A slow-release fertilizer (e.g. 22-11-9) may be applied with the seed mix to assist with initial revegetation efforts. Use of fertilizers or other soil amendment shall only be applied to assist initial establishment (i.e., first year) and not be used to facilitate on-going maintenance of vegetation.

The site will remain un-grazed (fallow) for at least two years to protect initial revegetation efforts and promote natural reseeding. Upon the conclusion of revegetation efforts, the acreage will be restored to non-irrigated pasture and a grazing lease will be negotiated with local ranchers.

1.7 Public Health and Safety – *CCR 3502(b)(2), CCR 3713(b); Code § 20.04.060(B)(12)*

All equipment associated with mining of aggregate material at the Site shall be stored in designated areas, and then removed from the Site upon completion of all mining and reclamation activities.

At the completion of operations, appropriate measures shall be taken to return the Site to a safe condition that is free of all material and equipment associated with aggregate mining. Structures and equipment shall be dismantled and removed, and any waste produced through mining activities shall be disposed of off-site according to all state and local health and safety ordinances. Reclamation of this

Site will involve the restoration of open space grassland. To preserve access for authorized vehicles and wildlife and to ensure public safety, fencing and locked access gates associated with the site shall be maintained after reclamation is complete. Drill holes and water wells shall be completed or abandoned in accordance with applicable laws.

SECTION 2.0 END LAND USE

2.1 Proposed End Use – *PRC 2772(c)(7), PRC 2772(c)(8); Code § 20.04.060(B)(11)*

The proposed end use for the Site after reclamation is a return to open space grassland, similar to the surrounding area. To achieve this end topsoil shall be placed and graded to provide a suitable growing medium for the establishment of protective vegetative cover. After the placement of soils, the reclaimed pit floor shall be seeded to encourage conversion to grassland habitat. Slopes shall be reclaimed to no steeper than two feet horizontal to one foot vertical (2:1), with rounded edges in order to mimic surrounding landforms, then seeded with grasses in order to prevent erosion. Permanent losses to agricultural land (i.e., irrigated pasture) shall be mitigated for in accordance with County General Plan Policy AG-5, which requires mitigation (on a 1:1 basis) for the conversion of more than 50 acres of farmland designated as prime, statewide importance, unique, or local importance by the State Department of Conservation.

In addition to a return to open space grassland, reclamation of the Site will include a dedicated and rough graded alignment for a future north/south arterial connection that is shown in the Sacramento County 2030 General Plan – Transportation Plan. The graded alignment will accommodate the extension of Knox Road, which currently terminates south of the Project Site. The graded alignment shall be constructed and/or reserved at a width of 74 feet and with an additional 20 feet on both sides for installation of utilities, curb, gutter, and sidewalk. Within Aspen IX, the at grade alignment will connect to Knox Road at the southern property line, cross Elder Creek and then proceed north adjacent to, and outside of, the 200-year Elder Creek floodplain, and connect to Elder Creek Road at a future intersection. From said intersection, the graded alignment will traverse Aspen VIII, leaving the Site at the northern property boundary. The roadway alignment through Aspen VIII will either (1) be built back to existing grade, or (2) shall descend into the pit with a maximum longitudinal slope ranging from 5% to 8%. The alignment and vertical profile of the right-of-way through Aspen VIII will be determined in the course of ongoing County planning efforts; the precise alignment, profile, and design shall be determined to the satisfaction of the County's Department of Transportation prior to final reclamation. Following construction of the earthen roadway alignment, the structure shall be disked and seeded to encourage establishment of grassland habitat. In the future, the roadway structure may be improved and further constructed. These future activities are not under the scope of this Plan.

Similar to the arterial alignment, reclamation of the Site will provide for a trail easement primarily located along the berm on the north side of Elder Creek and the future arterial alignment; the grade and slopes of which shall be designed to provide for safe use, entry and exit by members of the public (Figure 7). This trail easement will include the installation of a suitably compacted base rock foundation as the easement surface. In the future, as part of a trail master plan effort, a paved bicycle and pedestrian trail may be improved and further constructed. Future activities related to trail construction, operation and maintenance will be guided by future permitting efforts through the County and are not under the scope of this Plan.

2.2 Future Mining - *PRC 2772(c)(9)*

Teichert has no plans to conduct additional mining on this site. The proposed reclamation will not detrimentally affect the feasibility of future mining in the area. Reclamation activities will be confined to Teichert's mining area. These activities will not affect the ability of nearby property owners to mine their properties.

SECTION 3.0 GEOTECHNICAL REQUIREMENTS

3.1 Final Slopes – *CCR 3502(b)(3), CCR 3704(d), CCR 3704(e); Code § 20.04.060(B)(6)(b)*

Final slopes shall be engineered and contoured so as to be geologically stable, prevent erosion, and to blend with the surrounding topography where practical. Final slopes shall not be steeper than 2:1 (H:V). To accommodate all stormwater foreseeable in a 20 year/1 hour intensity storm event, two retention basins encompassing approximately 14 acres of pit bottom will be constructed. As shown in Figure 7, one retention basin will be located in each pit.

3.2 Disposition of Fill Materials – *CCR 3502(b)(4), CCR 3704(b); Code § 20.04.060(B)(8) and (9)*

Subject to the approval of the County, any backfilled and graded areas shall be compacted to avoid excessive settlement and to the degree necessary to accommodate anticipated future uses. If materials are required for refilling, they shall be of a quality suitable to prevent contamination and/or pollution of groundwater. If materials for backfilling and grading are obtained from an area other than the site of surface mining operations, such materials shall be approved by the Planning Department before placement in reclamation.

SECTION 4.0 SOILS, HYDROLOGY, AND WATER QUALITY

The Natural Resources Conservation Service (NRCS) soil surveys for Sacramento County identifies six soil types within in the Project study area (NRCS 1993) (Figure 5). The most predominant soil component is Red Bluff-Xerarents complex, 0 to 2 percent slopes, which is disturbed by farming/grazing activities throughout much the proposed mining areas. Red Bluff loam, 0 to 2 percent slopes is the second-most predominant soil type in the study area. Other soil types include San Joaquin silt loam, 0 to 3 percent slopes; Kimball silt loam, 0 to 2 percent slopes; San Joaquin silt loam, leveled; and Hedge loam, 0 to 2 percent slopes. Detailed summaries of these soil types have been described in the original wetland delineation report and recent biological resources assessments prepared by Foothill Associates (2006) and Teichert (2014).

The hydrologic regime of the Site is characterized by both seasonal precipitation and storm water runoff during the winter rainy season (normally November through March) and summer irrigation via groundwater wells (generally April through September). Wetland features identified and mapped within the site include vernal pool, seasonal wetland, seasonal swale, freshwater marsh, perennial stream, ephemeral stream, irrigation pond, and ditch (Figure 6). Elder Creek is channelized through portions of the Aspen VIII site and continues under Elder Creek Road to its natural course, where it traverses the Aspen IX site in a northeast to southwest direction. Foothill Associates conducted a wetland delineation of the Project study area in 2006 (Foothill 2006). ECORP Consulting, Inc. re-delineated the Project study area in March 2009 and again in 2014 as part of the development of the Proposed Project (ECORP 2009; ECORP 2014). The U.S. Army Corps of Engineers (Corps) issued a preliminary jurisdictional determination (PJD) on 03 June 2014. A total of 27.796 acres of wetland and waters of the U.S. have been identified within the proposed Project site.

4.1 Site-Specific Sediment and Erosion Control – *PRC 2773(a), CCR 3503(a), CCR 3503(e), CCR 3706(c), CCR 3706(d), CCR 3706(e), CCR 3710 (a); Code § 20.04.060(B)(6)(b) and (9)(b)*

Erosion and sedimentation controls shall be implemented during the life of the Project. A slope stability analysis shall be conducted by a Registered Civil Engineer documenting that the proposed mining slopes will exhibit adequate static and seismic factors of safety. Erosion control features, such as berms, silt fences or V-ditches, shall be constructed and maintained where necessary to control erosion. Erosion control methods shall be designed to handle runoff from not less than the 20 year/1 hour intensity storm event. The site shall be graded to allow stormwater runoff to collect in the proposed mining pits, where water will percolate or be directed into the designed retention basins. At the conclusion of mining, the Site will remain contoured so that stormwater runoff shall be directed to the retention basins, which shall be sized to contain anticipated runoff from a 100-year flood event.

Various grading and revegetation activities associated with reclamation shall be carried out to minimize erosion and convey surface runoff to interior retention basins. All erosion and sedimentation shall be controlled during all phases of reclamation to minimize siltation of nearby water courses per the Central

Valley Regional Water Quality Control Board and the State Water Resources Control Board. To minimize erosion, the finish grading of pit slopes shall be performed as soon as practical after the completion of mining activities. The grading of final slopes, the replacement of soil, and associated erosion control measures will normally take place prior to November 1. Furthermore, a drought-tolerant, weed-free mix of grass species shall be established on slopes or alternate erosion control (mulch or netting) shall be placed on exposed soil on the slopes.

Stormwater retention basins shall be created to collect surface runoff and protect surrounding land and water resources. These basins shall be located in natural low points, with surrounding topography graded gently such that runoff will flow naturally and not rely solely on ditches and berms to direct runoff. The retention basins shall be graded such that they are lower than all other surrounding topography, including that of the adjacent properties, allowing water to avoid impacting neighboring parcels. Any alterations to drainage plans shall not cause increased erosion or sedimentation.

4.2 Sediment and Erosion Control Monitoring Plan – *PRC 2773(a); Code § 20.04.060(B)(6)(b) and (9)(b)*

During active mining and following significant storm events, all drainages and erosion control features shall be inspected to ensure that they continue to function as designed. Any deficiencies observed during inspections shall be corrected within seven days of observation. If deficiencies cannot be corrected within seven days, Teichert will contact and coordinate a repair plan and schedule with the County.

Where mining has been completed and reclamation initiated, areas shall be inspected regularly for erosion during the winter months throughout the reclamation monitoring period, with a particular focus on reclaimed slopes. Inspections shall be made within two days of any storm event that results in one-half or more inches of rain within a two-day period. Erosion shall be corrected when rills exceed 5 square inches in cross section and 5 feet in length. These rills shall be backfilled with additional soils and mulched and reseeded within 30 days after observation. If deficiencies cannot be corrected within 30 days, Teichert will contact and coordinate a repair plan and schedule with the County. If erosion continues or is more significant (i.e., localized or sheeting), straw bales, wattles, netting, or a combination of these shall be incorporated. Long-term erosion control is intended to be achieved through revegetation and supplemental materials, if necessary. The performance of these erosion control measures shall be monitored by Teichert and corrective measures shall be employed as needed to achieve and maintain effective erosion control throughout the reclamation-monitoring period of each phase.

SECTION 5.0 ENVIRONMENTAL SETTING AND PROTECTION OF FISH AND WIDLIFE HABTAT

5.1 Existing Habitats and Plant Communities – *CCR 3502(b)(1)*

The majority of the Project study area currently consists of irrigated pastures and annual grasslands. Other habitats at the site include perennial stream (Elder Creek), vernal pool, seasonal wetland, swale and ephemeral drainage, ditches and ponds, riparian woodland, and ruderal. A brief summary of these habitats and plant communities are described below. The majority of sensitive habitats (i.e., wetlands, riparian woodland), including Elder Creek, shall be avoided by mining activities.

5.1.1 Irrigated Pasture

Irrigated pastures on the Site consist of approximately 331 acres and are located north of Elder Creek (Figure 6). Farming practices that continue to maintain irrigated pastures consist of leveled areas that are fed by groundwater wells and recycled water from ponds and Elder Creek. These areas are grazed by cattle (cow-calf pairs) through the dry months (typically May through October). The Aspen VIII Property is also harvested for hay in early spring, prior to introduction of livestock herds. A network of ditches and ponds are associated with the irrigated pastures (further discussed in Section 5.1.7 below). Common plant species occurring in irrigated pastures include tall fescue (*Festuca arundinacea*), Kentucky blue grass (*Poa pratensis* subsp. *pratensis*), ryegrass (*Festuca perennis*), dallis grass (*Paspalum dilatatum*), dense sedge (*Carex densa*), field sedge (*Carex praegracilis*), English plantain (*Plantago lanceolata*), white clover (*Trifolium repens*), shamrock (*Trifolium dubium*), cut-leaved geranium (*Geranium dissectum*), and yellow's owl's-clover (*Triphysaria versicolor* subsp. *faucibarbata*).

5.1.2 Annual Grassland

Annual grasslands at the Site are represented by both natural, undulating topography as well as historically leveled areas. This habitat community currently consists of approximately 308 acres (Figure 6). Annual grasslands that have not been leveled are generally located south of Elder Creek, within the southern and eastern portions of Aspen IX. Similar landscapes are also present near the northwestern corner and south-central portion of Aspen VIII. Annual grassland within Aspen IX is grazed by a small herd of cows during the winter months (typically November through April); none of Aspen VIII's annual grassland is currently utilized for grazing.

These areas consists of relatively flat to moderately rolling hills dominated by soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), harewall barley (*Hordeum murinum*), brome fescue (*Festuca bromioides*), longbeak filaree (*Erodium botrys*), perennial mustard (*Hirschfeldia incana*), winter vetch (*Vicia villosa* var. *varia*), common fiddleneck (*Amsinckia intermedia*), yellow star-thistle (*Centaurea solstitialis*), and bindweed (*Convolvulus arvensis*). Vernal pools and seasonal

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wetlands and swales are common within these relatively undisturbed landscapes (further discussed in Sections 5.1.5 and 5.1.6 below).

Other areas that were historically leveled and farmed but that are no longer irrigated are present along the western portions of Aspen VIII and northwest corner of Aspen IX. These areas are generally dominated by Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*), harewall barley, and ryegrass. Some grassland areas also experience seepage from adjacent irrigated fields and ditches, contributing to semi-hydrophytic plants along these borders, including Mediterranean beard grass (*Polypogon maritimus*), toad rush (*Juncus bufonius*), Mediterranean barley, annual hairgrass (*Deschampsia danthonoides*), and pennyroyal (*Mentha pulegium*).

Trees are largely absent in annual grassland communities except along borders where other features exist (i.e., roads, ditches, etc.). A cluster of large red gum eucalyptus trees (*Eucalyptus camaldulensis*) occurs within the western section of Aspen VIII.

5.1.3 Perennial Stream (Elder Creek)

A total of 5.415 acres of perennial stream have been delineated on Site (Figure 6). This includes approximately 8,470 lineal feet of Elder Creek on Aspen VIII. Elder Creek and its associated floodplain are avoided entirely by the Project. The creek is often bordered by wetland vegetation communities of various composition and cover depending on flow rates, duration of flow rates, and water depth. Common plants occurring along Elder Creek include knotgrass (*Paspalum distichum*), dallis grass, tall fescue, Kentucky blue grass, waxy mannagrass (*Glyceria declinata*), annual beardgrass (*Polypogon monspeliensis*), tall flatsedge (*Cyperus eragrostis*), Australian rush (*Juncus usitatus*), cattails (*Typha domingensis* and *T. latifolia*), common tule (*Schoenoplectus acutus* var. *occidentalis*), and creeping water primrose (*Ludwigia peploides* subsp. *peploides*). Riparian woody vegetation is rather limited throughout much of the creek, probably due to present and past grazing pressures. Trees consisting of Fremont cottonwood (*Populus fremontii* subsp. *fremontii*), black willow (*Salix gooddingii*), walnut (*Juglans hindsii*), and weeping willow (*Salix babylonica*) are scattered along portions of Elder Creek, particularly within the Aspen VIII site. This area of the creek also supports dense stands of Himalayan blackberry (*Rubus armeniacus*) and sweetbriar rose (*Rosa rubiginosa*). While Elder Creek presently supports a biological system indicative of a perennial stream, it should be noted that this creek is hydrologically sustained from late-spring through summer by irrigation runoff from adjacent pastures.

5.1.4 Vernal Pools

Numerous vernal pools, totaling 7.260 acres, occur throughout the undisturbed grassland areas of the Project site (Figure 6). These vernal pools vary in maximum water depth between a few inches to 20 inches deep, and range in size from 0.001 to 1.075 acres. They are similar to other isolated, depressional seasonal wetland features at the site, but typically support a predominance of native vernal pool plants such as slender popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Carter's buttercup (*Ranunculus bonariensis* var. *trisepalus*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*Lasthenia glaberrima*), Great Valley coyote thistle (*Eryngium castrense*), creeping spikerush

(*Eleocharis macrostachya*), annual hairgrass, white navarretia (*Navarretia leucocephala*), double-horned downingia (*Downingia bicornuta* var. *picta*), dwarf woolly-marbles (*Psilocarphus brevissimus*), field owl's-clover (*Castilleja campestris*), and Rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*).

Typical resident wildlife species associated with the vernal pools include various aquatic invertebrates and amphibians such as the Sierra chorus frog (*Pseudacris sierra*). The vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*), listed as threatened and endangered, respectively, pursuant to the federal Endangered Species Act, are also known to occur within several vernal pools in the Project area and adjacent sites (pers. observ.).

5.1.5 Seasonal Wetlands, Swales, and Ephemeral Drainage

The Site also supports numerous seasonal wetlands, swales, and an ephemeral drainage, totaling 7.005 acres (Figure 6). The majority of these seasonal wetlands occurring on the Property follow a natural hydrologic pattern where they are saturated (and partially inundated) in winter, but remain dry through summer. These wetlands occur in grasslands and are usually underlain by clay or a heavy clay loam and are very similar to vernal pools, but lack the species associated with vernal pools. Instead, these wetlands are frequently dominated by non-native wetland generalist plants, including ryegrass, Mediterranean barley, Mediterranean beardgrass, common hawkbit (*Leontodon saxatilis* subsp. *longirostris*), and hyssop loosestrife (*Lythrum hyssopifolia*). Some native plants include slender popcorn flower, annual hairgrass, toad rush, baltic rush (*Juncus balticus*), and iris-leaved rush (*Juncus xiphioides*). These wetlands, if inundated for sufficient periods may also support the venal pool fairy shrimp.

In other instances, seasonal wetlands and swales are associated within irrigated pastures and affected by summer irrigation, remaining saturated or inundated for prolonged periods throughout the summer. These wetlands are saturated perennially and dominated by tall flatsedge, creeping spikerush, spatulaleaf loosestrife (*Lythrum portula*), creeping water primrose, willow weed (*Persicaria lapathifolia*), Mediterranean beardgrass, and waxy mannagrass.

5.1.6 Freshwater Marsh

Freshwater marshes, totaling 4.752 acres, are present at various locations throughout the Project site (Figure 6). These wetland features are inundated or saturated for prolonged periods, and occur in conjunction with Elder Creek and other ditches receiving irrigation runoff during the summer months. Because of an extended saturation period, these areas are frequently occupied by perennial hydrophytes, including creeping spikerush, tall flatsedge, waxy mannagrass, smartweed (*Persicaria* spp.), and creeping water primrose. Other common annuals include water pygmy-weed (*Crassula aquatica*), spatulaleaf loosestrife, and Mediterranean barley.

5.1.7 Ditches and Ponds

A network of ditches (2.444 acres) and ponds (0.920 acre) are scattered throughout irrigated pastures (Figure 6). The ditches collect irrigation runoff from pastures, where they eventually collect in ponds and are redistributed back to the pastures. Ditches are frequently lined with various wetland plants including smartweed (*Persicaria lapathifolia, P. maculosa, hydropiper,* and *P. punctata*), creeping water primrose, slender centaury (*Centaurium tenuiflorum*), cattails, common tule, tall flatsedge, creeping spikerush, tapered rush (*Juncus acuminatus*), rice cutgrass (*Leersia oryzoides*), tall fescue, dallis grass, mannagrass, and annual beard grass. One ditch in Aspen VIII was dominated by Sanford's arrowhead (*Sagittaria sanfordii*).

Ponds on site are relatively deep and lack vegetation in their center. Pond levels may also fluctuate considerably depending on irrigation schedules and patterns. The edges of ponds are frequently vegetated with tall flatsedge, dallis grass, annual beard grass and Australian rush. Himalayan blackberry, Fremont cottonwood, willows (*Salix gooddingii and S. babylonica*), and valley oak (*Quercus lobata*) seedlings are often associated with the perimeter of ponds.

5.1.8 Riparian Woodland

Riparian woodland vegetation (approximately 1.091 acres) is limited to narrow bands along Elder Creek in Aspen VIII and around the perimeter of existing ponds (Figure 6). Species found within the riparian woodland habitat include Fremont cottonwood, willows, Himalayan blackberry, and sweetbriar rose. Most of Elder Creek lacks riparian woodland vegetation, probably due to past and present grazing pressures. Existing ditches and ponds also lack riparian woodland species due to routine maintenance of these features.

5.1.9 Ruderal

Ruderal vegetation is frequently associated with various equipment storage areas and access roads. In addition, disposal areas along ditches were frequently lined with ruderal species. Common ruderal species at the site included field mustard (*Brassica rapa*), perennial mustard (*Hirschfeldia incana*), radish (*Raphanus sativus* and *R. raphanistrum*), yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), pineapple weed (*Matricaria discoidea*), prickly lettuce (*Lactuca serriola*), English plantain, pigweeds (*Amaranthus albus, A. blitoides, and A. retroflexus*), mallow (*Malva nicaeensis* and *M. parviflora*), greenstem filaree (*Erodium moschatum*), and soft chess.

5.2 Protection of Fish and Wildlife Habitat – *CCR 3503(c), CCR 3703(a), 3703(b), 3703(c)*

Based upon a general review of the California Natural Diversity Database (CNDDB) (Rarefind Version 5), U.S. Fish and Wildlife Service (USFWS) (Sacramento Field Office website), and California Native Plant Society's Online Inventory of Rare and Endangered Plants of California, it was determined that several sensitive wildlife and plant species have the potential to occur on the Aspen VIII and IX site. Some wildlife species include midvalley fairy shrimp (*Branchinecta mesovallensis*), vernal pool fairy shrimp

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(*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and white tailed kite (*Elanus leucurus*). Potential special-status plant species include Ahart's dwarf rush (*Juncus leiospermus var. ahartii*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii ssp. myersii*), Sacramento Orcutt grass (*Orcuttia viscida*), Sanford's arrowhead and slender Orcutt grass (*Orcuttia tenuis*).

As a follow-up to this initial assessment, Teichert biologist B. Baba conducted a rare plant and general wildlife survey of the entire Site between March 2013 and August 2014 (Teichert 2014a). As a result, B. Baba found populations of Sanford's arrowhead and tricolored blackbird nesting colonies within Site boundaries. In addition, two Swainson's hawks were observed flying overhead and one white tailed kite was seen perched in a willow tree, although no active nests were found. No other sensitive plant or wildlife species were encountered. Teichert has prepared a Biological Resources Assessment (BRA), which shall be used to facilitate the CEQA process for biological resources. This BRA provides a more detailed discussion of special-status species and sensitive habitats occurring or with the potential to occur on the Site, and associated mitigation measures where avoidance is not practicable (Teichert 2014b).

The majority of wetlands, including Elder Creek, shall be avoided by the proposed mining and reclamation activities. A minimum 150-foot setback shall be provided from Elder Creek, in addition to avoidance of all wetlands south of the creek. The wetland complex located at the northwest corner of the Project site will also be avoided with a minimum 250-foot setback. All impacts to wetlands shall be mitigated through compliance with mitigation requirements established by the Corps and USFWS.

In addition to special-status species and wetlands, Sacramento County Code, Chapter 19.12 *Tree Preservation and Protection* provides protection for native oaks including valley oak, interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), and oracle oak (*Quercus morehus*) over 6 inches in diameter at breast height (DBH), and non-oak native trees over 4 inches in DBH, specifically California sycamore (*Platanus racemosa*), Goodding's black willow (*Salix gooddingii*), and northern California black walnut (*Juglans hindsii*). Cottonwood trees (*Populus fremontii*) are not currently provided protection under these regulations. Several native trees were found onsite to be of a sufficient size to be regulated by Sacramento County and Teichert has subsequently prepared an arborist report detailing the sizes, health, and locations of these trees (Teichert 2014c). Should removal of any protected tree be required, Teichert will comply with the County Code and provide the required mitigation.

If project mitigations are identified that require modifications to this Plan, such changes will be made. The Environmental Impact Report will be certified and the Plan approved at the same hearing; by that time, all project mitigations will have been identified and any necessary modifications will have been made.

SECTION 6.0 RESOILING AND REVEGETATION

This section of the reclamation plan is specifically designed to provide for the development of the grassland component of Project's end use which shall be based upon and in consideration of the nature of the surrounding areas and characteristics of the property, available overburden, topsoil and waste fines, and site topography and hydrology. The reclamation design for the Site is detailed in the sections below. The objective of this reclamation is to create a self-sustaining, vegetative cover that will minimize erosion and noxious or invasive weed establishment. Topsoil and suitable growth media shall be used to reclaim the surface to ensure successful revegetation of the site. Included in the plan are the methods of establishment and species types for successful reclamation of an annual grassland vegetation community. This plan is intended to optimize the aesthetic value of the area, while also providing foraging habitat for raptors including Swainson's hawk.

6.1 Soil Handling and Stockpiling – *CCR 3704(c), CCR 3705(e), CCR 3711(a), CCR 3711(b), CCR 3711(c), CCR 3711(d), CCR 3711(e); Code § 20.04.060(B)(6)(b) and (B)(7)*

Preserving soil productivity and minimizing soil compaction are key components during the removal (mining) and replacement (reclamation) process. Article 9 Reclamation Standards section 3704(c) and 3711(a) requires topsoil to be salvaged and stockpiled separately from the subsoil for the purpose of revegetation of disturbed lands (i.e., reclamation to open space grassland). As each phase of mining is initiated, overburden shall be stripped and separated into topsoil and subsoil stockpiles. This reclamation plan identifies the surface 12 to 24 inches of soil to be of sufficient depth for separation as topsoil based on backhoe test pits and reclamation needs for the site. Most test pits conducted at the site revealed that the A and B soil horizons were not clearly distinguishable and averaged 24 inches in depth before encountering a duripan (B. Baba and A. Juncosa [EcoSynthesis], pers. observ.]). In general, soils existing above the duripan layer were considered suitable for revegetation and should be separated as salvageable "topsoil" material. Article 9 Reclamation Standards section 3711(a) requires all vegetation and salvageable topsoil not be removed more than one year preceding surface mining activities.

6.1.1 Top Soil Identification

The first step in identification of top soil salvage areas shall be to pre-identify areas that are infested with undesirable, noxious or highly invasive species (i.e., yellow star-thistle, medusahead, barbed goat-grass grass, etc.). Due to the potentially high seed bank of undesirable species, these areas shall be mapped and avoided for use as topsoil and reclaiming the upper surface. Areas demonstrating greater than 20 percent cover of noxious or invasive weeds shall be avoided, unless previously treated (i.e., herbicide applications the year before) to reduce the seed bank. Soils potentially containing high seed banks of noxious or invasive weeds (i.e., upper 12 inches) shall be discarded or used only as fill material for reclaiming subsurface areas.

6.1.2 Soils Reclamation Test Plot

To assist in the development of final application needs, a soils test plot may be established to determine the "minimum" depth of topsoil required for establishing a permanent vegetative cover (i.e., annual grassland) consistent with the proposed end use of the site. Topsoil substitutes made primarily from existing overburden and/or amendments (i.e., compost or cover crops) may also be evaluated should alternative resources for successful revegetation be necessary.

6.1.3 Soil Salvage and Stockpiling

Depending on results from the test plot, adequate quantities of reclamation topsoil to meet the desired specifications shall be segregated from reclamation subsoil and stockpiled separately for ultimate replacement as the uppermost layer. In order to minimize soil compaction, all handling of soils (soil stripping, stockpiling, and reconstruction) will occur when soil moisture is low. Whenever possible, topsoil shall be used to phase reclamation as soon as can be accommodated by mining operations.

In the event that salvaged overburden is not immediately available for reclamation use (i.e., during the initial phases of mining), it must be stockpiled, with topsoil stored separately from subsoil. Before soil removing operations are initiated, stockpile sites shall be identified on plan maps. A conceptual map depicting soil removal, management phases, and topsoil stockpiles is shown in Figure 8. It is anticipated that initial stockpile areas will be located along perimeter berms around the mine pit (MSHA berms) and may include stockpiling in the existing Aspen V South site where the final pit floor has been established. Some stockpiles will remain longer than others, and some soil may be used immediately after stripping to reclaim portions of a preceding phase.

All topsoil stockpiles shall be mapped and located in areas that are less accessible than subsoil/overburden stockpiles so as to maintain the character of the material without dilution and preserving it for use on the final reclamation surface, and signs shall be placed that specifically designate these stockpiles as topsoil material.

6.1.4 Soil Stockpile Management

Stockpiles will be built and maintained at a slope angle to minimize loss of soil from the stockpile area through sloughing or erosion. Stockpiles shall be broadcast seeded or hydroseeded to reduce water and wind erosion, maintain some degree of microbiological activity, and minimize the establishment of noxious weeds. In addition, erosion control materials (e.g., wattles, coconut fabric rolls, etc.) or retarding basins/ditches shall be installed surrounding the base of all soil stockpiles to prevent soil runoff.

Stockpiles, both topsoil and subsoil, which are not used for reclamation within one mining season shall be planted with an annual grassland seed mix to minimize soil erosion, maintain microbial activity, and discourage noxious weed establishment. All seeding shall be completed by October 31st of the year in which a given stockpile is created. Seed mixes and seeding rates are specified below in Section 6.3;

though specified rates and mixes may be adjusted based on specific site characteristics and seed availability. Seeding methods may include either hydro-seeding or broadcast seeding.

In addition to soil amendments, fertilizer may be used to facilitate revegetation, but care should be applied to not over-fertilize and encourage the establishment of noxious weeds. Future management of soil stockpiles and MSHA berms will also include removing undesirable species (e.g., yellow star-thistle, Russian thistle, etc.) and re-seeding as necessary.

All soil management (handling, stockpiling, maintaining and reconstructing) objectives are intended to limit impact on the soils while maintaining the function and productivity of soils for future reclamation purposes.

6.2 Resoiling – *CCR 3503(f); CCR 3711(e); Code § 20.04.060(B)(6)(b)*

All slopes shall be reclaimed to no steeper than 2:1 (H:V) and then dressed with a suitable layer of topsoil and overburden that shall be track-walked and immediately seeded to prevent erosion. Other areas shall be graded relatively flat and covered with suitable topsoil and overburden. As grading of each area is completed, revegetation as described in Section 6.3 shall be initiated the following fall (October).

Areas where mining has been completed shall be covered with a minimum 12 inches of topsoil, unless a lesser depth is determined to be sufficient by soil test plot results. All final surface areas shall be de-compacted by disking or ripping a minimum depth of 12 inches. Surfaces shall be graded to prevent localized ponding and to minimize the concentration of runoff unless specific rock, pipe, or bioengineered conveyances are provided.

All slope surfaces shall be roughened by track-walking or harrowing so as to leave furrows approximately on the topographic contours (not up and down the slope). Surface micro-topography aids in trapping water and seeds and reduces runoff velocity thereby reducing erosion of slopes.

6.3 Revegetation Plan – *PRC 2773(a), PRC 3711(e); CCR 3503(g), CCR 3705(a), CCR 3705(g) ; Code § 20.04.060(B)(6)(b)*

One of the important concepts underlying the development of a revegetation plan is the necessity to determine future use of the site subsequent to mining. The revegetation plan contained herein and detailed below is specifically designed to provide for the development of open space grassland. The reclamation objectives and their respective revegetation designs are detailed below. Plant species and seeding rates were determined based on several factors, including the character of the surrounding areas, existing soils, expected success, species competition, and desired level of maintenance.

Reclamation of all mined areas will feature a total of approximately 67 acres of grassland slopes surrounding approximately 256 acres of (annual) grassland habitat within the reclaimed floor (Figure 7)[1].

[1]Acreages may vary depending on final elevation of the extended roadway alignment for Knox Road (See section 2.1).

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In addition, two retention basins, totaling approximately 14 acres, have been incorporated into the final design. The grassland floor shall be completed after all reclamation slopes have been constructed. To achieve this end, overburden shall be placed and areas shall be graded relatively flat and dressed with a layer of topsoil material which had been previously stored onsite during mining (see Section 6.1). Typical vegetation will include native and non-native, naturalized species commonly found in the Sacramento Valley (excluding noxious/invasive weeds[2]).

All slopes and pit floor shall be seeded by broadcast seeding or hydro-seeding with an appropriate grassland seed mix selected for its erosion control value (see Section 6.3.2 below). All other areas disturbed by mining-related construction activities will also be revegetated as part of the reclamation process (i.e., conveyor corridors, temporary access roads, graded and dedicated right-of-way, stockpile areas, and berms).

6.3.1 Revegetation Test Plots – *CCR3705(b)*

In addition to determining the appropriate soil medium and depth (see Section 6.1.2 above), revegetation test plots allow Teichert to determine the most appropriate revegetation procedures to be followed to ensure successful establishment of the proposed reclamation plan. The primary objective of a test plot is to document the success or failure in attaining designated objectives and performance standards given various seed mixes and establishment methods/treatments. SMARA legislation states that the construction of test plots may be waived when success of the proposed vegetation can be documented from a similar situation. These objectives would relate to success in grassland and grassland slope reclamation. Teichert's nearby Aspen V and Prairie City (Yost) reclamation sites, located approximately 1.5 and 10 miles to the north and northeast, respectively, demonstrate similar features as those described for Aspen VIII and IX and, therefore, shall be referenced as the revegetation test plots for this reclamation type (Figures 9 and 10) (Teichert 2008, Teichert 2012).

6.3.2 Site Preparation and Seeding – *CCR 3705(c), CCR 3705(d), CCR 3705(h)*

Prior to seeding, all slopes shall be tracked-walked and pit floors shall be ripped to a minimum depth of 12 inches to de-compact ground compressed by various equipment during reclamation construction. Ripped areas will also be disked with a tractor to break up any large clods left from ripping.

Flat areas shall be broadcast seeded using an ATV broadcast seeder-spreader or similar equipment, while slopes shall be seeded by hand using a belly-grinder or hydro-seeded. A slow-release fertilizer (e.g., 22-11-9) may be applied with the seed mix to assist with initial revegetation efforts. Following seeding activities, the surface shall be lightly tilled or harrowed. All seeding shall occur prior to the end of October in each season reclamation is completed. Table 1 shows seed mixes and seeding rates for slopes and grasslands following construction. All seeding rates are specified in terms of pounds, pure live seed (PLS).

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[2]Includes those species categorized as "noxious" by the California Department of Food and Agriculture (CDFA) and "invasive (moderate to high)" by the California Invasive Plant Council (Cal-IPC).

TABLE 4. SEEDING SPECIFICATIONS FOR GRASSLAND SLOPES AND GRASSLAND FLOOR		
COMMON NAME	BOTANICAL NAME	SEED RATE (LBS PURE LIVE SEED/ACRE)
Soft chess	*Bromus hordeaceus*	20.0
Six-weeks fescue	*Festuca myuros*	12.0
Ryegrass	*Festuca perennis*	8.0
Rose clover	*Trifolium hirtum*	7.0
Crimson clover	*Trifolium incarnatum*	3.0
TOTAL		50 lbs/acre

All temporary access roads, haul roads, and conveyor corridors shall also be reclaimed similarly to other reclamation areas, including ripping, disking, and reseeding procedures. Any roadbase materials used on access roads shall be removed prior to ripping and revegetation.

6.3.3 Noxious/Invasive Weed Management – *CCR 3705(k)*

In design and development of a restoration site such as this, there are numerous conditions and elements that may interfere with the accomplishment of the original goals and objectives. Some of the most critical factors affecting restoration are invasive species/weed competition and human vandalism. Each of these issues is addressed separately and a maintenance plan is included below.

Teichert's Aspen VIII and IX site is potentially subject to a number of invasive or noxious weeds, particularly during the reclamation process as new areas are disturbed and being revegetated. Potentially invasive grassland species, such as yellow star-thistle (*Centaurea solstitialis*), have been identified on the property. The amount of competition from weeds and/or invasive plants will vary depending on the factors such as species present, the existing seed bank in the soil material used for reclamation, and hydrological conditions. The presence of these plants can threaten grassland forage production and overall site diversity.

Table 5 below is a partial list of invasive or noxious weed species recorded from the site or from nearby areas. The list includes those species categorized as "noxious" by the California Department of Food and Agriculture (CDFA) and "invasive (moderate to high)" by the California Invasive Plant Council (Cal-IPC).

TABLE 5. PARTIAL LIST OF NOXIOUS/INVASIVE WEEDS KNOWN FROM THE SITE AND NEARBY AREAS			
COMMON NAME	SCIENTIFIC NAME	CDFA RATING	CAL-IPC RATING
Poison hemlock	*Conium maculatum*	--	Moderate
Italian thistle	*Carduus pycnocephalus*	C	Moderate
Purple star-thistle	*Centaurea calcitrapa*	B	Moderate
Yellow star-thistle	*Centaurea solstitialis*	C	High
Bull thistle	*Cirsium vulgare*	C	Moderate
Stinkwort	*Dittrichia graveolens*	--	Moderate
Perennial pepperweed	*Lepidium latifolium*	C	High
Perennial mustard	*Hirschfeldia incana*	--	Moderate

PC EXHIBIT 1

TABLE 5. PARTIAL LIST OF NOXIOUS/INVASIVE WEEDS KNOWN FROM THE SITE AND NEARBY AREAS

COMMON NAME	SCIENTIFIC NAME	CDFA RATING	CAL-IPC RATING
Bindweed	*Convolvulus arvensis*	C	--
Klamathweed	*Hypericum perforatum*	C	Moderate
Pennyroyal	*Mentha pulegium*	--	Moderate
Edible fig	*Ficus carica*	--	Moderate
Creeping water primrose	*Ludwigia peploides*	--	High
Sheep sorrel	*Rumex acetosella*	-	Moderate
Himalayan blackberry	*Rubus armeniacus*	--	High
Puncture vine	*Tribulus terrestris*	C	-
Sweet vernal grass	*Anthoxanthum odoratum*	--	Moderate
Barbed goatgrass	*Aegilops triuncialis*	B	High
Slender wild oat	*Avena barbata*	--	Moderate
Wild oat	*Avena fatua*	--	Moderate
Ripgut brome	*Bromus diandrus*	--	Moderate
Bermuda grass	*Cynodon dactylon*	C	Moderate
Tall fescue	*Festuca arundinacea*	--	Moderate
Medusahead	*Elymus caput-medusae*	C	High
Waxy mannagrass	*Glyceria declinata*	--	Moderate
Common velvet grass	*Holcus lanatus*	--	Moderate
Wall barley	*Hordeum murinum*	--	Moderate
Harding grass	*Phalaris aquatica*	-	Moderate

Reclamation standards require that all CDFA rated “noxious” and Cal-IPC rated “invasive” plants be managed such that they do not threaten the success of the proposed revegetation. It should be noted that some weeds, although ranked higher by the Cal-IPC, may be of lesser concern within the Sacramento Valley Region. Conversely, other weeds not listed as high of a priority may be of more concern within the region. For example, red brome (*Bromus madritensis* ssp. *rubens*) and fennel (*Foeniculum vulgare*) are notoriously invasive in the southern and coastal regions, respectively, but less invasive in the Sacramento Valley Region. Other weeds not rated as “High” by the Cal-IPC, such as stinkwort (*Dittrichia graveolens*), have been of greater concern in their respective habitat environments. Adjustments shall be made to ensure that all of the most invasive and undesirable species are included within the management plan for the site.

Noxious weeds shall be managed annually as necessary throughout each of the reclamation areas in which monitoring is required. A list of target species shall be updated each year and those found at the site shall be identified for control. Management of invasive weeds may include hand-pulling, burning, approved/ recommended chemical methods—or a combination of these—carried out on an annual basis and at any time the observed cover of invasive species exceeds 5 percent. Best management practices to minimize noxious weed establishment shall be determined at the time of its presence and based on the species, extent of infestation, and latest scientific information available. Adjacent areas within the property boundaries will also be managed to minimize future spreading into reclaimed areas. The use of any chemical herbicide shall be coordinated with a qualified biologist with an applicator license to ensure that the most effective methods are applied and damage to non-target vegetation is

PC EXHIBIT 1

minimized. Monitoring and management of invasive weeds will continue to occur in the reclaimed areas throughout the end of the monitoring period.

6.3.4 Monitoring and Performance Standards – *CCR 3705(m); PRC 2773(a)*

Mining shall be conducted in three primary phases or areas, with Areas A and B occurring in Aspen VIII and Area C in Aspen IX (Figure 4). Within each area, reclamation shall be initiated as mining operations continue to proceed to the next phase. Each reclamation area shall be monitored annually until all performance standards have been met for at least 2 consecutive years. Vegetation monitoring shall be conducted for the proposed grassland slopes and pit floor. A discussion of the monitoring methods and success criteria is provided below. As part of maintenance and monitoring site visits, observations of wildlife (birds, amphibians, reptiles, or mammals) or their signs (i.e., tracks or scats) will also be recorded whenever encountered, and a species list shall be created for the site.

Revegetation efforts on grassland slopes and pit floor will include an evaluation of total plant cover, species richness, and management of noxious/invasive weeds. Vegetation data shall be collected using randomly placed plots or transects for each feature (i.e., grassland slopes and grassland floor or irrigated pasture). Sample sizes for all monitoring efforts shall be sufficient to produce at least an 80 percent confidence level with a confidence interval width within 20 percent of the mean.

Floristic surveys of reclaimed slopes shall be conducted each spring when the majority of plants are flowering and easily identifiable. Photographs will also be taken in late-spring or early summer while vegetative conditions are at their peak. A minimum of four permanent photo stations shall be selected for each reclamation phase to qualitatively document vegetation establishment and changes in development over successive monitoring periods. Photos will include permanent features (e.g., slopes, transmission towers, retention basins, etc.) to provide a consistent reference against which yearly comparisons can be made. All camera settings shall be consistent each year to maintain similar contrast and lighting. Additional photographs of reclamation processes and management activities will also be included.

As reclamation is completed and all performance standards are met, monitoring and reporting for that particular area will end. If any of the performance standards are not met, remedial measures and/or further monitoring may be necessary. Since revegetation rates of sites may vary due to climatic variations, soil characteristics, and other factors, monitoring time periods may be extended in order to meet established performance standards.

In order to determine whether the goals of the reclamation objectives have been met, a set of final success criteria have been developed. These success criteria for the different reclamation features (i.e., slopes and pit floor) are provided in Table 6. Success criteria for grassland slopes and annual grassland are based upon visits to nearby reclamation areas and past experiences from Teichert's earlier reclamation projects. All established criteria must be met and present at the end of the 2-year monitoring period.

TABLE 6. MINIMUM SUCCESS CRITERIA FOR ASPEN VIII & IX RECLAMATION	
Habitat Type	**Minimum Success Criteria**
Grassland Slope	• Total absolute vegetative cover must be at least 80%. • Total absolute cover of noxious or invasive weeds must be less than 5%.* • Species richness must average at least 4 species per 20-m^2, excluding noxious or invasive species.
Pit Floor (Annual Grassland)	• Total absolute vegetative cover must be at least 70%. • Total absolute cover of invasive or noxious weeds must be less than 5%.* • Species richness must average at least 4 species per 20-m^2, excluding noxious or invasive species.

If a reclaimed area has been adversely affected by a natural disaster (e.g., flood, earthquake, fire, or other natural occurrence beyond the operator's control), contingency measures shall be implemented to the greatest extent feasible. Teichert will meet with regulatory personnel to evaluate and agree upon the feasibility of such corrective actions, taking into account the extent to what areas have been previously reclaimed and destroyed prior to the natural occurrence, the effect of the natural occurrence on public health and safety, the site characteristics and proposed end use, etc.

Monitoring reports will summarize the reclamation responsibilities, construction and revegetation completed, monitoring implemented, and revegetation results compared to established success criteria. Photo documentation and field data will also be provided in appendices to the monitoring reports. If it is apparent that some reclamation features may not achieve intended success criteria, potential remediation opportunities shall be evaluated or suggested and provided in the report.

An aerial photo of the site and constructed reclamation features shall be taken within the first year following completion, or the boundaries of each feature shall be mapped using a GPS unit with sub-meter accuracy, to report "as-built" conditions. In addition, constructed slopes shall be surveyed to verify grade. All information shall be provided in the first monitoring report and updated once again in the final monitoring report.

Monitoring reports shall be prepared and submitted in February annually to Sacramento County Planning and Environmental Review and the Department of Conservation, Office of Mine Reclamation. At the end of the 2-year monitoring period, monitoring will cease, provided all the reclamation features are determined by the agencies to be in substantial compliance with the established success criteria. Reclamation monitoring and annual reporting shall be extended beyond the 2-year period should success criteria have not been met. Monitoring reports shall be due on August 31st of each year. This allows time for remedial actions, if necessary, or enhancement opportunities to be discussed and implemented prior to the end of the construction season.

PC EXHIBIT 1

SECTION 7.0 ADMINISTRATIVE REQUIREMENTS

7.1 Reclamation Responsibility Designee – *PRC 2772(c)(10)*

Submittal of the this Aspen VIII and IX Mining and Reclamation Plan represents a commitment by Teichert Aggregates, a division of A. Teichert & Son, Inc., to reclaim the Aspen VIII and IX Properties - including the new extension of aggregate conveyor belt on Aspen V-South - per the approved entitlement granted by Sacramento County. Teichert accepts responsibility for reclaiming the mined lands in accordance with the attached reclamation plan. Assuring this obligation shall be a surety bond to be held by the lead agency and the Department of Conservation, Office of Mine Reclamation.

Signed this _____ day of, _____2015

By _____
Dana Davis, President of Teichert Materials

By _____
Paul Mercurio, Production Manager of Teichert Materials

7.2 Performance (Financial) Assurances – *PRC 2773.1(a)(1)(2)(3)(4)*

A Performance Bond payable to the "County of Sacramento or the Department of Conservation" shall be provided to County of Sacramento in the amount of the estimated cost of reclamation. The financial assurances shall remain in effect for the duration of the surface mining operation and any additional period until reclamation is completed. The amount of financial assurances required for any one year shall be adjusted annually to account for new lands disturbed, inflation and reclamation of lands accomplished in accordance with the approved Reclamation Plan. As items of reclamation work are accomplished to the standards set forth in the approved Reclamation Plan and are acceptable to the County, the operator may retrieve the existing assurance and submit a new one with the face value reduced accordingly.

Upon review of the final monitoring report, the County or State may require a site visit to confirm the completion of the reclamation requirements. Once it is deemed that all success criteria have been met for the site, the performance bond shall be released and the site shall be allowed to continue to develop under natural processes. An amended reclamation plan shall be required prior to substantial deviations to approved plans (PRC 2777).

7.3 Reclamation Cost Estimate – *PRC 2773.1*

Reclamation is phased to be concurrent with mining so that costs can be spread over the life of the operation. Reclamation tasks are shown with the various costs and summarized in Appendix A, Financial Assurance Cost Estimate (FACE). Costs are based on being performed by outside contractors. The FACE is intended to be adjusted as mining begins and reclamation areas are completed.

SECTION 8.0 REFERENCES

California Invasive Plant Council (Cal-IPC). 2014. California Invasive Plant Inventory. Cal-IPC Invasive weed list for California. California Invasive Plant Council: Berkeley, CA. Accessed at: http://www.cal-ipc.org/paf

California Department of Food and Agriculture (CDFA). 2014. List of Plants Defined as Noxious Weeds by California Law. Division of Plant Health and Pest Preventions Services. Accessed at: http://www.cdfa.ca.gov/plant/ipc/encycloweedia/winfo_weedratings.htm

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Teichert Aggregates (Teichert). 2008. *Vernal Pool Mitigation Monitoring Report, Teichert – Perkins Aspen VI Mining and Aspen V Reclamation Project, Sacramento County, California*. Prepared for U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and County of Sacramento (Department of Environmental Review and Assessment).

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Teichert Materials (Teichert). 2014c. *Aspen VIII & IX Arborist Report: Teichert Aggregates – Sacramento County*. Prepared for Sacramento County, Planning and Environmental Review. December 2014.

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Figure 7 Proposed Reclamation

Figure 8 Conceptual Soil Management Plan and Phases

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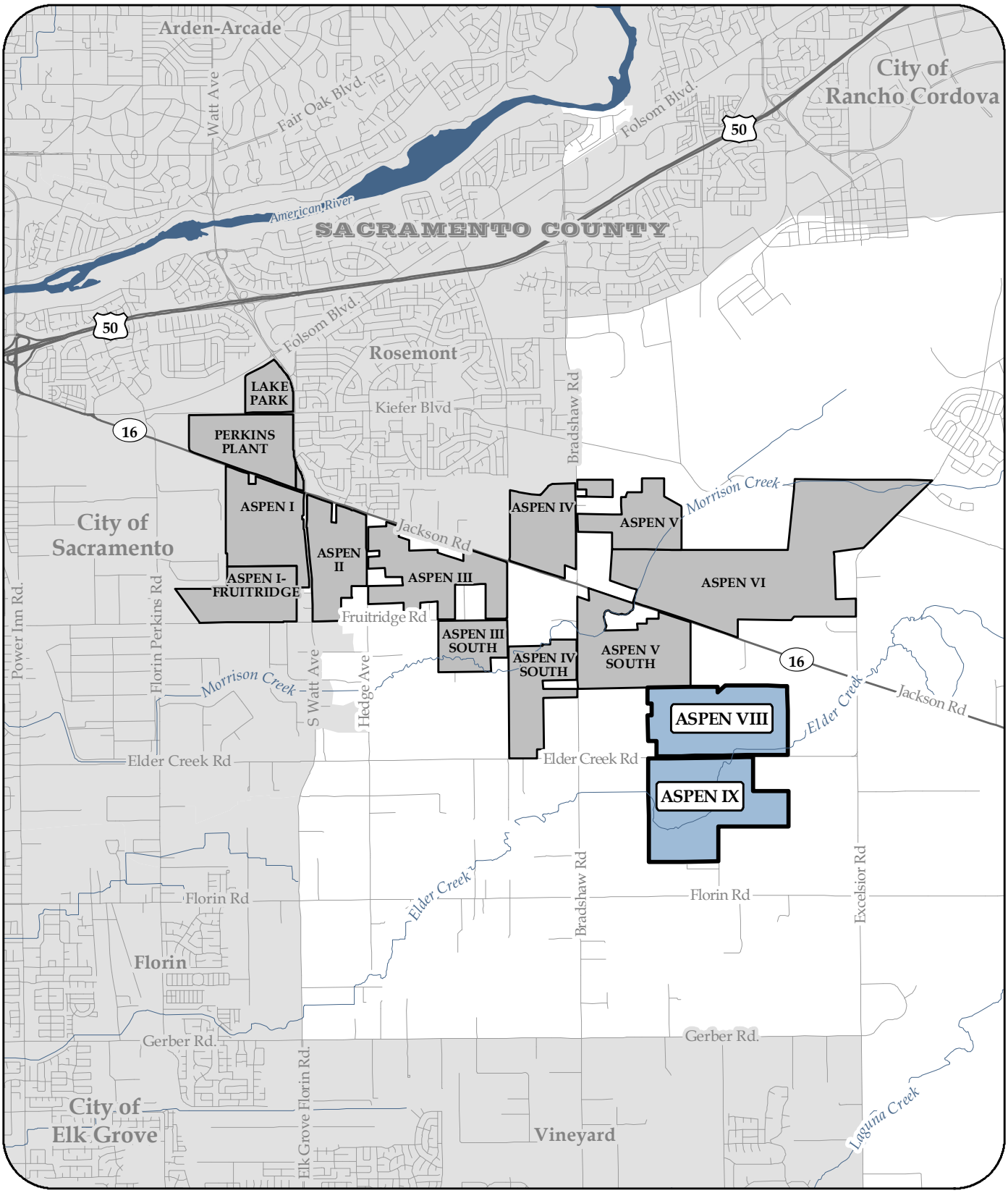


TEICHERT MATERIALS

LEGEND:

Teichert Aggregates Aspen VIII & IX Property Boundary

Teichert Aggregates Aspen Property Boundaries

N W E S

0 0.5 1 Miles

DISCLAIMER:

The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

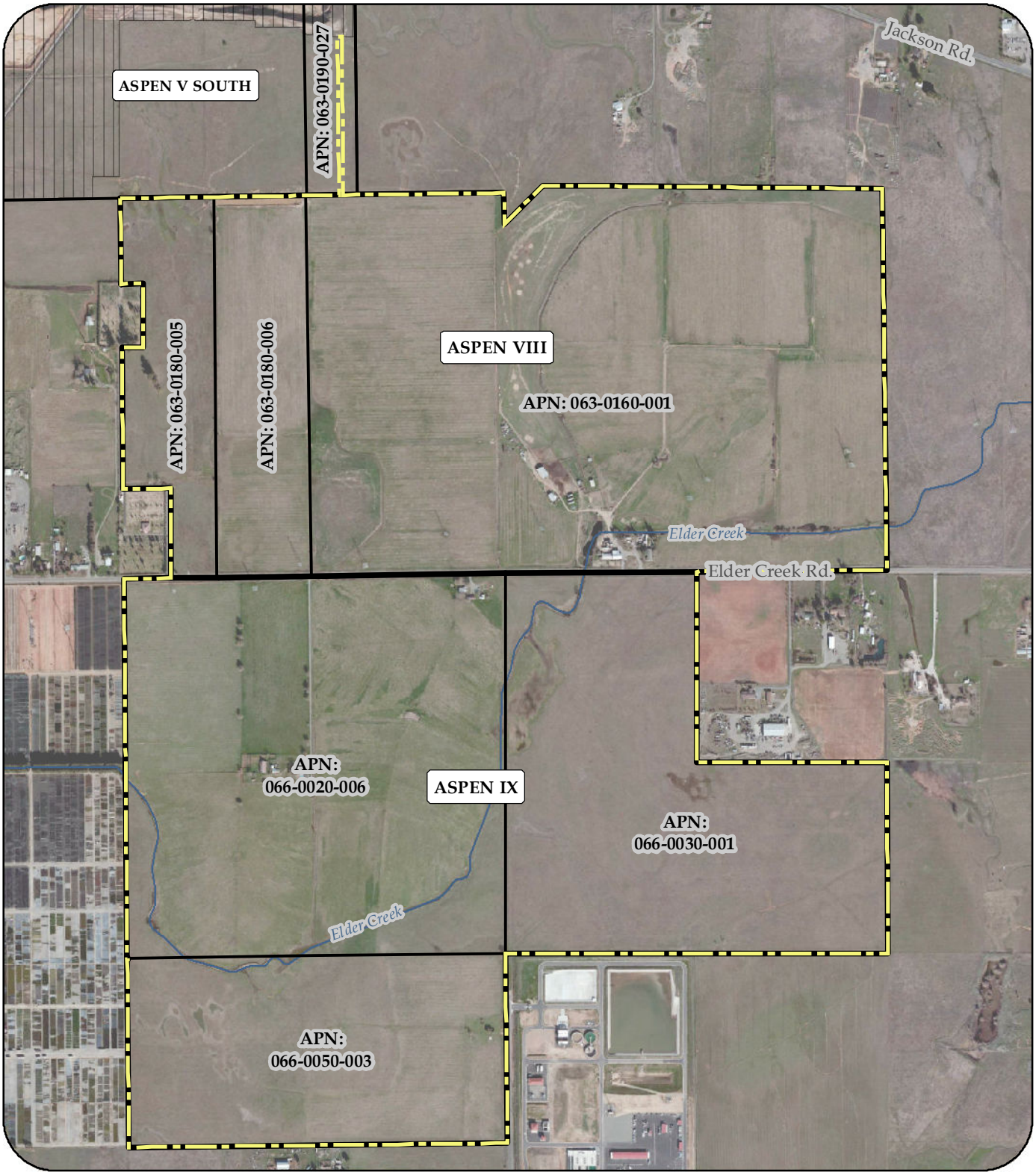
FIGURE 1

SITE VICINITY MAP

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/03/2014 AS8_AS9_RecPlan_Fig1_Vicinity_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Project Parcel Boundaries
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

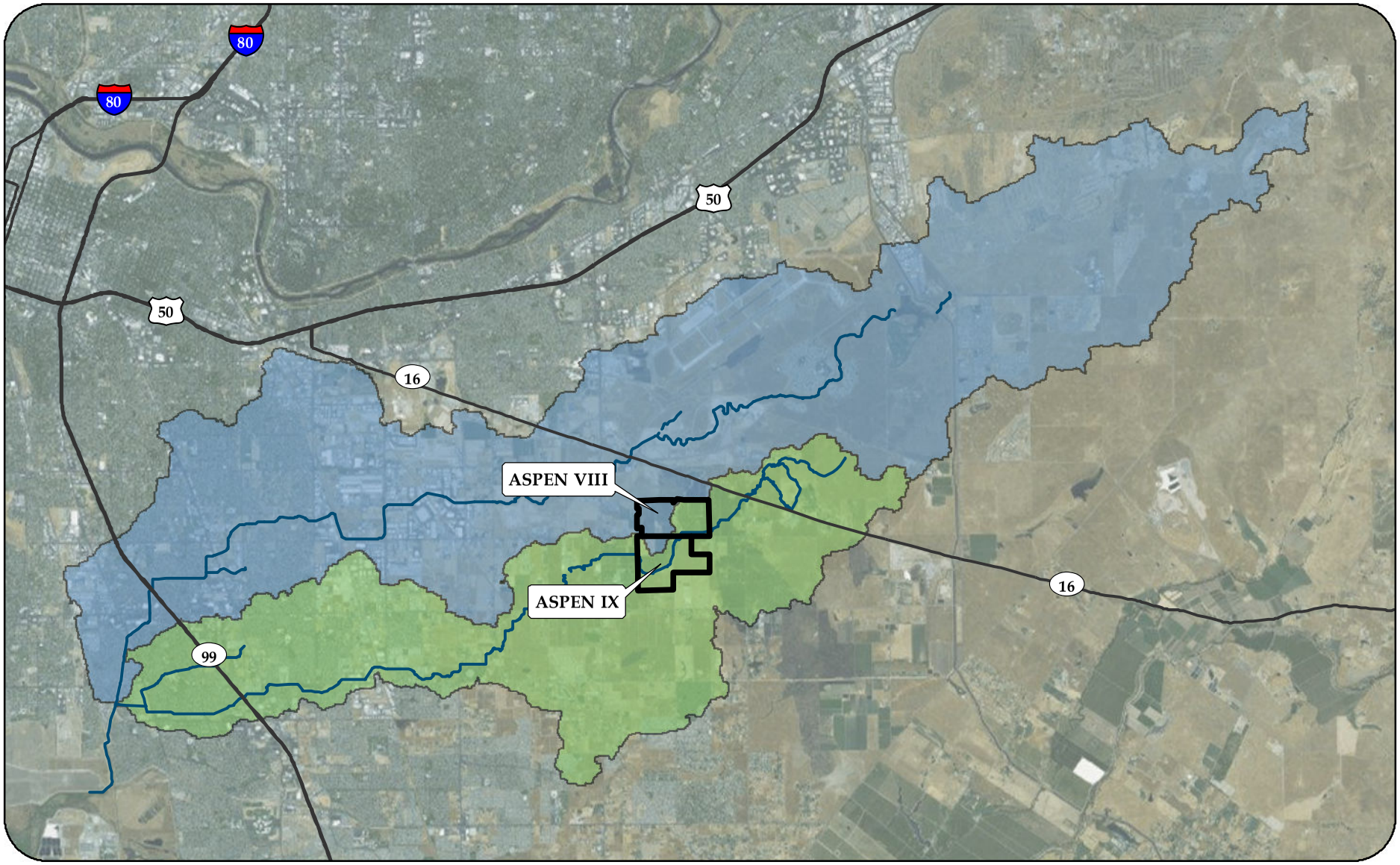
FIGURE 2

PROJECT SITE MAP

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C:\Cornejo 10/13/2014 AS8_AS9_RecPlan_Fig2_Site_201511.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek & Elder Creek
- Morrison Creek Watershed
- Elder Creek Watershed
- Aspen VIII & IX Property Boundaries

SOURCE:

- Watersheds Provided by Foothill & Associates (2010)
- Aerial Photography Provided by ESRI Basemaps & Affliates (Feb. 2012)

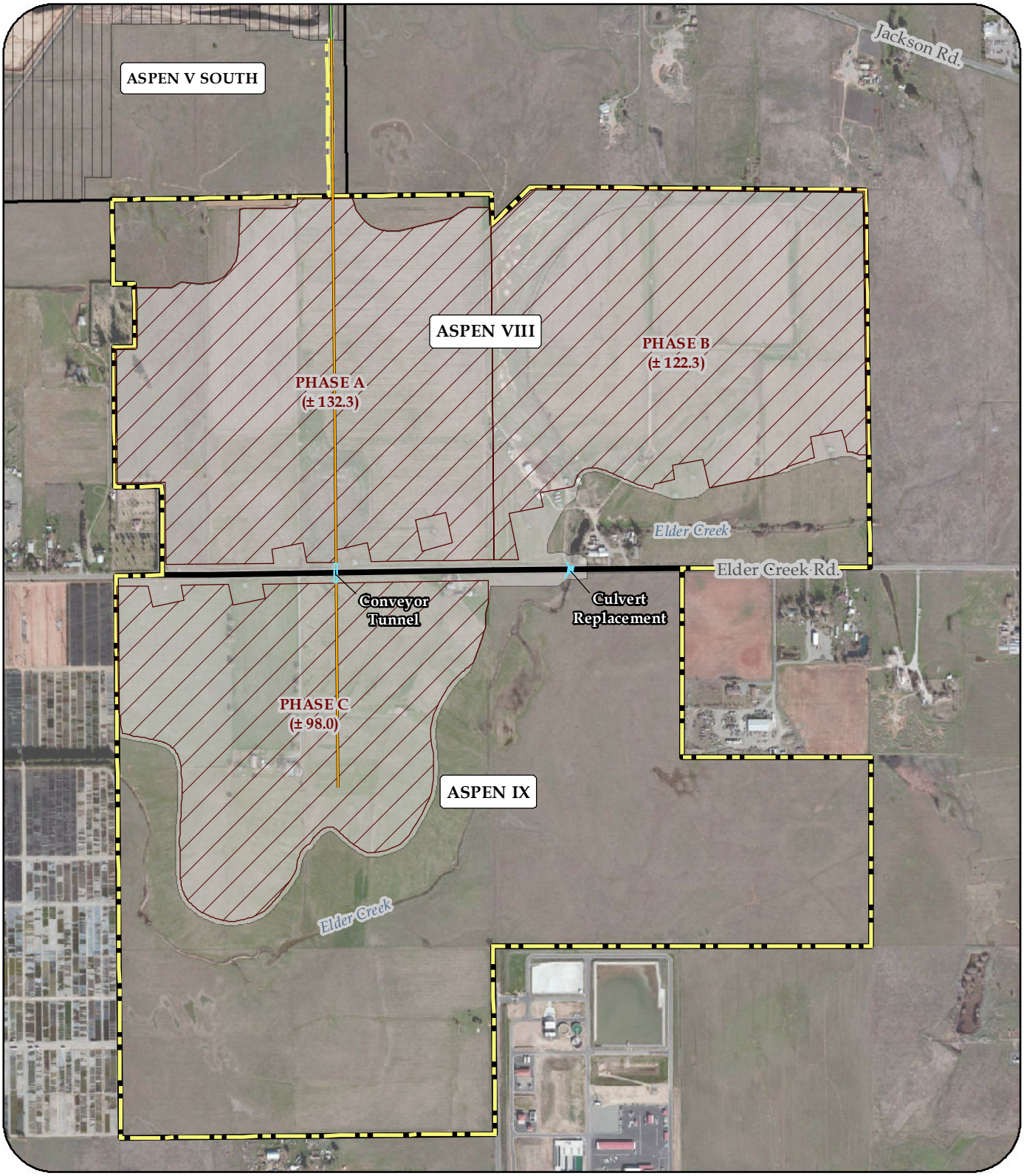
0 1 2 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 3
MORRISON CREEK/ELDER CREEK WATERSHED MAP
RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 10/03/2014 AS8_AS9_RecPlan_Fig3_Watershed_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing Conveyor Alignment
- Proposed Conveyor Alignment
- Proposed Conveyor Tunnel/ Culvert Replacement
- Proposed Mining Boundary
- Limits of Disturbance
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 4

PROPOSED MINING AREAS

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo Rev. by R. Enes 09/21/2015 AS8_AS9_RecPlan_Fig4_MiningAreas_201511.mxd

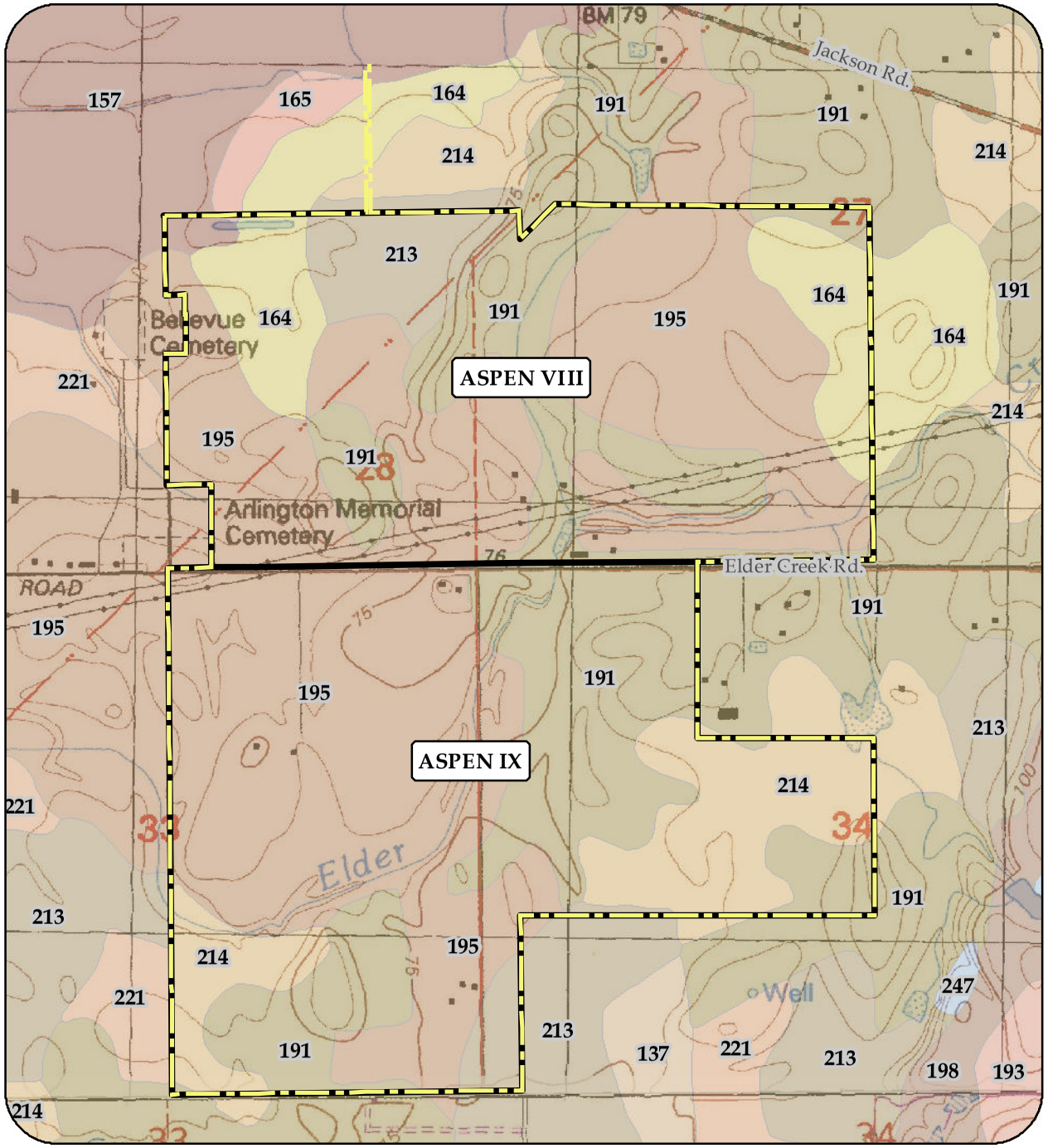


FIGURE 5

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

LEGEND:

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- 137- Durixeralfs, 0 to 1 percent slopes
- 157- Hedge loam, 0 to 2 percent slopes
- 164- Kimball silt loam, 0 to 2 percent slopes
- 165- Kimball silt loam, 2 to 8 percent slopes
- 191- Red Bluff loam, 0 to 2 percent slopes
- 193- Red Bluff-Redding complex, 0 to 5 percent slopes
- 195- Red Bluff-Xerarents complex, 0 to 2 percent slopes
- 198- Redding gravelly loam, 0 to 8 percent slopes
- 214- San Joaquin silt loam, 0 to 3 percent slopes
- 213- San Joaquin silt loam, leveled, 0 to 1 percent slopes
- 221- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes
- 247- Water
- Project Boundary
- Aspen VIII & IX Property Boundaries

0 600 1,200 Feet

SOURCE:

Soil Survey Provided by NRCS (Nov. 26, 2013)
USGS 7.5' Quads: Carmichael & Elk Grove
Property Boundary Provided by RFE Engineering (Mar. 2014)

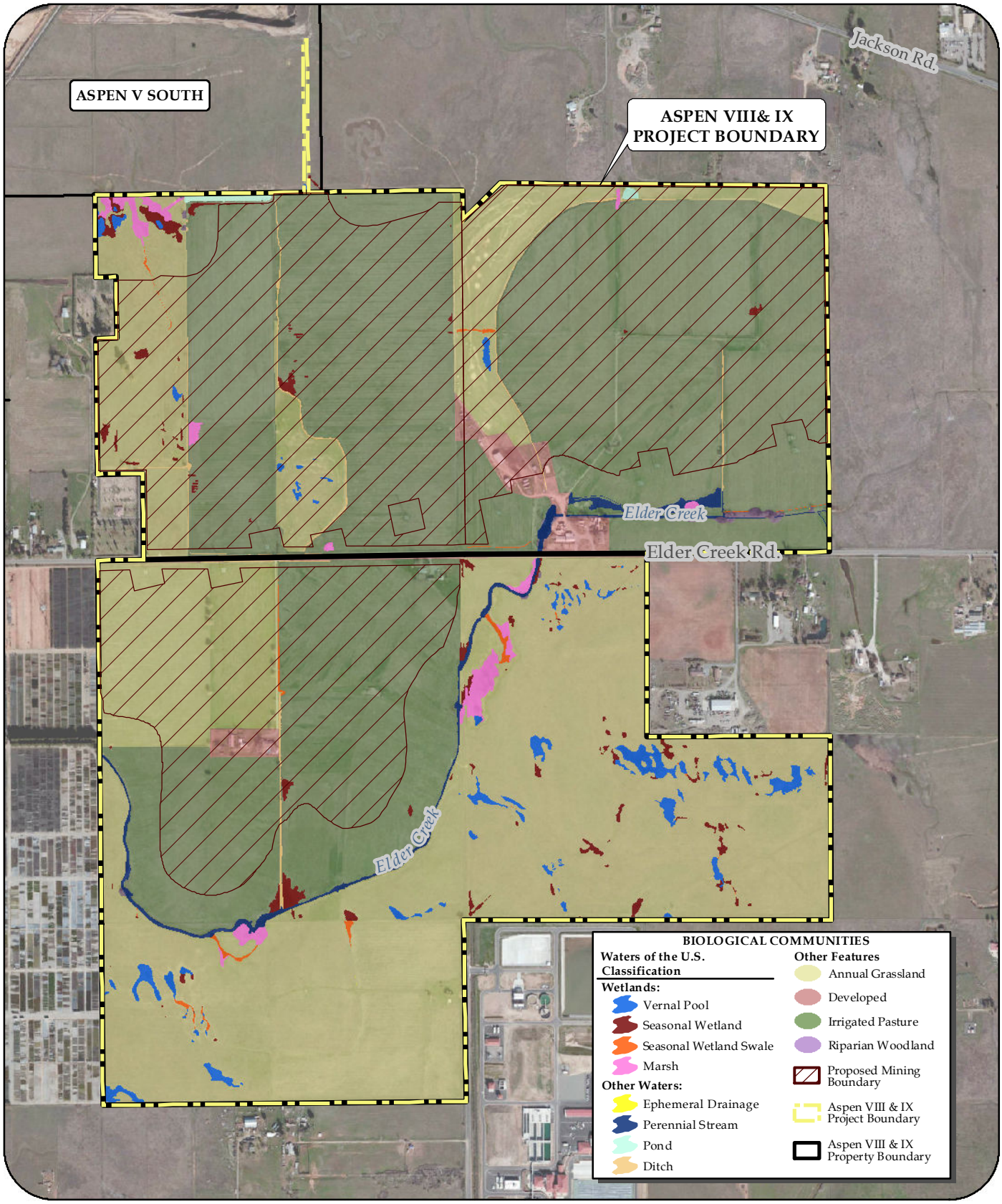
DISCLAIMER:

The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

TEICHERT MATERIALS

C. Cornejo 10/03/2014 AS8_AS9_RecPlan_Fig5_Soils_201410.mxd

PC EXHIBIT 1



TEICHERT MATERIALS

SOURCE:

- Wetland Delineation Provided by ECORP (April 02, 2014)
- Orthophoto Provided by Digital Globe (Feb. 2012)

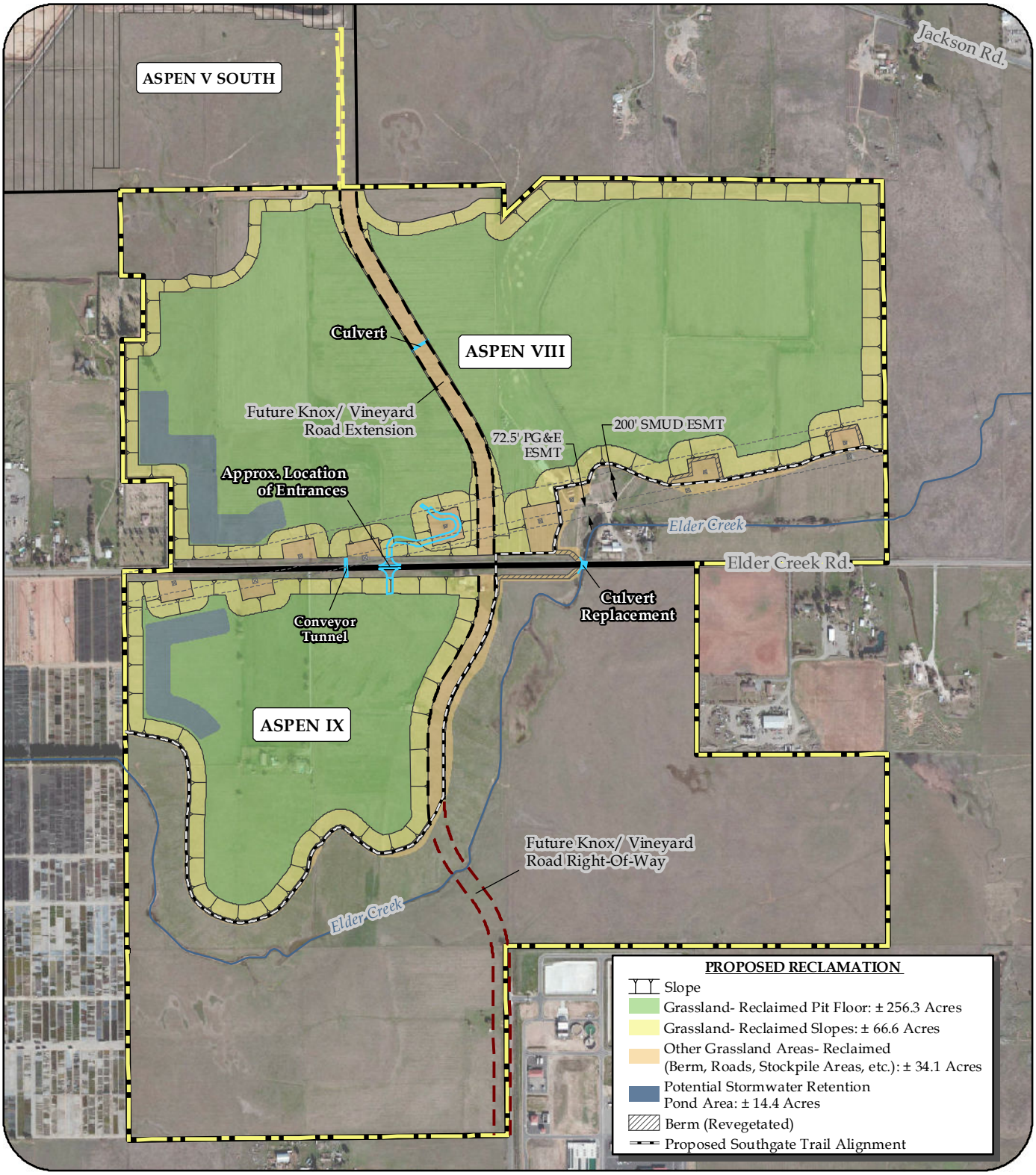
0 500 1,000 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 6
EXISTING HABITATS AND WETLAND COMMUNITIES
RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS
SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo Rev. by R. Enes 11/17/2015 AS8_AS9_RecPlan_Fig6_Bio_201511.mxd



TEICHERT MATERIALS

LEGEND:

- Culverts, Tunnel, & Entrances
- Exisitng Electrical Towers & Easements
- Future Knox/ Vineyard Road Extension
- Future Knox/ Vineyard Road Right-Of-Way
- Project Boundary
- Aspen VIII & IX Property Boundary
- Aspen V South Approved Mining Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

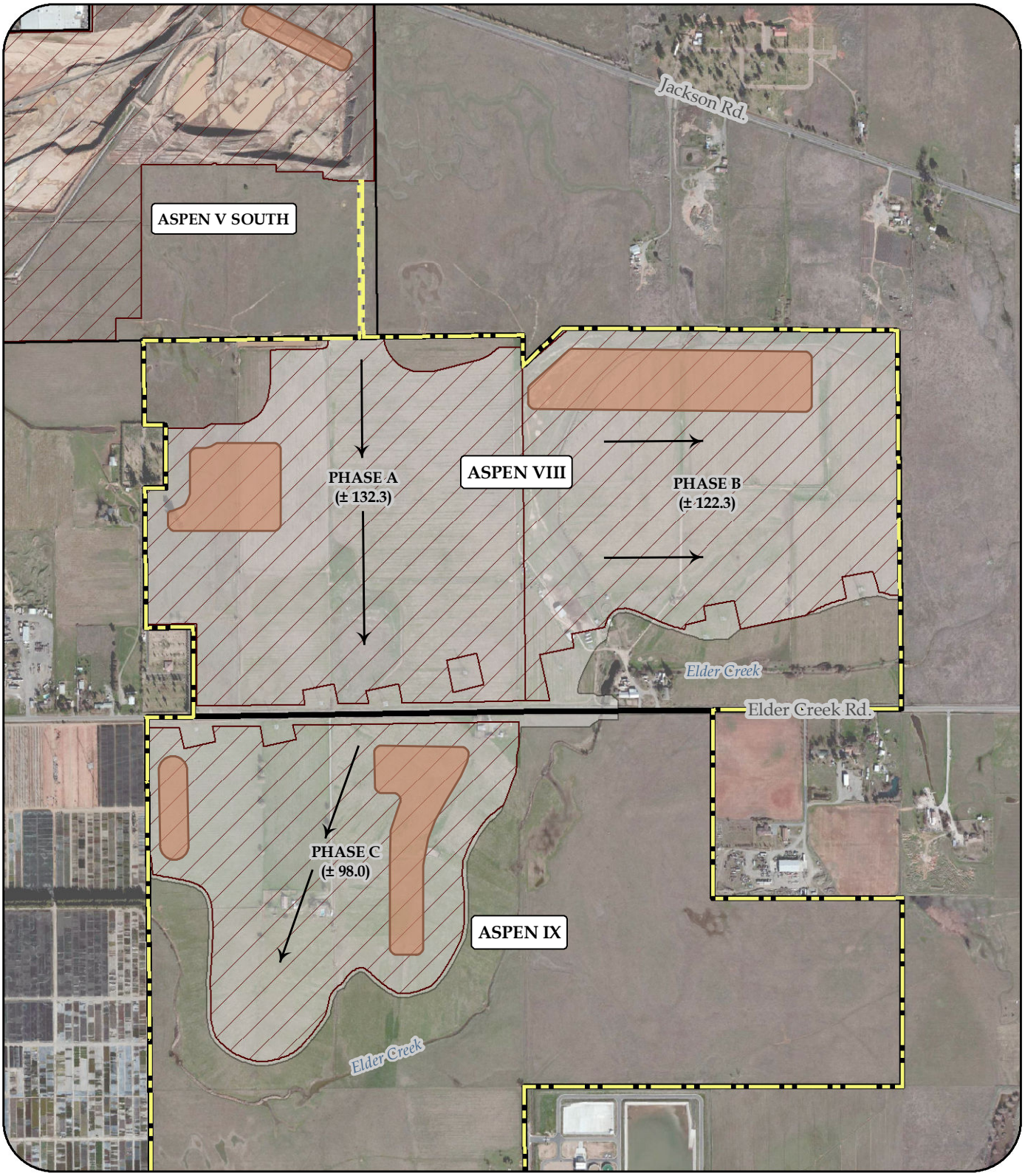
FIGURE 7

PROPOSED RECLAMATION

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo 1/15/2016 AS8_AS9_RecPlan_Fig7_ProposalRec_20160115.mxd



TEICHERT MATERIALS

LEGEND:

- Direction of Mining
- Topsoil Stockpile
- Mining Boundary (Approximate)
- Limits of Disturbance
- Project Boundary
- Property Boundary

0 500 1,000 Feet

SOURCE:

- Orthophoto Provided by Digital Globe (Feb. 2012)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

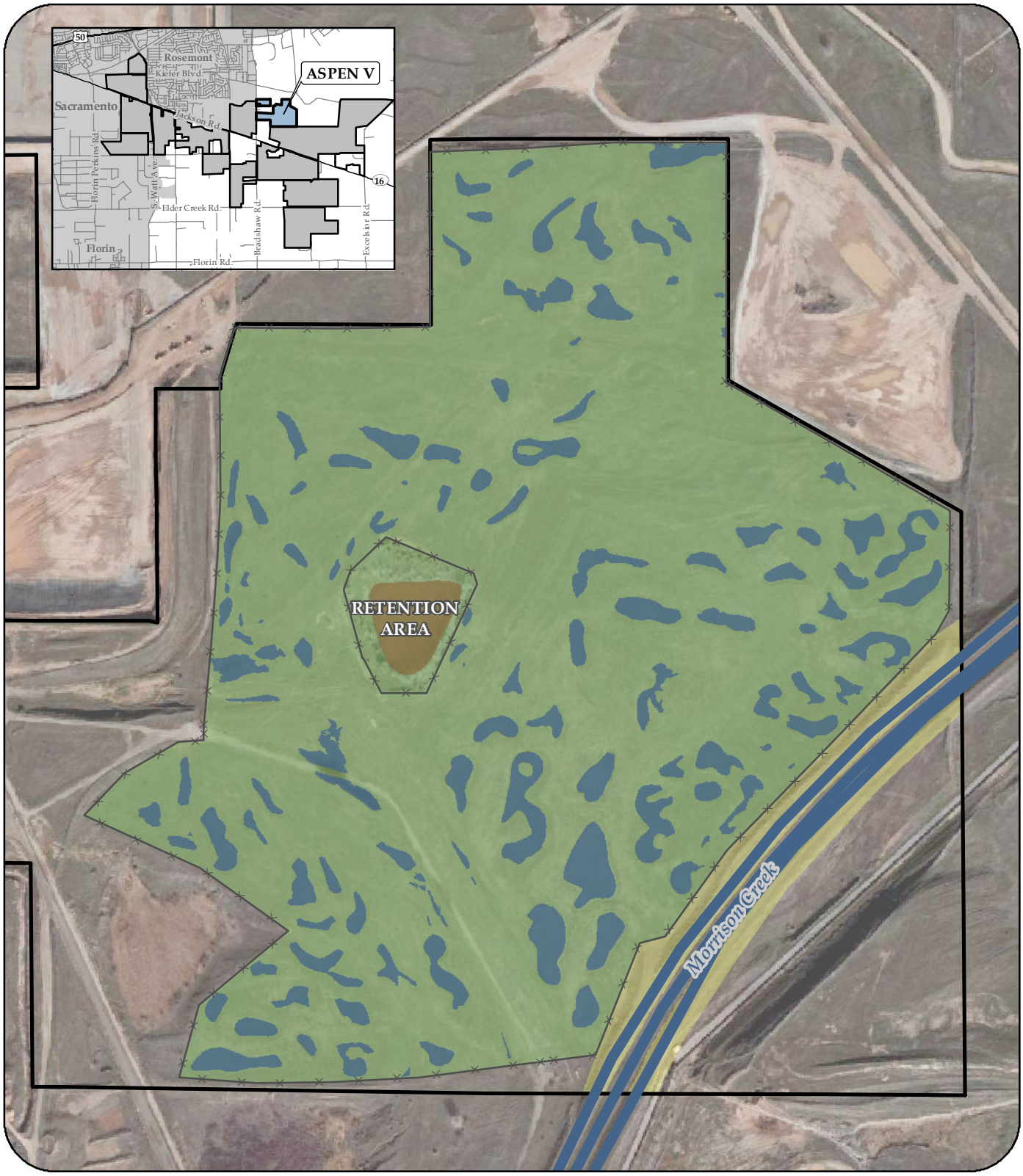
FIGURE 8

PROPOSED TOPSOIL MANAGEMENT PLAN

RECLAMATION PLAN ASPEN VIII & IX TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

R. Enes 11/16/2015 AS8_AS9_RecPlan_Fig8_Topsoil_201511.mxd



TEICHERT MATERIALS

LEGEND:

- Morrison Creek
- Constructed Wetlands
- Reclaimed Grassland
- Reclaimed Grassland Slopes
- Retention Area
- Fence Lines & Current Grazing Area
- Aspen V Property Boundary

N W E S

0 200 400 Feet

SOURCE:
Orthophoto Provided by Digital Globe (February 2012)

DISCLAIMER:
The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

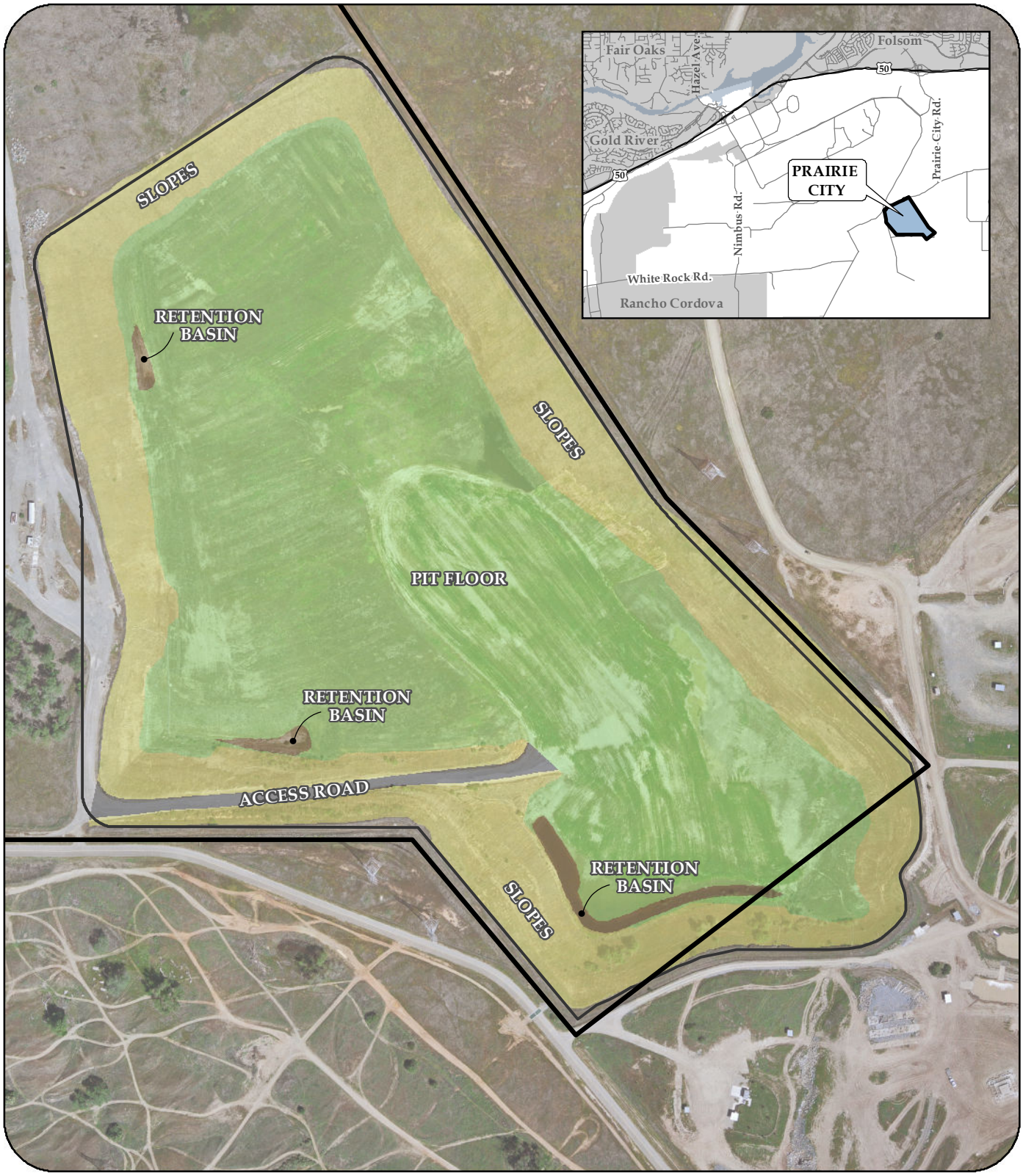
FIGURE 9

RECLAMATION REFERENCE SITE - ASPEN V

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C. Cornejo Rev. by R. Enes 10/06/2014 AS8_AS9_RecPlan_Fig9_RecReferenceSite_AS5_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Access Road
- Reclaimed Grassland (Pit Floor)
- Reclaimed Grassland Slopes
- Retention Basin
- Mining Boundary
- Prairie City Property Boundary

0 150 300 Feet

SOURCE:
Orthophoto Provided by Point Co. (May 01, 2012)

DISCLAIMER:
The data was mapped for assessment purposes only. No liability is assumed for the accuracy of the data shown.

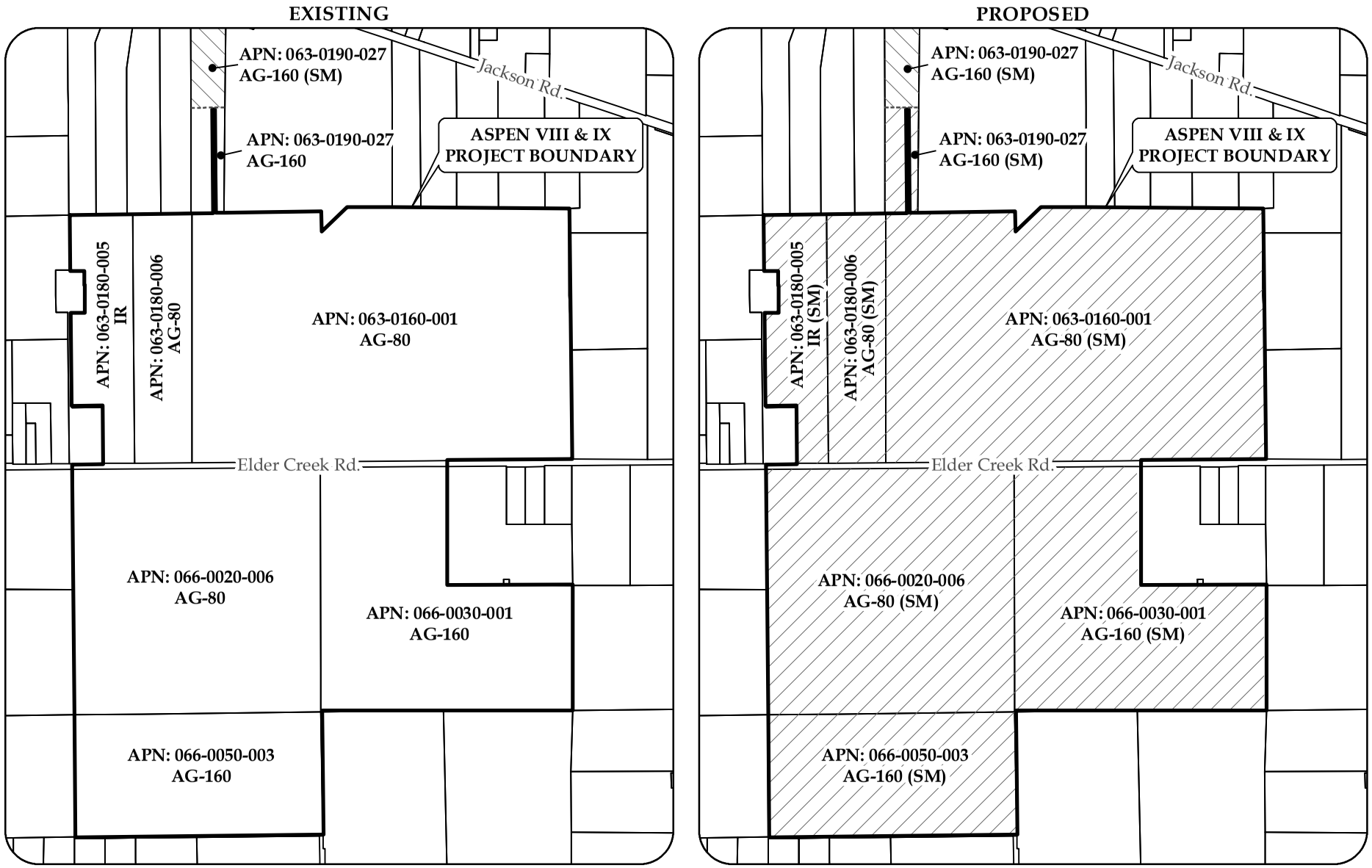
FIGURE 10

RECLAMATION REFERENCE SITE - PRAIRIE CITY (YOST)

RECLAMATION PLAN
ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

C_Cornejo Rev. by R. Enes 10/06/2014 AS8_AS9_RecPlan_Fig10_RecReferenceSite_PRC_201410.mxd



TEICHERT MATERIALS

LEGEND:

- Existing (SM- Overlay)
- Proposed Rezoning (SM- Overlay)
- Parcel Boundaries
- Aspen VIII & IX Project Boundary

SOURCE:

Parcel Boundaries Provided by Sacramento County GIS (Aug. 2014)

0 750 1,500 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

REZONE EXHIBIT

ASPEN VIII & IX
TEICHERT MATERIALS

SACRAMENTO COUNTY, CALIFORNIA

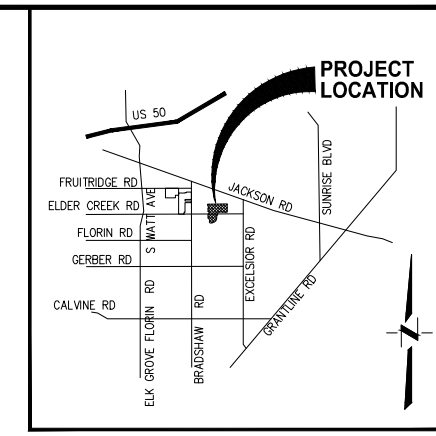
C:\Cornejo 10/15/2014 AS8_AS9_CountyApp_Rezone_201410.mxd

PC EXHIBIT 2

IMPROVEMENT PLANS
FOR
TEICHERT AGGREGATES

RECLAMATION PLANS FOR
ASPEN VIII & IX

SACRAMENTO COUNTY, CALIFORNIA
FEBRUARY 2016



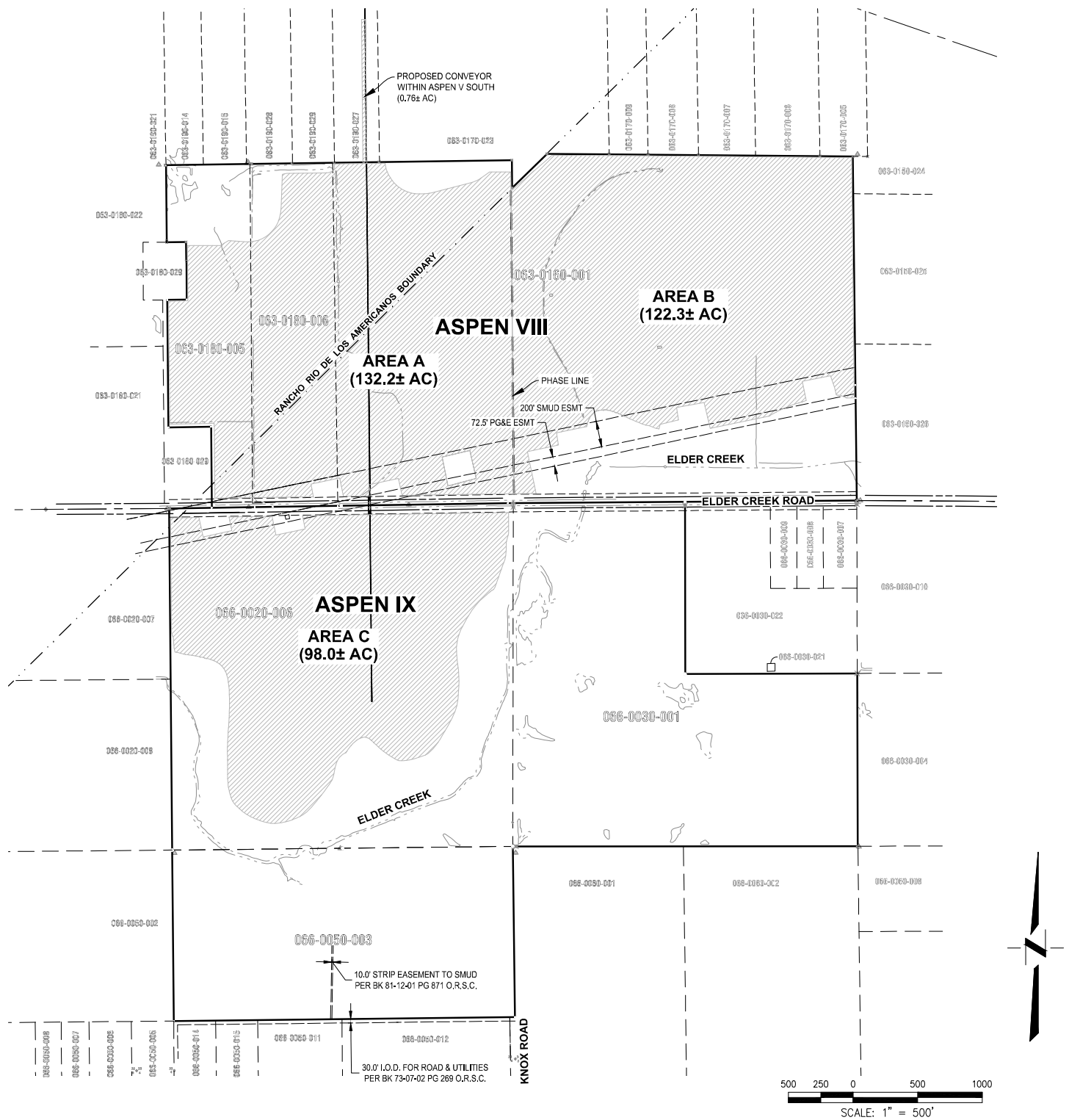
VICINITY MAP
N.T.S.

ABBREVIATIONS:

AC	ACRES
APN	ASSESSOR'S PARCEL NUMBER
AVG	AVERAGE
CL	CENTER LINE
CY	CUBIC YARDS
ESMT	EASEMENT
FL	FLOW LINE
FT	FEET
FUT	FUTURE
MAX	MAXIMUM
MIN	MINIMUM
MW	MONITOR WELL
N.T.S.	NOT TO SCALE
NO.	NUMBER
PL	PROPERTY LINE
R	RADIUS
RD	ROAD
R/W	RIGHT-OF-WAY
TYP	TYPICAL
YR	YEAR

LEGEND:

FOUND MONUMENTS AS SHOWN
AERIAL TARGET
VERTICAL CONTROL
BENCHMARK
POWER POLE
EXISTING EDGE OF ROAD
WATER
EXISTING GROUND CONTOUR (190)
CROSS SECTION NUMBER AND SHEET LOCATION (A / C02)
EXISTING ELEV. (195.0)
PROPOSED ELEV. (199)
HORIZONTAL TO VERTICAL SLOPE (2:1)
WATER SURFACE
PROPERTY BOUNDARY
RIGHT-OF-WAY
PARCEL LINE
EASEMENT LINE
LIMITS OF MINING
SLOPE (TOP OF SLOPE / TOE OF SLOPE)
EXISTING WATER WELL
BERM
WETLAND
FUTURE SOUTHGATE TRAIL EASEMENT



NOTES:

1. ELEVATIONS AND DISTANCES ARE APPROXIMATE. EXISTING GROUND IS BASED ON AERIAL TOPOGRAPHY FLOWN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
2. BOTTOM MINING ELEVATIONS ARE ±10' DEPENDING ON ACTUAL BOTTOM OF GRAVEL DEPTHS.

SHEET INDEX:

C01 - TITLE SHEET
C02 - EXISTING SITE
C03 - ASPEN VIII-MINING PLAN
C04 - ASPEN IX-MINING PLAN
C05 - ASPEN VIII-RECLAMATION PLAN
C06 - ASPEN IX-RECLAMATION PLAN
C07 - CROSS SECTIONS 8A, 8B & 8C
C08 - CROSS SECTIONS 8D, 8E, 8F & 8G
C09 - CROSS SECTIONS 8H, 8H ALTERNATE
C10 - CROSS SECTIONS 9A, 9B, 9C & 9D
C11 - FUTURE ROAD CENTERLINE PROFILE
C12 - CIVIL DETAILS
C13 - CIVIL & LANDSCAPE DETAILS

PROPERTY OWNER:

TEICHERT LAND CO.
P.O. BOX 13308
SACRAMENTO, CA 95813

APPLICANT:

TEICHERT AGGREGATES
P.O. BOX 15002
SACRAMENTO, CA 95851

CIVIL ENGINEER:

CUNNINGHAM ENGINEERING
2940 SPAFFORD STREET, SUITE 200
DAVIS, CALIFORNIA 95618
(530) 758-2026
ATTN: STEVEN GREENFIELD

ASSESSOR'S PARCEL NUMBERS:

063-0180-005, 063-0180-006, 063-0160-001, 063-0190-027
066-0020-006, 066-0030-001, 066-0050-003

PROJECT MINING AREA:

ASPEN VIII
AREA A: 132.2± ACRES
AREA B: 122.3± ACRES

ASPEN IX
AREA C: 98.0± ACRES

TOTAL MINING AREA: 352.5± ACRES

PROPOSED CONVEYOR WITHIN ASPEN V SOUTH: 0.76± ACRES

PROPERTY ZONING:

INDUSTRIAL RESERVE:
063-0180-005

AGRICULTURE:
063-0180-006, 063-0160-001, 063-0190-027,
066-0020-006, 066-0030-001, 066-0050-003

BENCHMARK:

EXISTING TOPOGRAPHY SHOWN BASED ON AERIAL TOPOGRAPHY FLOWN IN FEBRUARY 1, 2005 BY POINT CO. PHOTOGRAMMETRIC SERVICES.
HORIZONTAL DATUM: NAD27
VERTICAL DATUM: NGVD29

DATE SIGNED: _____
THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

REGISTERED PROFESSIONAL ENGINEER STEVEN J. GREENFIELD No. C50880 CIVIL STATE OF CALIFORNIA
PRELIMINARY

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TEICHERT AGGREGATES

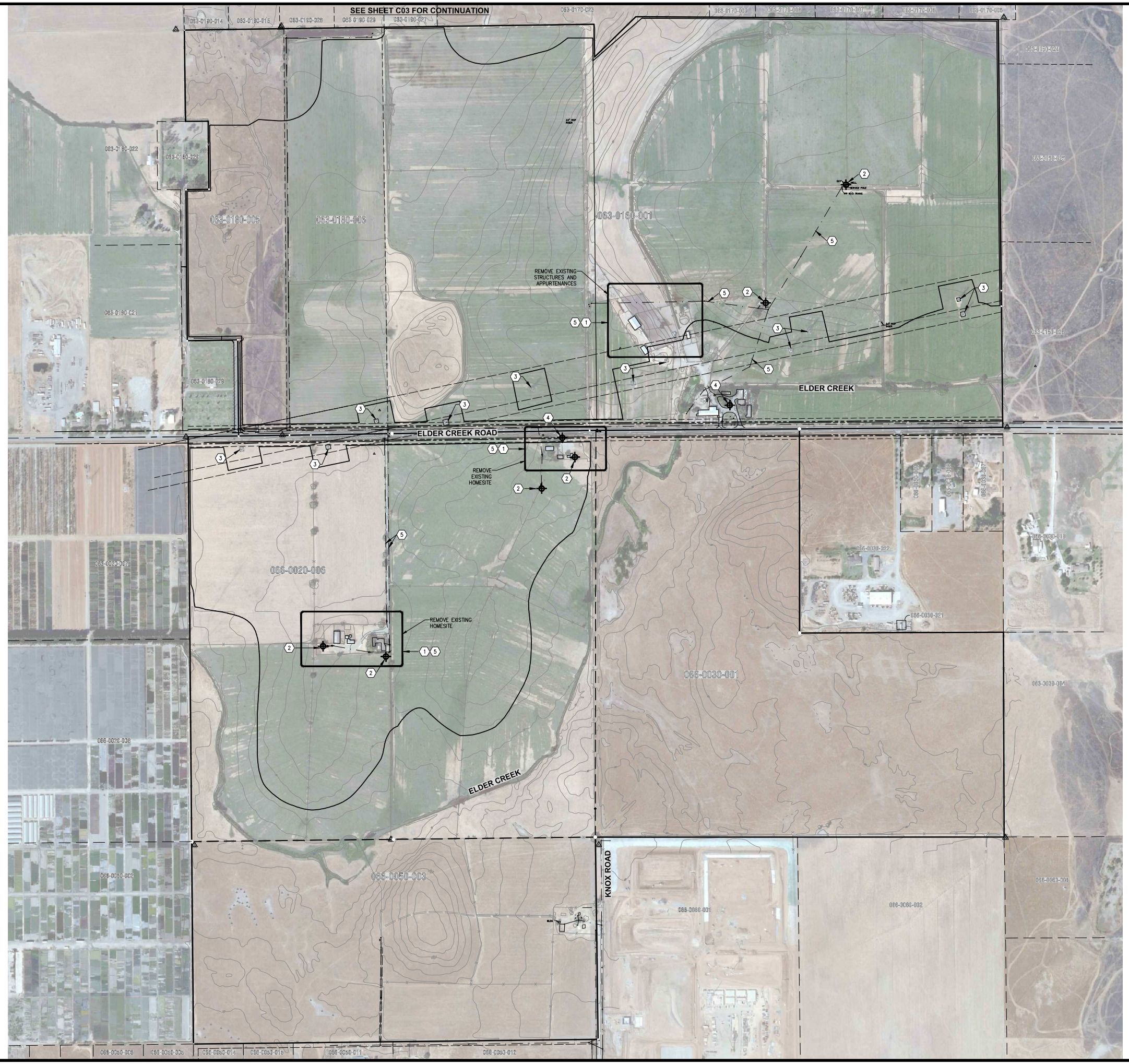
TEICHERT AGGREGATES
ASPEN VIII & IX
TITLE SHEET

SACRAMENTO COUNTY CALIFORNIA

SHEET C01 OF 13
DATE: 2/5/16
JOB NO: 1390.01

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-01 MINING AND RECLAMATION PLANS\SHEETS\1390-01-C01-TITLE.dwg - C01 2/05/2016 - 1:29PM Plotted by: Lane

PC EXHIBIT 3



CONSTRUCTION NOTES:

1. ABANDON ANY EXISTING SEPTIC SYSTEMS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
2. ABANDON ANY EXISTING WATER WELLS ACCORDING TO THE ENVIRONMENTAL MANAGEMENT DEPARTMENT AND BUILDING DEPARTMENT PROCEDURES AND STANDARDS.
3. PROTECT EXISTING ELECTRICAL TOWERS TO REMAIN.
4. PROTECT EXISTING WATER WELL TO REMAIN.
5. REMOVE EXISTING POWER POLES AND OVERHEAD ELECTRIC LINES.

300 150 0 300 600

SCALE: 1" = 300'

DATE SIGNED: _____

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REGISTERED PROFESSIONAL ENGINEER STEVEN A. GREENFIELD No. C51880 CIVIL STATE OF CALIFORNIA

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ASPEN VIII & IX
EXISTING SITE

SACRAMENTO COUNTY CALIFORNIA

SHEET C02 OF 13

DATE: 2/5/16

JOB NO: 1390.01

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-01-C02-EXIST.dwg - C02 2/05/2016 - 1:21PM Plotted by: Lara

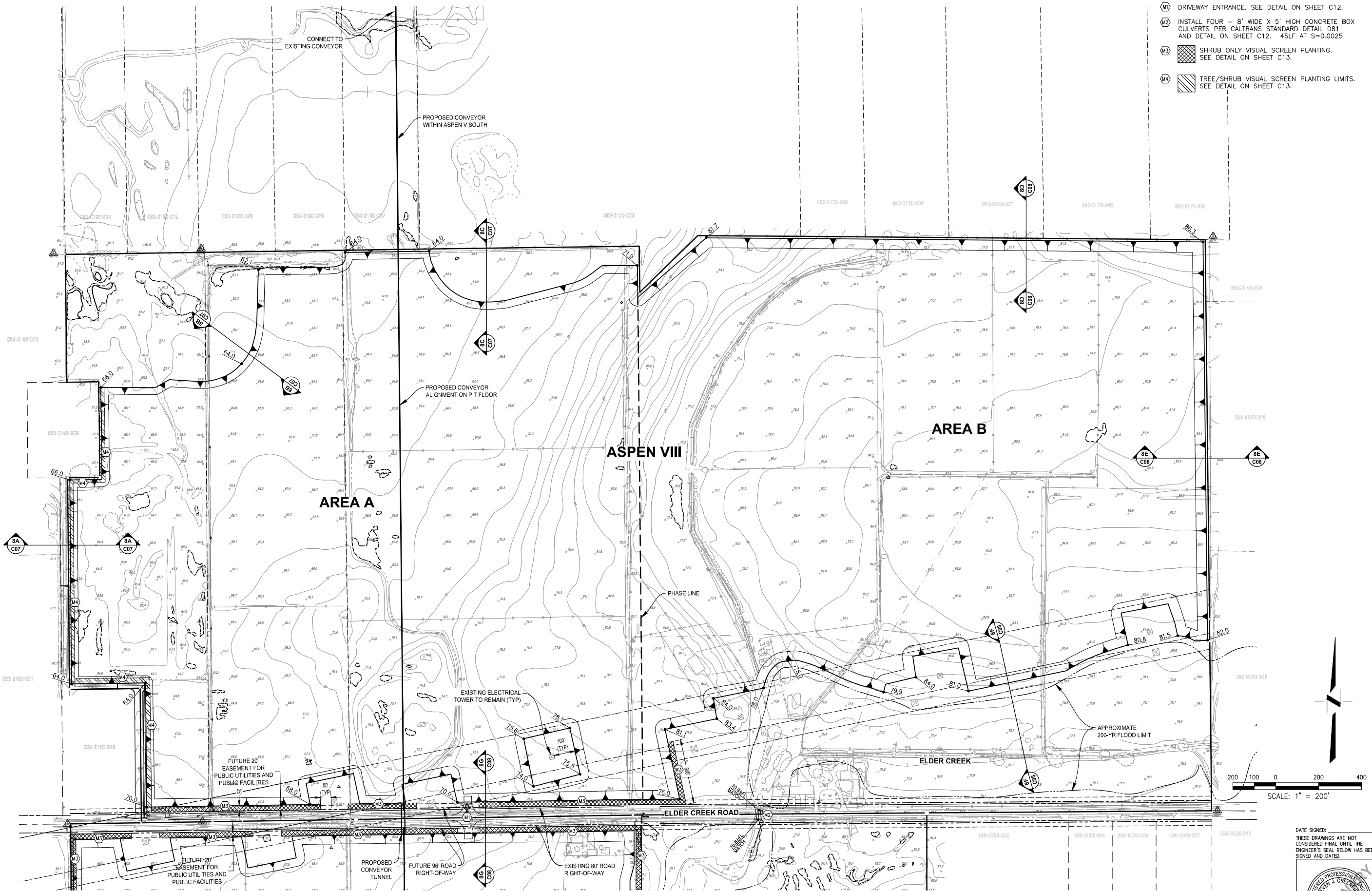
KEYNOTES:

M1 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.

M2 INSTALL FOUR – 8' WIDE X 5' HIGH CONCRETE BOX CULVERTS PER CALTRANS STANDARD DETAIL D81 AND DETAIL ON SHEET C12. 45LF AT S=0.0025

M3 SHRUB ONLY VISUAL SCREEN PLANTING. SEE DETAIL ON SHEET C13.

M4 TREE/SHRUB VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.



DATE SIGNED: _____

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REGISTERED PROFESSIONAL ENGINEER STEVEN A. GREENFIELD No. 50880 CIVIL STATE OF CALIFORNIA

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ASPEN VIII & IX
ASPEN VIII-MINING PLAN

SACRAMENTO COUNTY CALIFORNIA

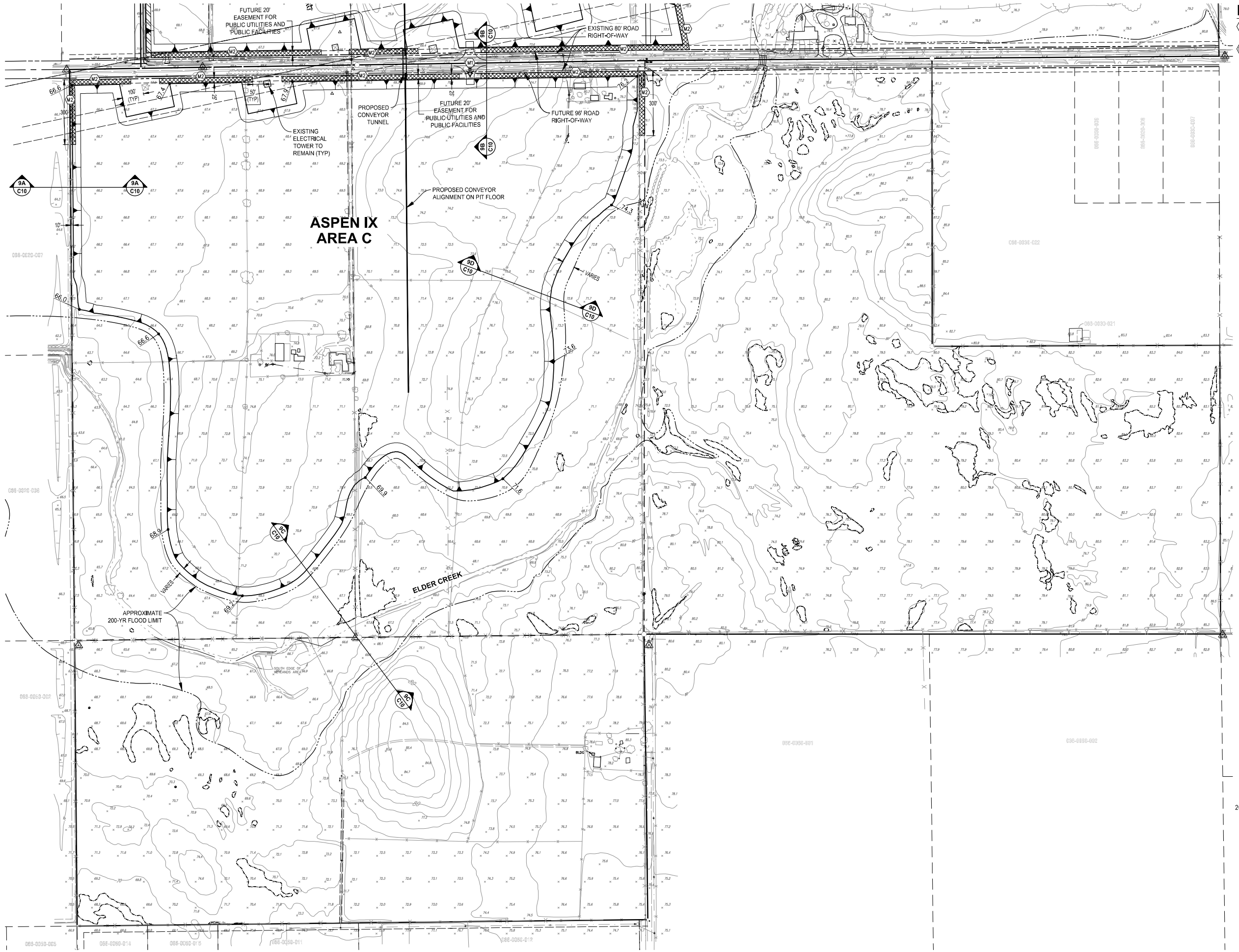
SHEET C03 OF 13

DATE: 2/5/16

JOB NO: 1390.01

S:\Projects\1390\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-01-C03-AB-MIN-SITE.dwg – C03 2/05/2016 – 1:229W Plotted by: Lens

PC EXHIBIT 5



KEYNOTES:

M1 DRIVEWAY ENTRANCE. SEE DETAIL ON SHEET C12.

M2 SHRUB ONLY VISUAL SCREEN PLANTING LIMITS. SEE DETAIL ON SHEET C13.

200 100 0 200 400

SCALE: 1" = 200'

DATE SIGNED: _____

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ASPEN VIII & IX
ASPEN IX-MINING PLAN

SACRAMENTO COUNTY CALIFORNIA

SHEET C04 OF 13

DATE: 2/5/16

JOB NO: 1390.01

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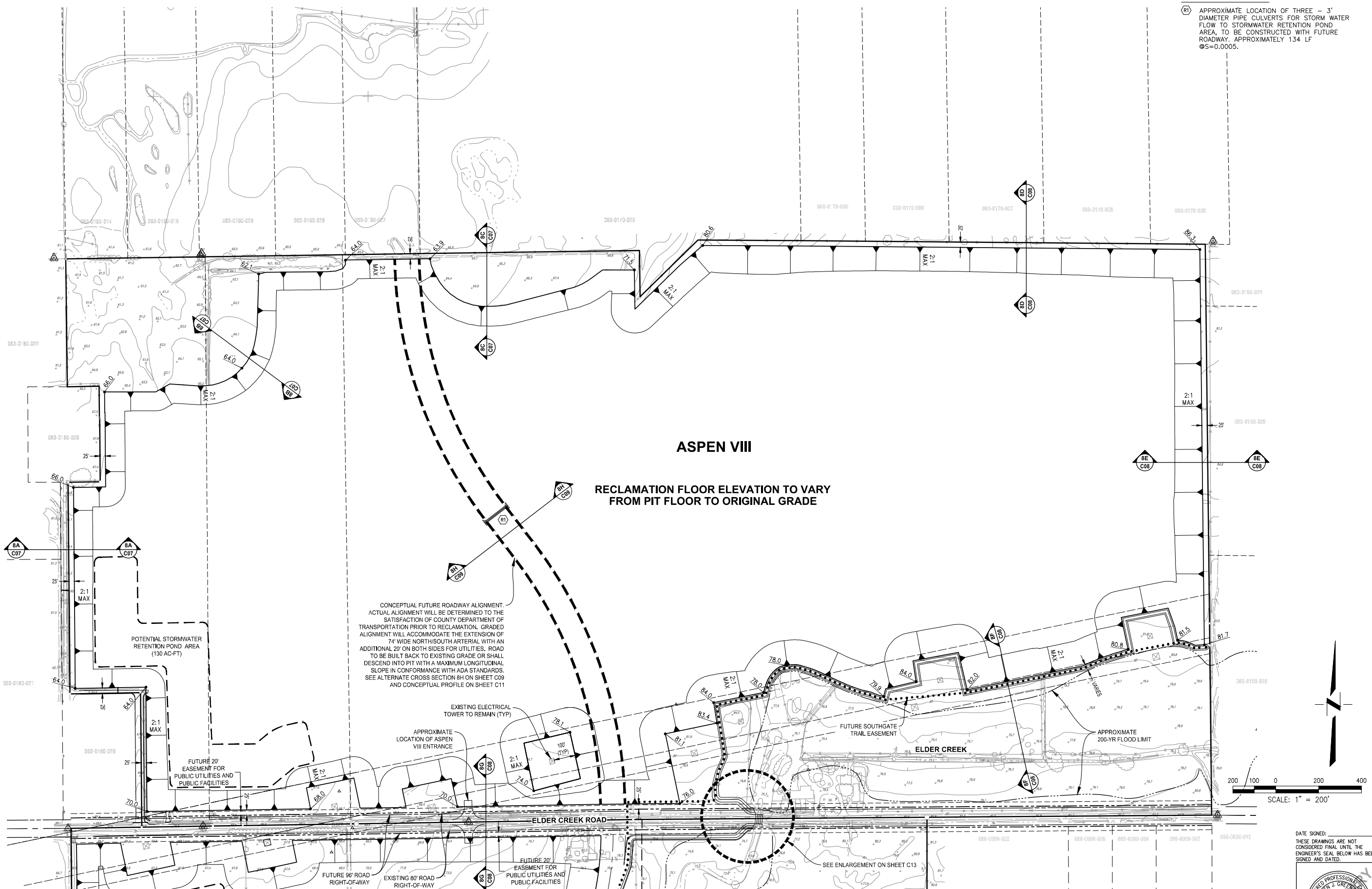
PC EXHIBIT 6

KEYNOTES:

(R1) APPROXIMATE LOCATION OF THREE – 3' DIAMETER PIPE CULVERTS FOR STORM WATER FLOW TO STORMWATER RETENTION POND AREA, TO BE CONSTRUCTED WITH FUTURE ROADWAY. APPROXIMATELY 134 LF @S=0.0005.



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ASPEN VIII-RECLAMATION PLAN

SACRAMENTO COUNTY CALIFORNIA

SHEET C05 OF 13

DATE: 2/5/16

JOB NO: 1390.01

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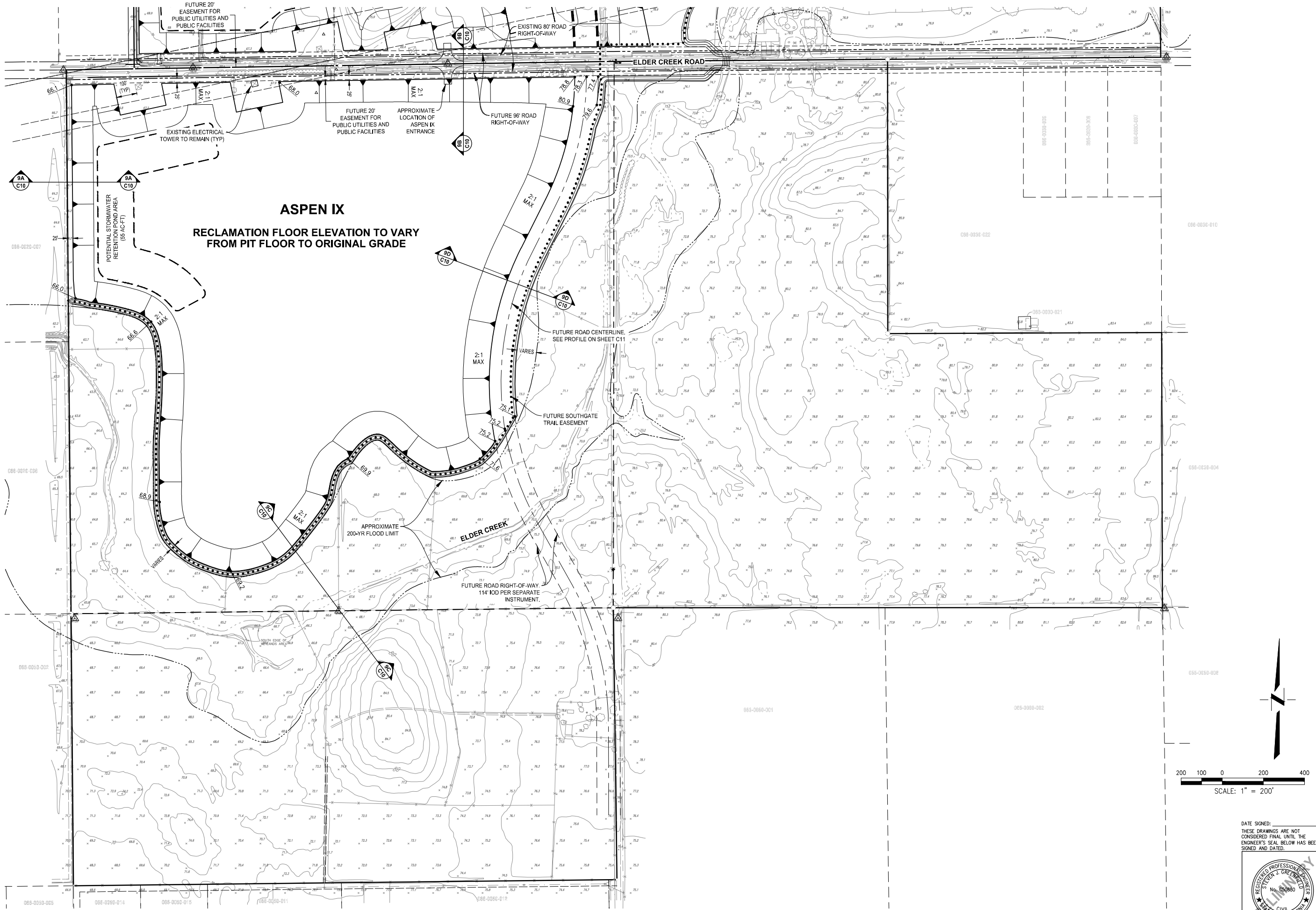
PC EXHIBIT 7



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ASPEN IX-RECLAMATION PLAN

SACRAMENTO COUNTY CALIFORNIA

SHEET C06 OF 13

DATE: 2/5/16

JOB NO: 1390.01

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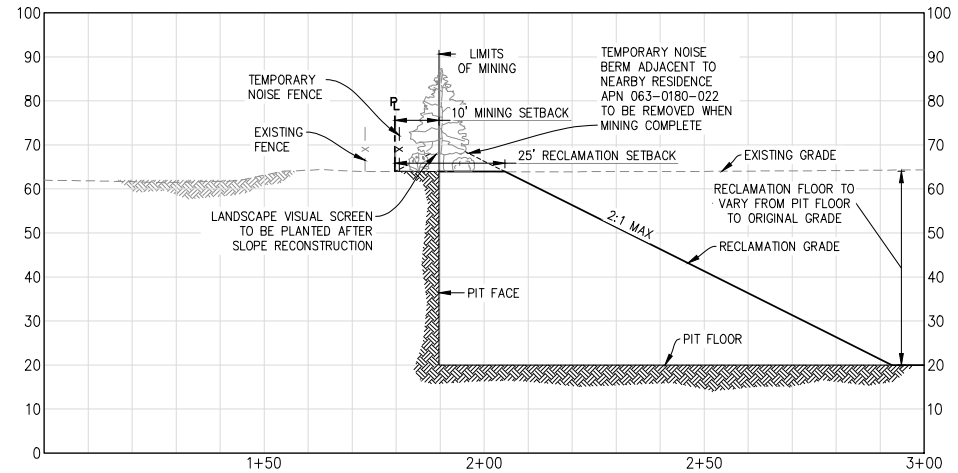
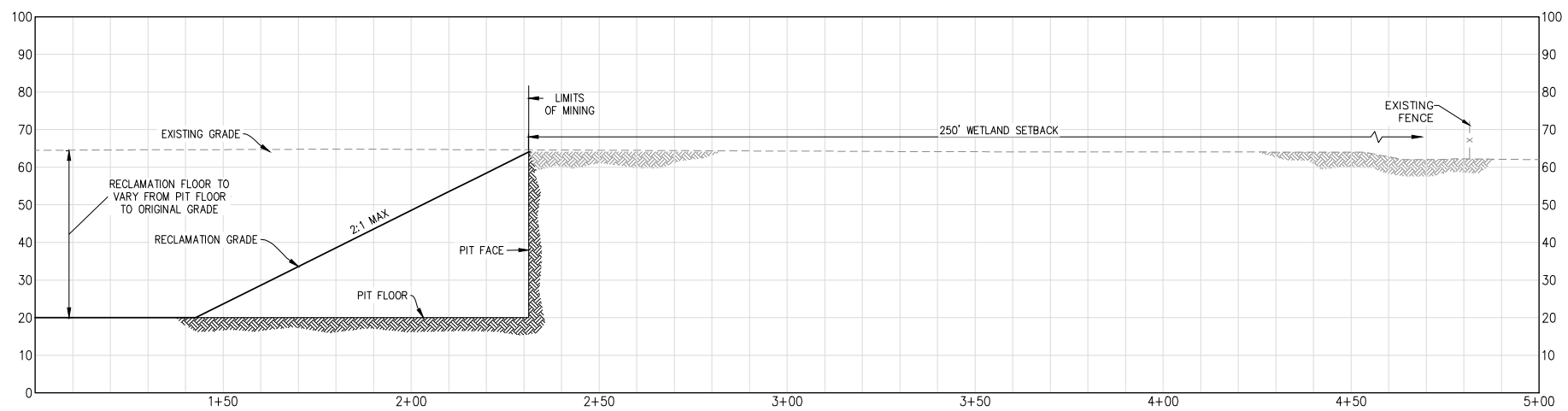
PC EXHIBIT 8



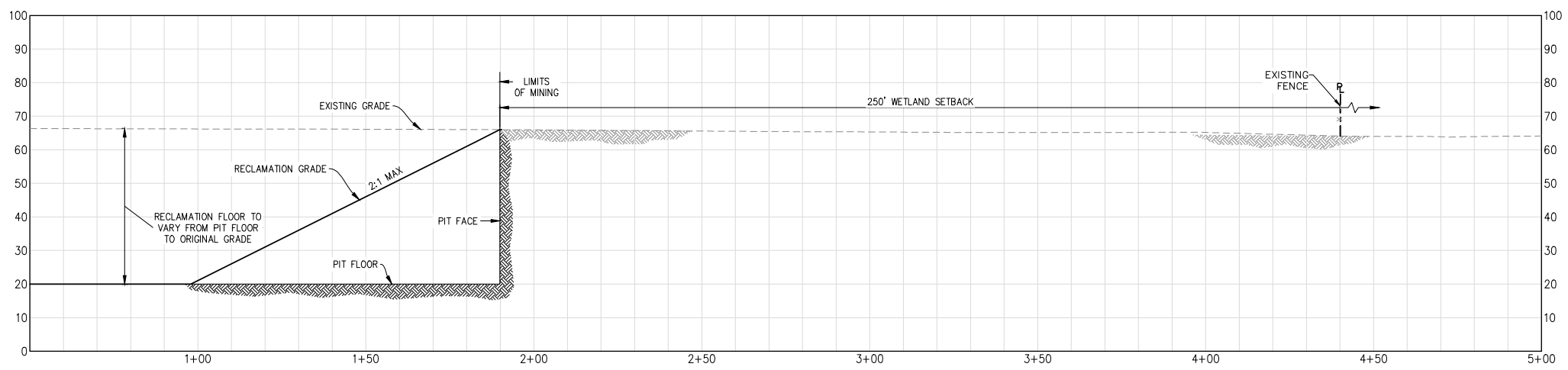
SECTION 8A

SCALE= 1" = 20'



SECTION 8B

SCALE= 1" = 20'



SECTION 8C

SCALE= 1" = 20'

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ASPEN VIII & IX
CROSS SECTIONS 8A, 8B & 8C

SACRAMENTO COUNTY CALIFORNIA

SHEET C07 OF 13

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JOB NO: 1390.01

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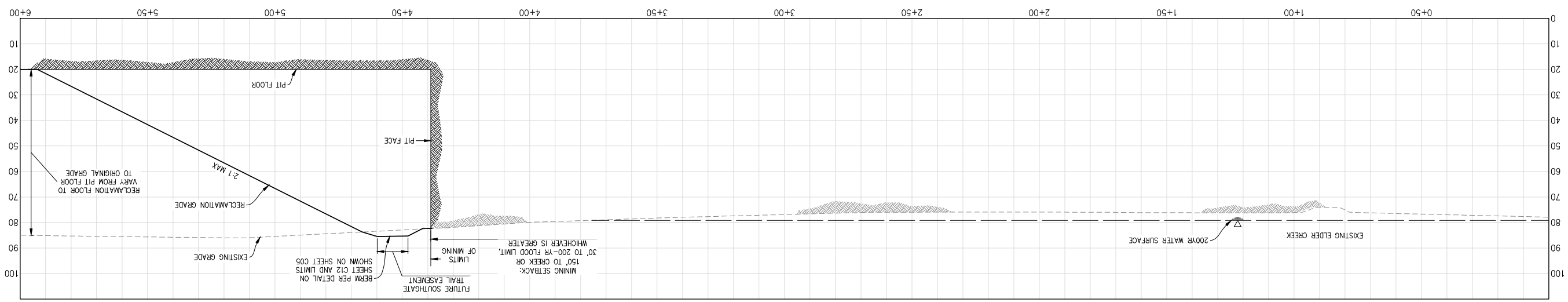
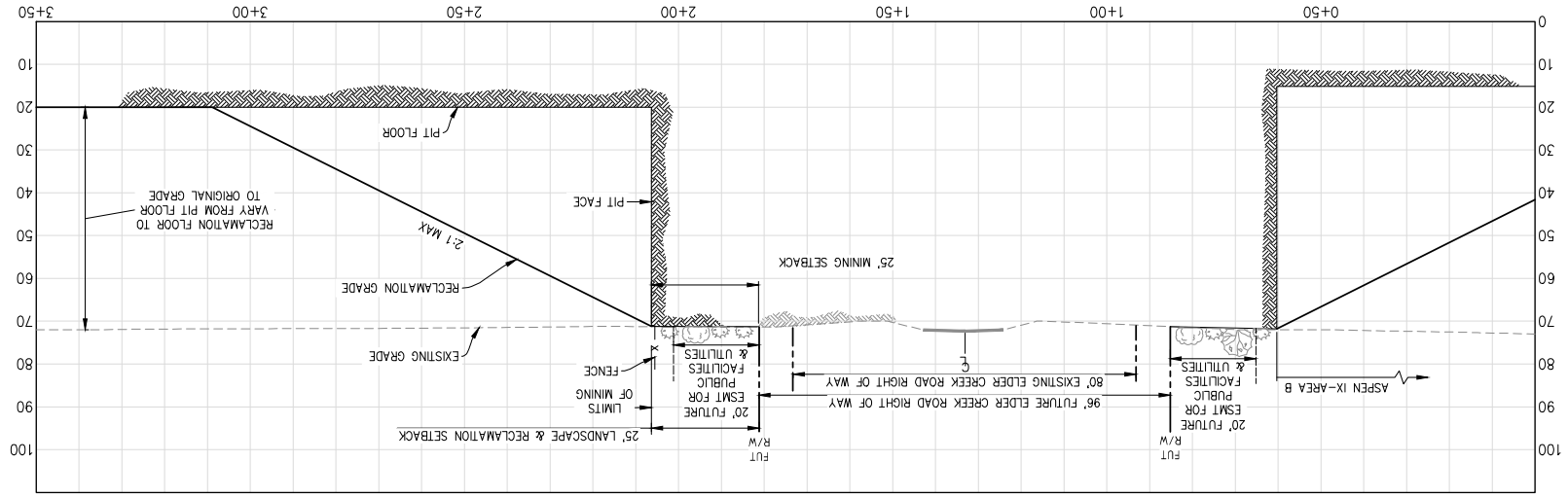
PC EXHIBIT 9

PC EXHIBIT 10



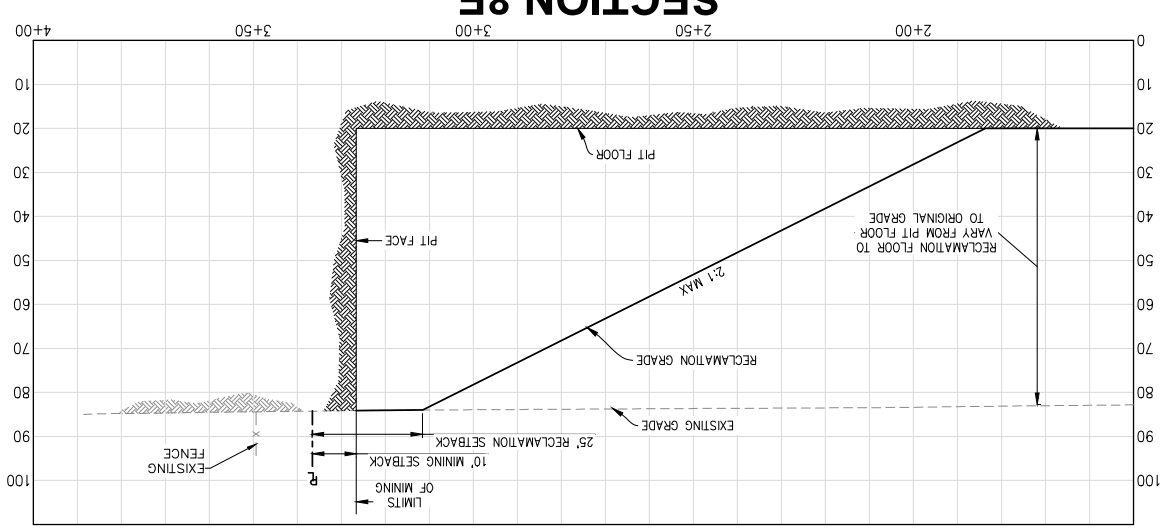
SECTION 8F

SCALE= 1" = 20'



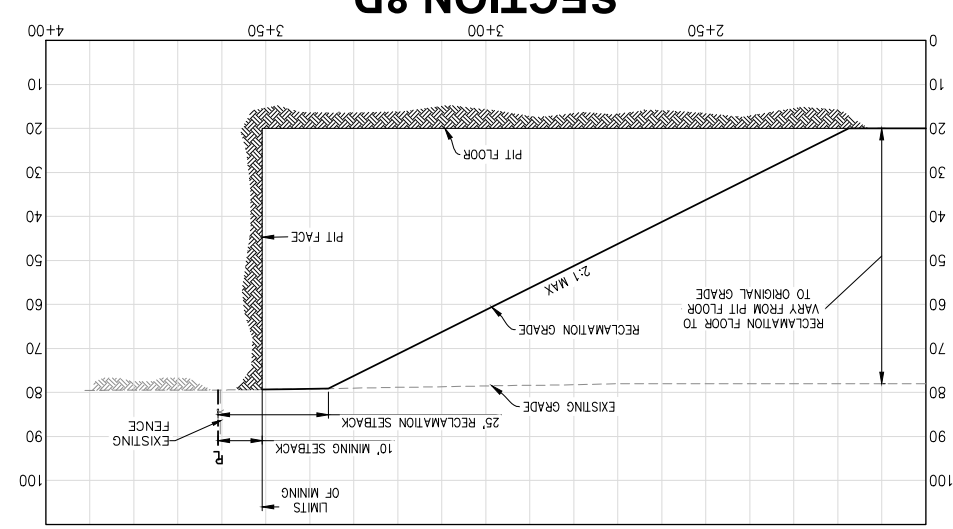
SECTION 8G

SCALE= 1" = 20'



SECTION 8E

SCALE= 1" = 20'



SECTION 8D

SCALE= 1" = 20'

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PRELIMINARY

SHEET C08 OF 13

DATE: 2/5/16

JOB NO: 1390.01

TEICHERT AGGREGATES
ASPEN VIII & IX
CROSS SECTIONS 8D, 8E, 8F & 8G

SACRAMENTO COUNTY CALIFORNIA

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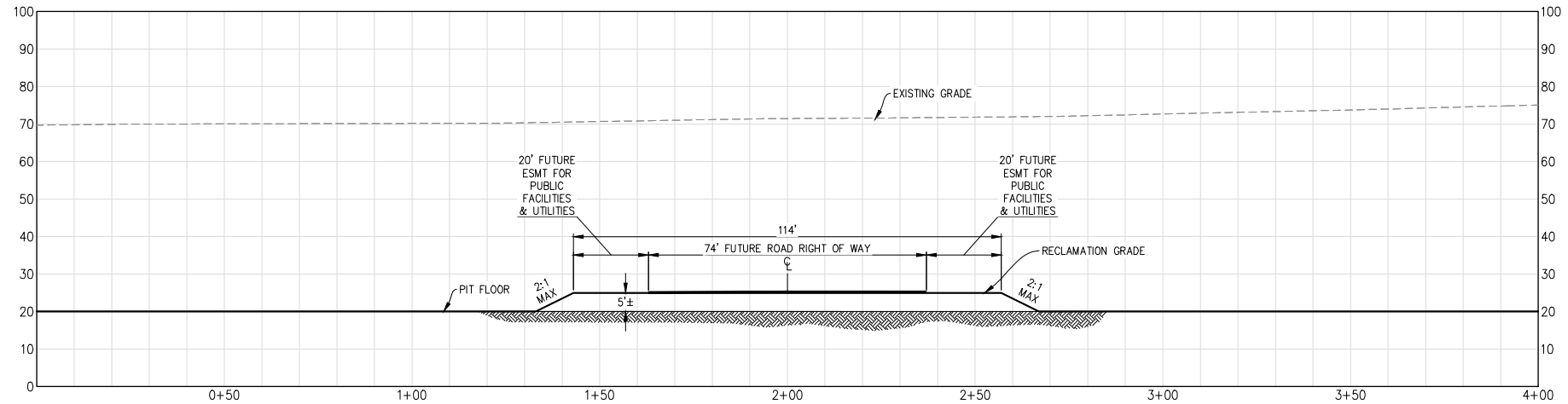
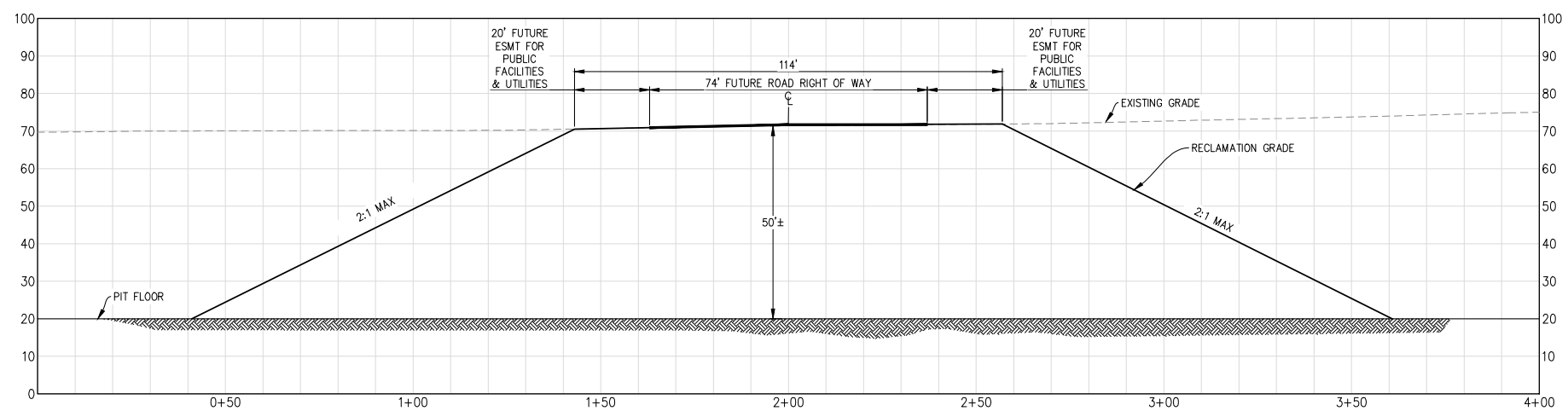


SECTION 8H - ROAD AT PIT BOTTOM

SCALE= 1" = 20'



SECTION 8H ALTERNATE - ROAD AT EXISTING GRADE

SCALE= 1" = 20'

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TEICHERT AGGREGATES
ASPEN VIII & IX
CROSS SECTIONS 8H, 8H ALTERNATE

SACRAMENTO COUNTY CALIFORNIA

SHEET C09 OF 13

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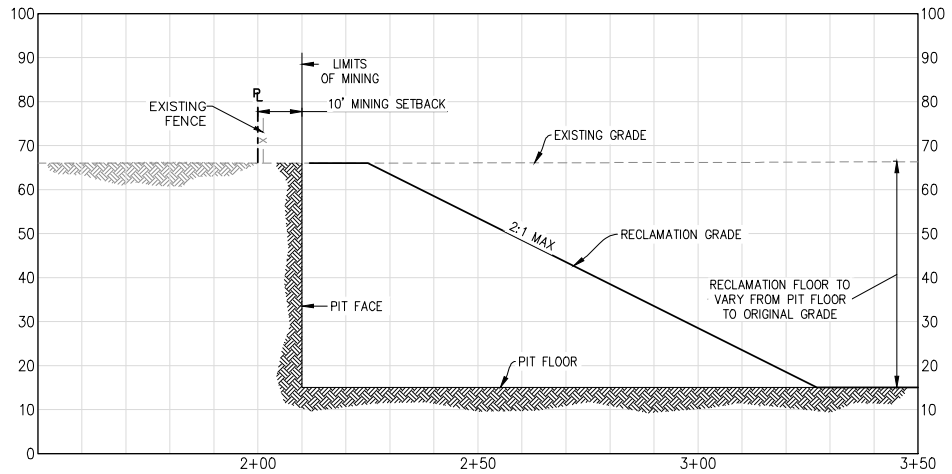
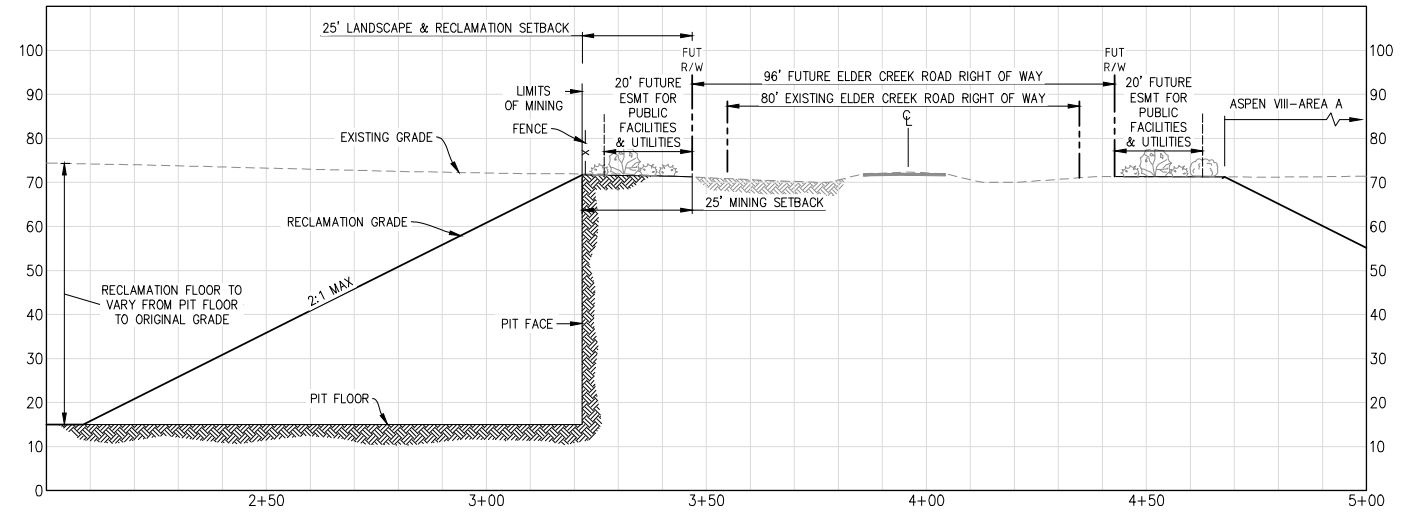
PC EXHIBIT 11



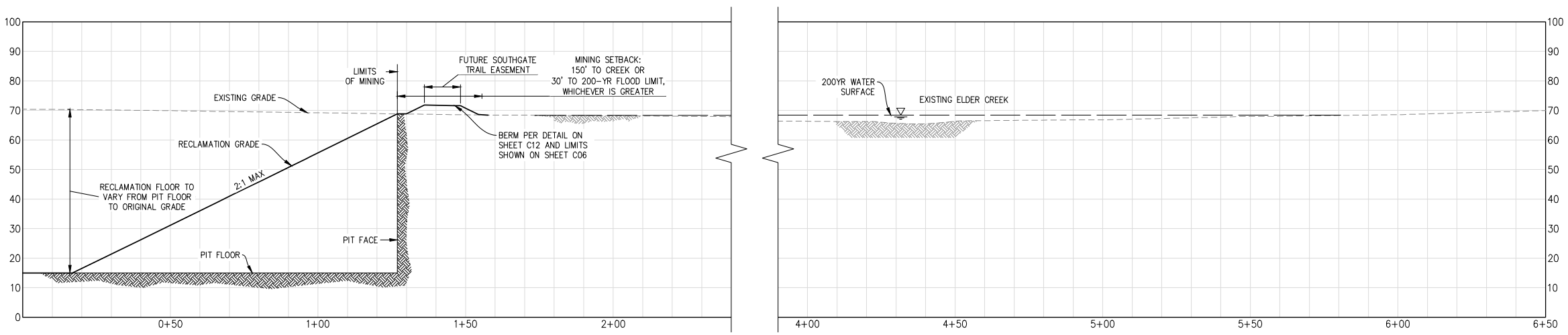
SECTION 9A

SCALE= 1" = 20'



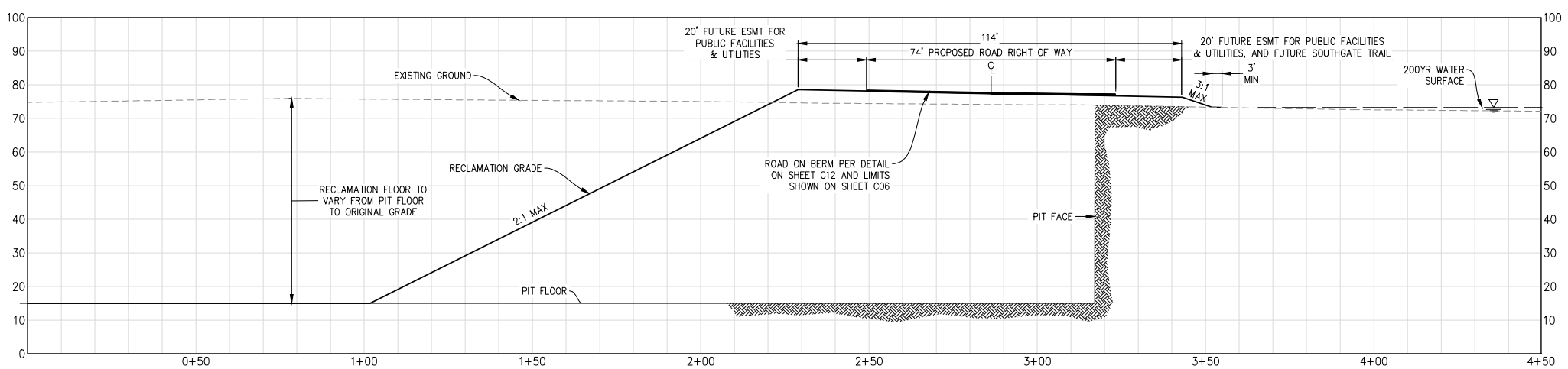
SECTION 9B

SCALE= 1" = 20'



SECTION 9C

SCALE= 1" = 20'



SECTION 9D

SCALE= 1" = 20'

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TEICHERT AGGREGATES

TEICHERT AGGREGATES
ASPEN VIII & IX
CROSS SECTIONS 9A, 9B, 9C & 9D

SACRAMENTO COUNTY CALIFORNIA

SHEET C10 OF 13

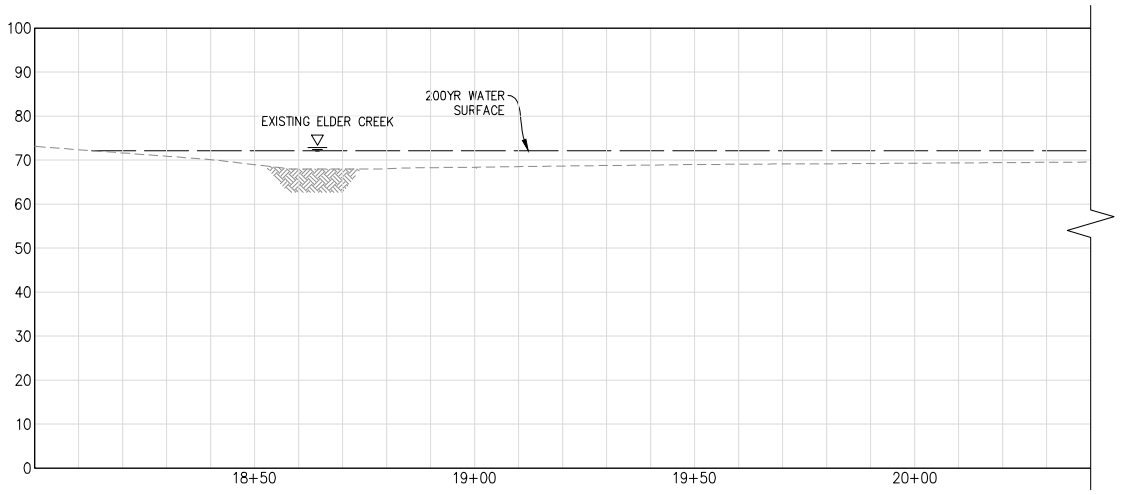
DATE: 2/5/16

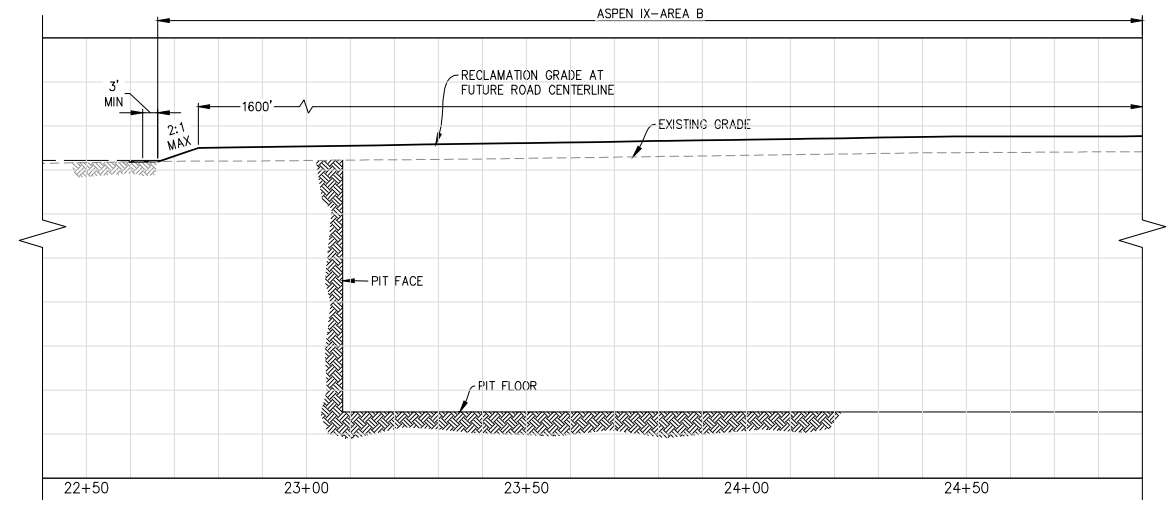
JOB NO: 1390.01

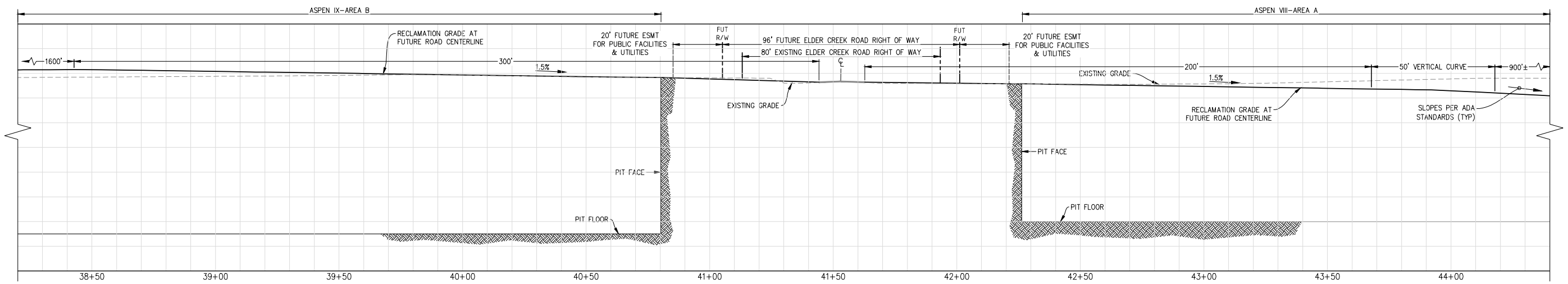
S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-01-C10-CGCC 9A-9D.dwg - C10 CROSS SECTIONS 9A 9B 9C & 9D 2/05/2016 - 1:28PM Plotted by: Lara

PC EXHIBIT 12

SOUTH







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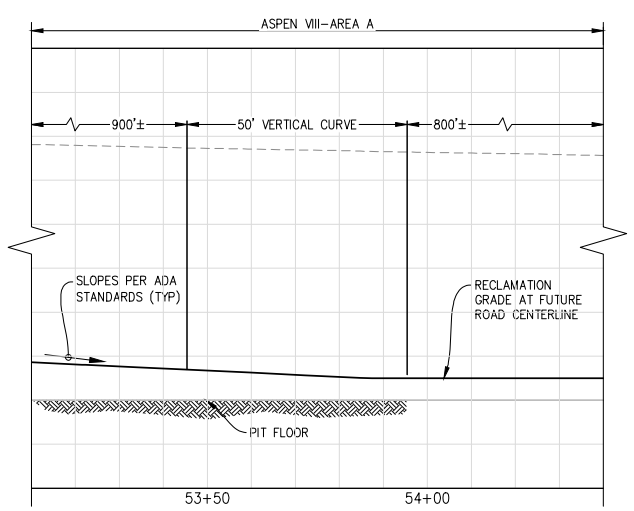

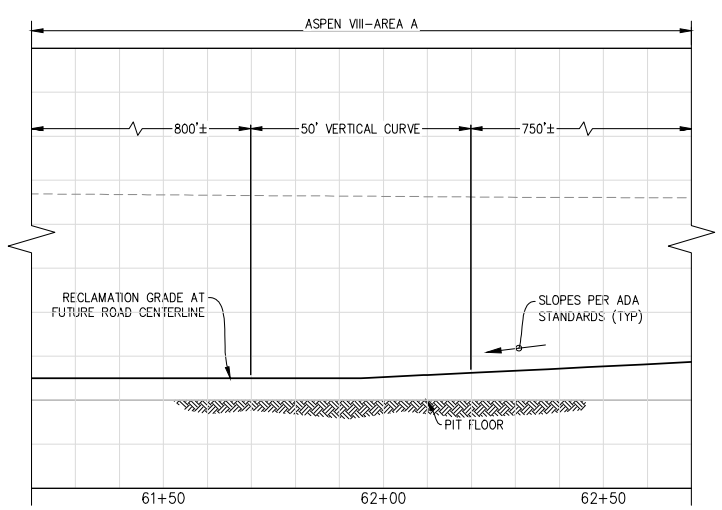

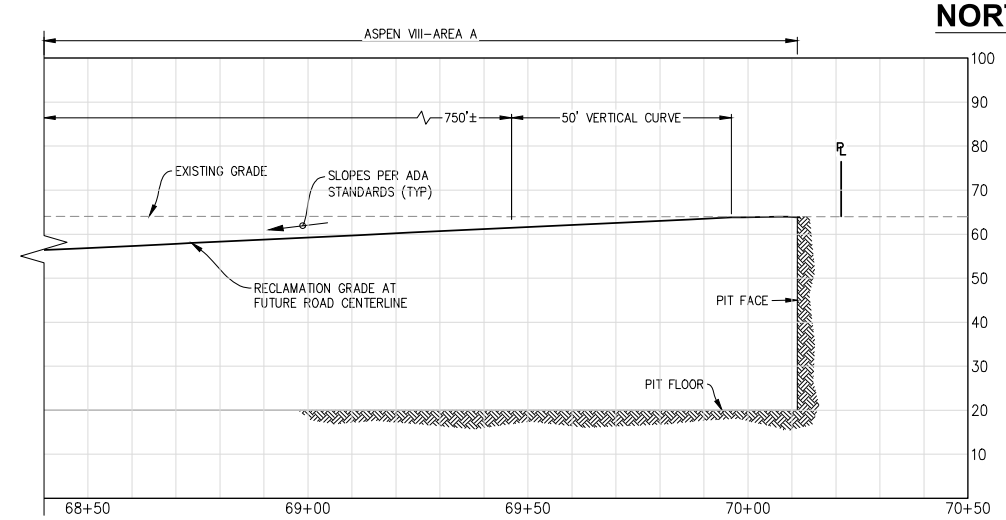

FUTURE ROAD CENTERLINE PROFILE

SCALE= 1" = 20'

DATE SIGNED: _____

THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

REGISTERED PROFESSIONAL ENGINEER STEVEN J. GREENFIELD No. C50880 CIVIL STATE OF CALIFORNIA

PRELIMINARY

DESIGNED BY	NC
DRAWN BY	LR
CHECKED BY	SG
SCALE	AS SHOWN

NO.	DATE	REVISIONS	BY	APPD.

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Sacramento, CA 95818
(916) 455-2026

■ Davis Office
2940 Spotford Street, Suite 200
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(530) 758-2026

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TEICHERT AGGREGATES

TEICHERT AGGREGATES
ASPEN VIII & IX
FUTURE ROAD CENTERLINE PROFILE

SACRAMENTO COUNTY CALIFORNIA

SHEET C11 OF 13

DATE: 2/5/16

JOB NO: 1390.01

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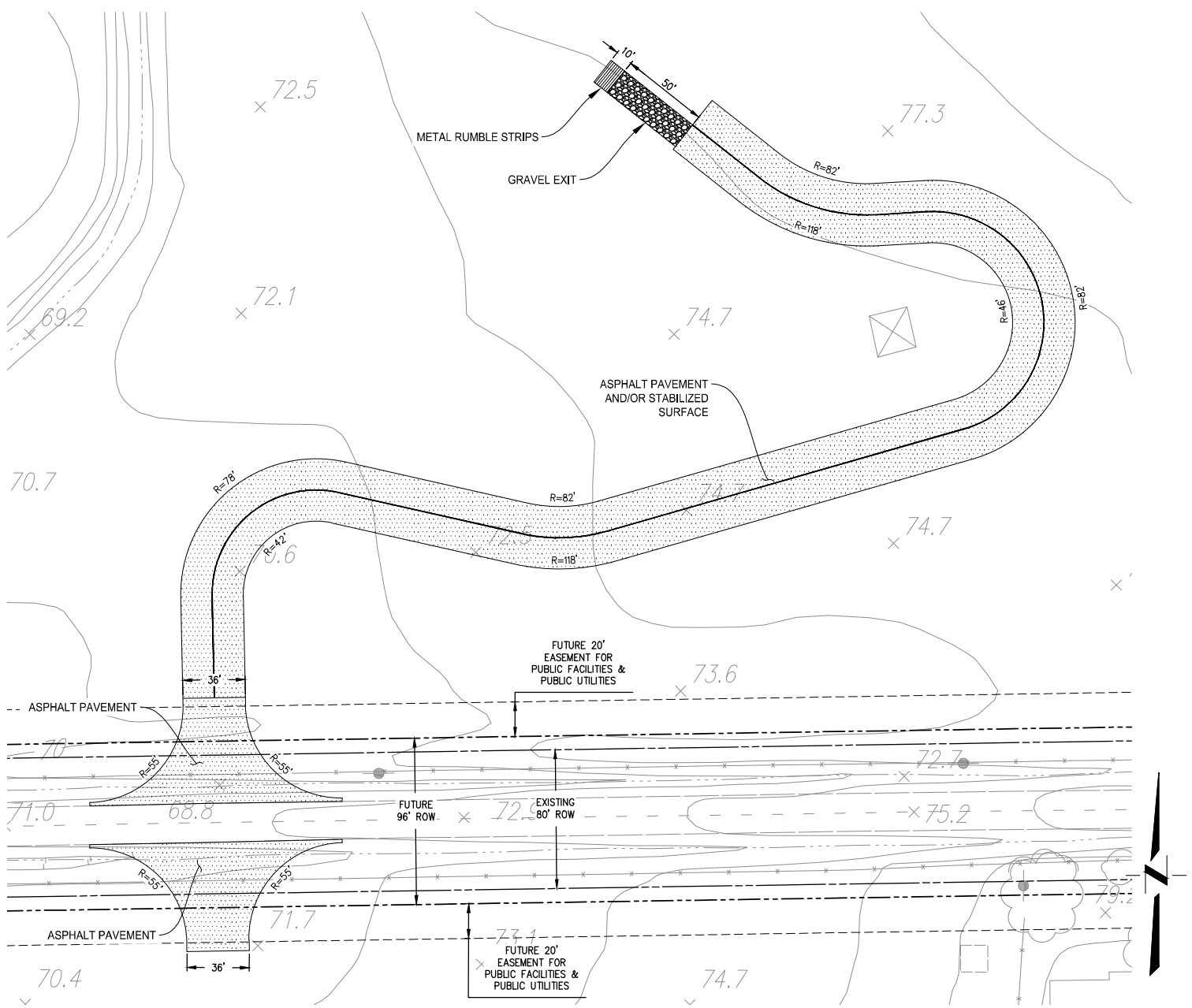
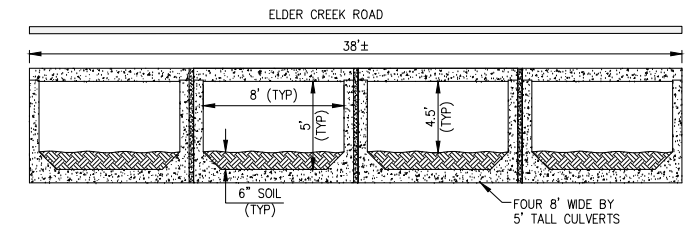


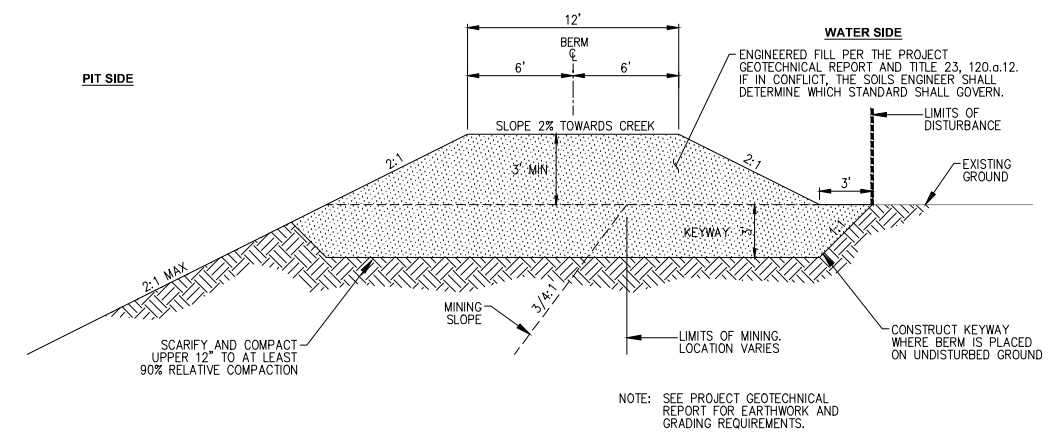
ENLARGED MINE DRIVEWAY ENTRANCE DETAIL

SCALE: 1"=40'



ELDER CREEK CULVERT DETAIL

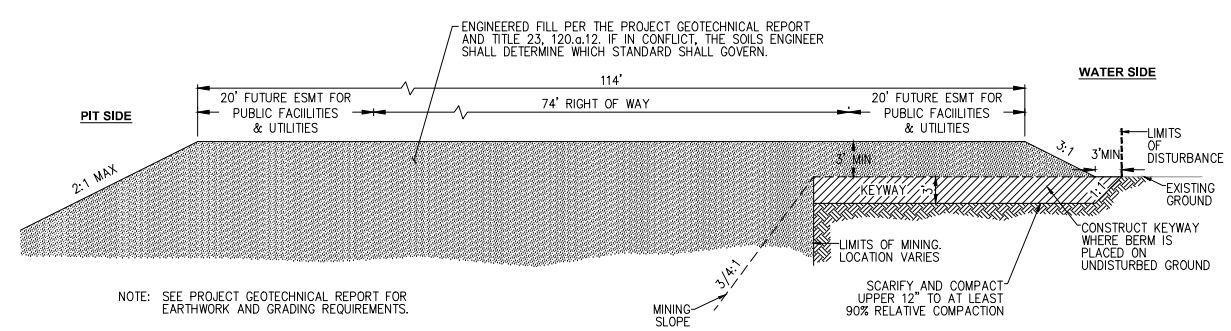
N.T.S.



NOTE: SEE PROJECT GEOTECHNICAL REPORT FOR EARTHWORK AND GRADING REQUIREMENTS.

TYPICAL BERM DETAIL

N.T.S.



NOTE: SEE PROJECT GEOTECHNICAL REPORT FOR EARTHWORK AND GRADING REQUIREMENTS.

TYPICAL ASPEN IX ROAD WITH BERM DETAIL

N.T.S.

DATE SIGNED: _____

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REGISTERED PROFESSIONAL ENGINEER STEVEN J. GREENFIELD No. C50880 CIVIL STATE OF CALIFORNIA

PRELIMINARY

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SCALE AS SHOWN

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TEICHERT AGGREGATES ASPEN VIII & IX CIVIL DETAILS

SACRAMENTO COUNTY CALIFORNIA

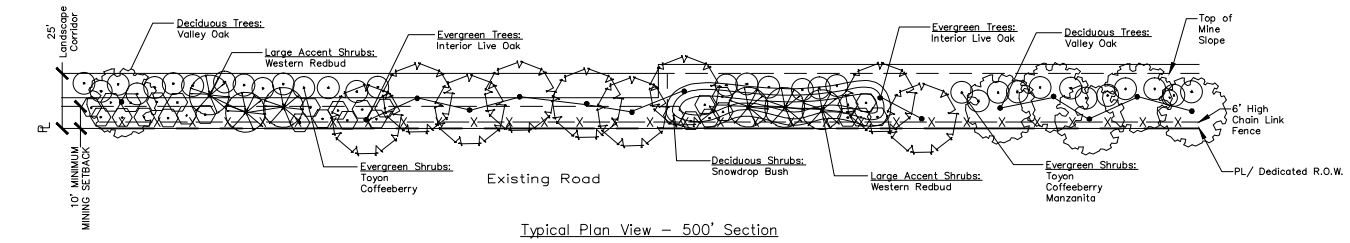
SHEET C12 OF 13

DATE: 2/5/16

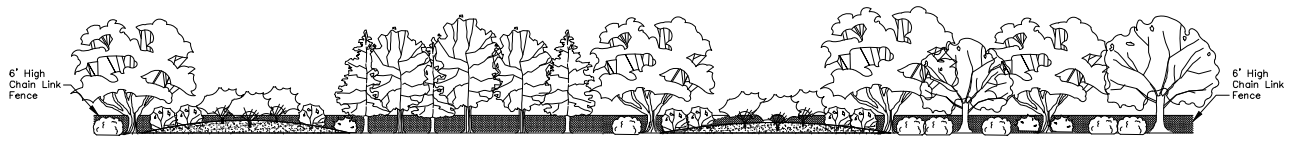
JOB NO: 1390.01

S:\Projects\1300\1390 Aspen VIII & IX Mining & Reclamation Plans\AutoCAD\1390-01 MINING AND RECLAMATION PLANS\SHEETS\1390-01-C12-DETLS.dwg - C12 CIVIL DETAILS 2/05/2016 - 1:27PM Plotted by: Lara

PC EXHIBIT 14



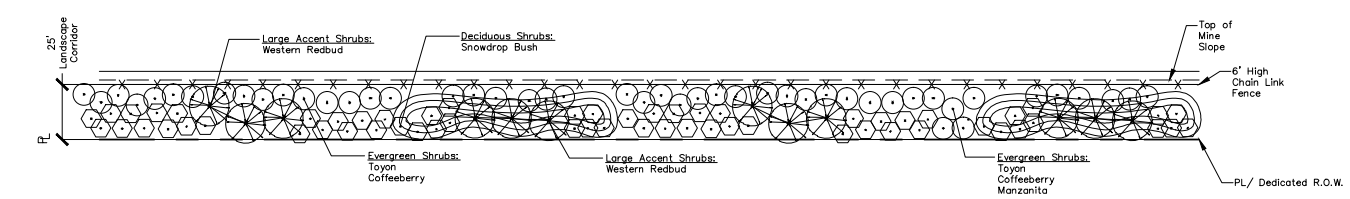
Typical Plan View – 500' Section
Along Aspen 8 West Boundary



Typical Elevation View

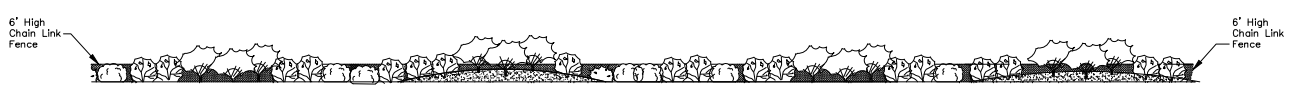
Botanical Name	Common Name	Type	Mature Height
Large trees:			
Quercus lobata	Valley Oak	Deciduous	60–100'
Quercus wislizenii	Interior Live Oak	Evergreen	30–70'
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

TREE/SHRUB VISUAL SCREEN CORRIDOR



Existing Elder Creek Road

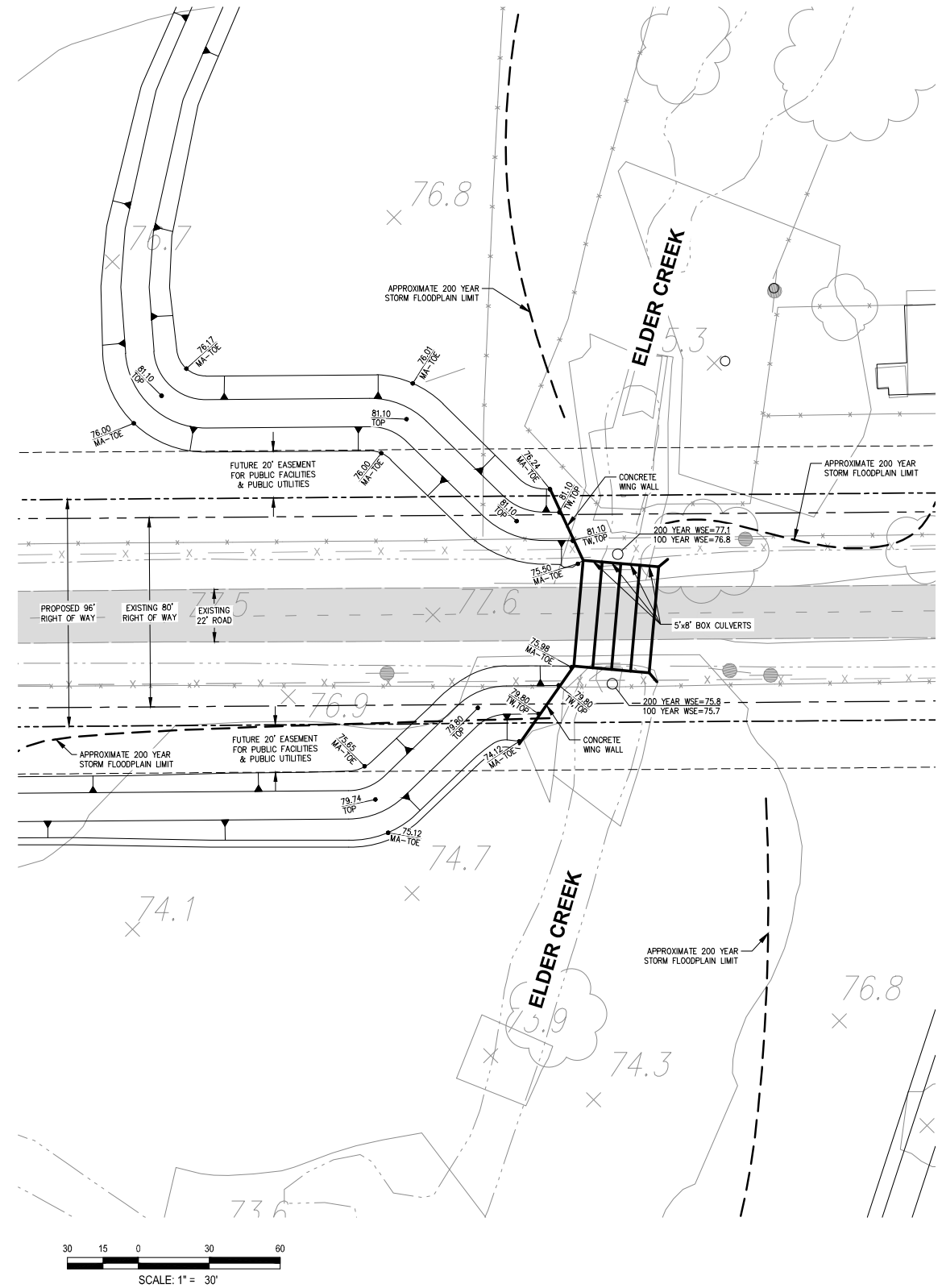
Typical Plan View – 500' Section
Along Elder Creek Road



Typical Elevation View

Botanical Name	Common Name	Type	Mature Height
Shrubs:			
Cercis occidentalis	Western Redbud	Deciduous	10–18'
Heteromeles arbutifolia	Toyon	Evergreen	6–20'
Rhamnus tomentella	Hoary Coffeeberry	Evergreen	6–12'
Styrax officinalis	Snowdrop Bush	Deciduous	4–12'
Arctostaphylus Densiflora	'Howard McMinn' Manzanita	Evergreen	8–12'

SHRUB ONLY VISUAL SCREEN CORRIDOR



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REGISTERED PROFESSIONAL ENGINEER STEVEN J. GREENFIELD No. 50880 CIVIL STATE OF CALIFORNIA

PRELIMINARY

DESIGNED BY NC
DRAWN BY LR
CHECKED BY SG
SCALE AS SHOWN

NO.	DATE	REVISIONS	BY	APPD.

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TEICHERT AGGREGATES

TEICHERT AGGREGATES
ASPEN VIII & IX
CIVIL & LANDSCAPE DETAILS

SACRAMENTO COUNTY CALIFORNIA

SHEET C13 OF 13

DATE: 2/5/16

JOB NO: 1390.01

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PC EXHIBIT 15

**BEFORE THE BOARD OF SUPERVISORS
OF THE COUNTY OF SACRAMENTO**

Control No. PLNP2014-00201

Re:	**Application of Teichert Materials) For a Community Plan) Amendment, Rezone, Use Permits,) Reclamation Plan, and) Development Agreement for a) Project Known as Aspen VIII & IX)**	**CEQA FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS**

**CEQA FINDINGS OF FACT,
PLAN CONSISTENCY FINDINGS OF FACT, AND
STATEMENT OF OVERRIDING CONSIDERATIONS**

I. INTRODUCTION

The Final Environmental Impact Report ("FEIR") prepared for the Aspen VIII and IX project (the "Project") addresses the environmental effects associated with the Project. These Findings and Statement of Overriding Considerations have been prepared to comply with the requirements of the California Environmental Quality Act ("CEQA") (Pub. Resources Code, § 21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., tit. 14, §15000 et seq.).

II. DEFINITIONS

"APN" means Assessor Parcel Number.

"Applicant" means Teichert Materials.

"ARB" means the California Air Resources Board.

"BACT" means Best Available Control Technology.

"BMP" or "BMPs" means Best Management Practices.

"Board" means the Board of Supervisors of the County of Sacramento.

"CEQA" means the California Environmental Quality Act.

"CGS" means the California Geological Survey.

"Community Development" means the County of Sacramento, Community Development Department.

"Condition" means a condition of approval adopted by the County in connection with approval of the Project.

"County" means County of Sacramento.

"CPAC" means Community Planning Advisory Council.

"dB" means decibels.

"dbh" means diameter at breast height.

"DEIR" or "Draft EIR" means the Draft Environmental Impact Report for the Project (May 2016).

"DWR" means the County of Sacramento, Department of Water Resources.

"EIR" means Environmental Impact Report.

"Environmental Coordinator" means the Environmental Coordinator for the County of Sacramento.

"FEIR" or "Final EIR" means the Final Environmental Impact Report for the Project (August 2016).

"FEMA" means the Federal Emergency Management Agency.

"General Plan" means the Sacramento County 2030 General Plan, adopted November 2011.

"L_{max}" means maximum noise level.

"LOS" means level of service.

"MMRP" means Mitigation Monitoring and Reporting Program.

"NOP" means Notice of Preparation.

"NO_x" means oxides of nitrogen.

"PCC" means Portland Concrete Cement.

"Planning and Environmental Review" means the County of Sacramento, Community Development Department, Planning and Environmental Review Division.

"Planning Commission" means the Planning Commission of the County of Sacramento.

"PM_{10}" means particulate matter 10 microns in diameter or less.

"$PM_{2.5}$" means particulate matter 2.5 microns in diameter or less.

"Project" means the Aspen VIII and IX project.

"ROG" means reactive organic gases.

"SM" means Surface Mining Combining Zone.

"SMAQMD" means Sacramento Metropolitan Air Quality Management District.

"Staff Report" means the staff report for the Project, dated July 25, 2016, and any subsequent addenda thereto.

III. PROJECT DESCRIPTION

Project Location and Setting

The project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway and approximately one-half mile east of Bradshaw Road. The property is located on both sides of Elder Creek Road approximately 4,000 feet east of Bradshaw Road, in the Vineyard community. The project is located within Township 8 north, Range 6 east, Sections 27, 28, 33, and 34 of the USGS 7.5-minute series Carmichael, California quadrangles. The latitude and longitude are 38°30'39" North and -121°19'03" West. (FEIR, p. 2-1.)

Project Description

The Applicant proposes to mine and reclaim approximately 353 acres of the 683-acre Project Site. The purpose of the Project is to continue to supply mined aggregate for Teichert's existing Perkins processing plant. The project site is currently zoned IR (Industrial Reserve), AG-80, AG-80 Flood (F), AG-160 and AG-160 (F) (Plate PD-3). The applicant is requesting to rezone 682 acres of the 683 acre project site with the Surface Mining Combining Zone (SM) and a use permit to mine aggregate material (sand and gravel) from two mining pits (Plate PD-5 and Plate PD-6), Aspen VIII and Aspen IX. Mining on Aspen VIII is proposed in two phases, Areas A & B. Area A is proposed to be approximately 133 acres while Area B is proposed to be approximately 122 acres. The total for phases A & B on Aspen VIII is approximately 255 acres. Mining on Aspen IX

will be in phase C (Plate PD-8) and is proposed to be approximately 98 acres. Thus the total for all the mining pits is approximately 353 acres. (FEIR, p. 2-4.)

A use permit to allow the extension and continued use of an electric conveyor system to transport mined material across other parcels to the existing off-site Perkins processing plant is also being requested as well as a reclamation plan that specifies open space grassland as the end use of the mine. The reclamation plan proposes alignments for a future right-of-way through the mining pit on Aspen VIII and along the eastern pit boundary on Aspen IX as well as a graded easement for a future multi-use trail adjacent to the mine boundary and Elder Creek, and it specifies slope standards, roadway details and cross sections. (FEIR, p. 2-4.)

The topsoil will be salvaged and stored on-site to be used in reclamation. Originally the applicant sought to use haul trucks to remove up to 1,000,000 cubic yards of overburden off-site via County public roadways. However, based on discussions with the County of Sacramento about the environmental and fiscal impacts, the applicant determined not to remove overburden from the site via public County roads. Instead, the applicant will remove up to 500,000 cubic yards of overburden from Aspen VIII via haul trucks on internal access roads and no overburden haul trucks will enter the public roadway system. The up to 500,000 cubic yards of overburden will be trucked off-site approximately 4,600 feet along internal access roads to Aspen V South which is located directly north of Aspen VIII. (FEIR, p. 2-4.)

The applicant is proposing to construct a sinuous, paved exit ramp from Aspen VIII to control track out of dirt from employee, maintenance and service vehicle trips. The applicant is also proposing to upgrade the culvert under Elder Creek Road. (FEIR, p. 2-19.)

No overburden will be removed from Aspen IX. Aggregate from both pits will be conveyed off the site via an electric conveyor system to the existing off-site Perkins processing plant. The applicant is also requesting to install native landscaping as part of visual screening of the mining pits. Native landscaping is proposed along Elder Creek Road and along the boundary separating the project site from Bellevue and Arlington Cemeteries (Quiet Haven Memorial Park) to the west (Plate PD-18). Furthermore, the applicant is proposing to install berms to help attenuate noise and to act as a visual screen at the residence near the west side of Aspen VIII and at the northwest corner of Aspen IX. (FEIR, p. 2-19.)

Project Objectives

The Applicant has provided the following objectives to the Project:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).

2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.

3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.

4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.

5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.

6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.

7. To minimize impacts to wetlands and other protected habitat from mining operations.

(FEIR, pp. 2-22, 2-23.)

Requested Entitlements

The Project includes the following entitlements to permit its physical development:

- A Use Permit to allow surface mining on approximately 353 acres of a 683-acre project site.
- A Use Permit to allow for the extension and continued use of an electric conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.
- A Community Plan Amendment and Rezone to add the Surface Mining Combining Zone (SM) to 682 acres of IR, AG-80, AG-80 (F), AG-160 and AG-160 (F) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.
- A Reclamation Plan to include open space grasslands as the end use of the mine.
- A Development Agreement between the applicant and the County of Sacramento.

(FEIR, p. 2-19.)

The discretionary action required by the Board to approve the Project is the adoption of all of these requested entitlements.

IV. BACKGROUND

In October 2014, the Applicant submitted an application for the Project. In December 2014, the Applicant modified the Project to include the existing conveyor alignment which will continue to serve the Project until mining is complete.

On February 17, 2015, the County issued a Notice of Preparation (NOP) of an EIR for the Project. The NOP for the Project was distributed to the State Clearinghouse, responsible agencies, interested groups and individuals, and surrounding property owners. The NOP was circulated for a 30-day comment period, which ended on March 20, 2015.

On March 10, 2015, the County held a public scoping meeting for the Project at the County Branch Center at 3701 Branch Center Road. A notice of the scoping meeting was sent to all individuals and agencies on the NOP mailing list. The purpose of the scoping meeting was to solicit comments regarding the scope of the EIR.

On December 7, 2015, the County of Sacramento released a revised NOP to reflect project modifications, including the elimination of the proposed sale and hauling of up to 1,000,000 cubic yards of overburden from the Project Site. The NOP was circulated for a 30-day comment period, which ended on January 6, 2016.

On April 5, 2016, the Vineyard Community Planning Advisory Council (CPAC) held a public hearing on the Project. After receiving public comments regarding the Project, the Vineyard CPAC voted unanimously to recommend approval of the Project.

On May 19, 2016, the Cosumnes CPAC considered the Project as an informational item and received public comments regarding the Project and DEIR. No action was taken.

On May 27, 2015, the Draft Environmental Impact Report (DEIR) for the Project was released for public review. The DEIR was circulated through the State Clearinghouse for a 45-day public review period, which ended on July 11, 2016. (DEIR cover letter.)

On July 25, 2016, the Planning Commission held a public hearing on the Project. After receiving comments on the DEIR, the Planning Commission closed the comment period on the DEIR. Thereafter, the Planning Commission voted 4 to 0 to direct staff to prepare the Final EIR and to recommend approval of the Project.

On August 31, 2016, the County published the Final EIR (FEIR) for the Project.

On September 27, 2016, the Board held a public hearing regarding the Project. After receiving public comments on the Project, the Board certified the FEIR, adopted findings and statement of overriding considerations for the Project, and approved the Project.

V. RECORD OF PROCEEDINGS

The record of proceedings for the Board's decision on the Project consists of the following documents, at a minimum:

- The Project application package, including written documentation, maps, and subsequent amendments and submittals;
- The Initial Study prepared for the Project, if any;
- All Notices of Preparation and other public notices issued by the County in conjunction with the Project;
- The Draft Environmental Impact Report for the Project (May 2016);
- All comments submitted by agencies or members of the public during the comment period on the Draft EIR and responses to those comments;
- The Final Environmental Impact Report prepared for the Project (August 2016), including comments received on the Draft EIR and responses to those comments;
- All comments and correspondence submitted to the County with respect to the Project, in addition to the timely comments on the Draft EIR;
- The mitigation, monitoring and reporting program for the Project;
- All findings and resolutions adopted by the Board in connection with the Project, and all documents cited or referred to therein;
- All reports, studies, memoranda, maps, staff reports, or other planning documents relating to the Project prepared by the County, consultants to the County, or responsible or trustee agencies with respect to the County's compliance with the requirements of CEQA and with respect to the County's action on the Project;
- Any minutes and/or verbatim transcripts of all information sessions, public meetings, and public hearings held by the County in connection with the Project;

- Any documentary or other evidence submitted to the County at such information sessions, public meetings and public hearings;

- Matters of common knowledge to the Board, including, but not limited to, the following:

    1) Federal, state, and local laws and regulations;
    2) The Sacramento County 2030 General Plan (2011);
    3) The Zoning Code of Sacramento County;
    4) The Sacramento County Code; and
    5) Other formally adopted policies and ordinances.

- Any documents expressly cited in these findings, in addition to those cited above; and

- Any other materials required for the record of proceedings by the Public Resources Code section 21167.6, subdivision (e).

The official custodian of the record is the Clerk of the Sacramento County Board of Supervisors, 700 H Street, Sacramento California 95814.

VI. FINDINGS REQUIRED UNDER CEQA

Public Resources Code section 21002 provides that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would *substantially lessen* the significant environmental effects of such projects[.]" (Emphasis added.) The same statute states that the procedures required by CEQA "are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will *avoid* or *substantially lessen* such significant effects." (Emphasis added.) Section 21002 goes on to state that "in the event [that] specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof."

The mandate and principles announced in Public Resources Code section 21002 are implemented, in part, through the requirement that agencies must adopt findings before approving projects for which EIRs are required. (See Pub. Resources Code, § 21081, subd. (a); CEQA Guidelines, § 15091, subd. (a).) For each significant environmental effect identified in an EIR for a proposed project, the approving agency must issue a written finding reaching one or more of three permissible conclusions. The first such finding is that "[c]hanges or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR." (CEQA Guidelines, § 15091, subd. (a)(1).) The second permissible finding is that "[s]uch changes or alterations are within the responsibility and

jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency." (CEQA Guidelines, §15091, subd. (a)(2).) The third potential conclusion is that "[s]pecific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR." (CEQA Guidelines, § 15091, subd. (a)(3).) Public Resources Code section 21061.1 defines "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors." CEQA Guidelines section 15364 adds another factor: "legal" considerations. (See also Citizens of Goleta Valley v. Board of Supervisors ("Goleta II") (1990) 52 Cal.3d 553, 565.)

The concept of "feasibility" also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. (City of Del Mar v. City of San Diego (1982) 133 Cal.App.3d 410, 417.) "[F]easibility' under CEQA encompasses 'desirability' to the extent that desirability is based on reasonable balancing of the relevant economic, environmental, social, and technological factors." (Id.; see also Sequoyah Hills Homeowners Assn. v. City of Oakland (1993) 23 Cal.App.4th 704, 715.)

The CEQA Guidelines do not define the difference between "avoiding" a significant environmental effect and merely "substantially lessening" such an effect. The County must therefore glean the meaning of these terms from the other contexts in which the terms are used. Public Resources Code section 21081, on which CEQA Guidelines section 15091 is based, uses the term "mitigate" rather than "substantially lessen." The CEQA Guidelines therefore equate "mitigating" with "substantially lessening." Such an understanding of the statutory term is consistent with the policies underlying CEQA, which include the policy that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Pub. Resources Code, § 21002.)

For purposes of these findings, the term "avoid" refers to the effectiveness of one or more mitigation measures to reduce an otherwise significant effect to a less than significant level. In contrast, the term "substantially lessen" refers to the effectiveness of such measure or measures to substantially reduce the severity of a significant effect, but not to reduce that effect to a less than significant level. These interpretations appear to be mandated by the holding in Laurel Hills Homeowners Association v. City Council (1978) 83 Cal.App.3d 515, 519-521, in which the Court of Appeal held that an agency had satisfied its obligation to substantially lessen or avoid significant effects by adopting numerous mitigation measures, not all of which rendered the significant impacts in question less than significant.

Although CEQA Guidelines section 15091 requires only that approving agencies specify that a particular significant effect is "avoid[ed] *or* substantially lessen[ed]," these

findings, for purposes of clarity, in each case will specify whether the effect in question has been reduced to a less than significant level, or has simply been substantially lessened but remains significant. Moreover, although section 15091, read literally, does not require findings to address environmental effects that an EIR identifies as merely "potentially significant," these findings will nevertheless fully account for all such effects identified in the Final EIR.

CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Project modification or alternatives are not required, however, where such changes are infeasible or where the responsibility for modifying the project lies with some other agency. (CEQA Guidelines, § 15091, subd. (a), (b).)

With respect to a project for which significant impacts are not avoided or substantially lessened, a public agency, after adopting proper findings, may nevertheless approve the project if the agency first adopts a statement of overriding considerations setting forth the specific reasons why the agency found that the project's "benefits" rendered "acceptable" its "unavoidable adverse environmental effects." (CEQA Guidelines, §§ 15093, 15043, subd. (b); see also Pub. Resources Code, § 21081, subd. (b).) The California Supreme Court stated, "[t]he wisdom of approving ... any development project, a delicate task which requires a balancing of interests, is necessarily left to the sound discretion of the local officials and their constituents who are responsible for such decisions. The law as we interpret and apply it simply requires that those decisions be informed, and therefore balanced." (Goleta II, 52 Cal.3d at p. 576.)

These findings constitute the County's best efforts to set forth the evidentiary and policy bases for its decision to approve the Project in a manner consistent with the requirements of CEQA. To the extent that these findings conclude that various proposed mitigation measures outlined in the Final EIR are feasible and have not been modified, superseded or withdrawn, the County hereby binds itself to implement these measures. These findings, in other words, are not merely informational, but rather constitute a binding set of obligations that will come into effect when the Board adopts a resolution approving the Project.

VII. MITIGATION MONITORING AND REPORTING PROGRAM

A Mitigation Monitoring and Reporting Program ("MMRP") was prepared for the Project and was approved by the Board by the same resolution that has adopted these findings. (See Pub. Resources Code, §21081.6, subd. (a)(1); CEQA Guidelines, §15097.) The County will use the MMRP to track compliance with Project mitigation measures. The MMRP will remain available for public review during the compliance period.

VIII. SIGNIFICANT EFFECTS AND MITIGATION MEASURES

These Findings do not address impacts that are considered less than significant or beneficial prior to mitigation. Therefore, these Findings do not address the following

impacts because they were determined to be either less than significant or beneficial in the EIR:

- Land Use/Population and Housing – Conflict with land use plans, policies, or regulations (FEIR, pp. 1-2, 4-11, 4-12);
- Land Use/Population and Housing -- Displacement of existing housing (FEIR, pp. 1-2, 4-12, 4-13);
- Land Use/Population and Housing – Physical division of an established community (FEIR, pp. 1-2, 4-11);
- Land Use/Population and Housing – Inducement of substantial unplanned population growth (FEIR, pp. 1-2, 4-11);
- Agricultural Resources – Conflict with Williamson Act contract (FEIR, pp. 1-4, 5-12);
- Agricultural Resources – Introduction of incompatible uses in the vicinity of existing agricultural uses (FEIR, pp. 1-5, 5-13);
- Aesthetics – Impacts to scenic highways, corridors, or vistas (FEIR, pp. 1-7, 6-3);
- Airport Compatibility – Exposure of people residing or working in the project area to excessive aircraft noise (FEIR, pp. 1-7, 7-18);
- Airport Compatibility – Effect on use of navigable airspace by aircraft (FEIR, pp. 1-7, 1-8, 7-19 to 7-31);
- Airport Compatibility – Exposure of people residing or working in the vicinity of an airport/airstrip to a safety hazard (FEIR, pp. 1-8, 7-31);
- Airport Compatibility – Change in air travel patterns (FEIR, pp. 1-8, 7-18);
- Public Services – Water supply (FEIR, pp. 1-9, 8-22, 8-23);
- Public Services – Wastewater treatment and disposal (FEIR, pp. 1-9, 8-23);
- Public Services – Solid waste/landfill capacity (FEIR, pp. 1-9, 8-23);
- Public Services – Construction or expansion of water supply or wastewater treatment and disposal facilities (FEIR, pp. 1-9, 1-10, 8-23);
- Public Services – Stormwater drainage facilities (FEIR, pp. 1-10, 8-23, 8-24);
- Public Services – Electric and/or natural gas service (FEIR, pp. 1-10, 1-11, 8-24);
- Public Services – Emergency services (FEIR, pp. 1-11, 8-24);
- Public Services – Schools (FEIR, pp. 1-11, 8-24, 8-25)
- Transportation and Traffic – Parking (FEIR, pp. 1-13, 9-6);
- Transportation and Traffic – Conflict with adopted policies, plans, or programs supporting alternative transportation (FEIR, pp. 1-13, 9-7);
- Transportation and Traffic – Traffic safety (FEIR, pp. 1-13, 1-14, 9-7)
- Transportation and Traffic – Level of service (FEIR, pp. 1-14, 9-7, 9-8);
- Air Quality – Localized CO emissions (FEIR, pp., 1-16, 10-33, 10-34);
- Air Quality – Diesel particulate matter/toxic air contaminant emissions (FEIR, pp. 1-26, 10-34, 10-35);

- Air Quality – Odors (FEIR, pp. 1-27, 10-35);
- Hydrology and Water Quality – Development within 100-year floodplain (FEIR, pp. 1-32, 12-20);
- Hydrology and Water Quality – Runoff and degradation of water quality (FEIR, pp. 1-32, 12-20, 12-21);
- Hydrology and Water Quality – Groundwater depletion and interference with groundwater recharge (FEIR, pp. 1-32, 12-21);
- Hydrology and Water Quality – Place structures that would impede or redirect flood flows within the 100-year floodplain (FEIR, pp. 1-32, 1-33, 12-12, 12-13);
- Hydrology and Water Quality – Exposure of people or structures to a substantial risk of loss, injury, or death involving flooding (FEIR, pp. 1-33, 12-12, 12-13);
- Hydrology and Water Quality – Creation or contribution of runoff that would exceed the capacity of existing or planned stormwater systems (FEIR, pp. 1-33, 12-12, 12-13);
- Geology and Soils – Exposure to earthquakes and other seismic hazards (FEIR, pp. 1-38, 13-18);
- Geology and Soils – Loss of important mineral resources (FEIR, pp. 1-38, 13-18);
- Geology and Soils – Septic tanks and alternative wastewater disposal systems (FEIR, pp. 1-38, 13-18);
- Biological Resources – Loss of winter foraging habitat for merlin and ferruginous hawk (FEIR, p. 1-52, 14-40);
- Biological Resources – Impacts on sensitive natural communities (FEIR, pp. 1-59, 14-45);
- Biological Resources – Impacts on movement of fish or wildlife species (FEIR, pp. 1-67, 14-16, 14-17);
- Biological Resources – Consistency with adopted habitat conservation plan (FEIR, pp. 1-67, 1-68, 14-16, 14-17);
- Cultural Resources – Substantial adverse change in the significance of a historical resource (FEIR, pp. 1-68, 15-18);
- Hazardous Materials – Exposure of public or environment to upset conditions involving release of hazardous materials (FEIR, pp. 1-72, 16-10, 16-11);
- Hazardous Materials – Hazardous emissions or handling of hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school (FEIR, pp. 1-72, 16-9);
- Hazardous Materials – Location on a site that is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 resulting in a substantial hazard to the public or the environment (FEIR, pp. 1-72, 16-9);
- Hazardous Materials – Impairment of implementation of or physical interference with an adopted emergency response or emergency evacuation plan (FEIR, pp. 1-72, 16-9);

- Greenhouse Gas Emissions (FEIR, pp. 1-73, 17-11 to 17-13).

The Project's impacts to these environmental issues are less than significant. Therefore, the EIR did not identify or require mitigation measures for these issues.

The EIR identified some significant or potentially significant environmental effects (or "impacts") that the Project will or may cause. Some of these significant effects can be fully avoided through adoption of feasible mitigation measures. Other effects cannot be substantially lessened or avoided by the adoption of feasible mitigation measures or alternatives and are, therefore, considered significant and unavoidable. However, for reasons set forth in Section X *infra*, the Board has determined that this significant, unavoidable effect of the Project is outweighed by overriding economic, social, and other considerations.

The Project would result in significant or potentially significant environmental effects with respect to the following issues or resources:

- Agricultural Resources – Conversion of prime farmland, farmland of statewide importance, and farmland of local importance (FEIR, pp. 1-2 to 1-4, 5-9 to 5-12);
- Aesthetics – Light and glare (FEIR, pp. 1-5, 1-6, 6-13);
- Public Services – Parks and recreation services (FEIR, pp. 1-11 to 1-13, 8-25, 8-26);
- Traffic and Transportation – Access and circulation impacts to proposed Knox/Vineyard road extension (FEIR, pp. 1-14 to 1-16, 9-8 to 9-18);
- Air Quality – ROG emissions (FEIR, pp. 1-16 to 1-20, 10-26 to 10-30);
- Air Quality – Particulate Matter (PM_{10} and $PM_{2.5}$) emissions (FEIR, pp. 1-21 to 1-26, 10-31 to 10-33);
- Noise – Exposure of people to excessive noise levels (FEIR, pp. 1-27 to 1-29, 11-9 to 11-11);
- Noise – Substantial increase in ambient noise levels (FEIR, pp. 1-29, 11-11 to 11-13);
- Hydrology and Water Quality – Alteration of drainage patterns/increase surface runoff/flooding (FEIR, pp. 1-29 to 1-31, 12-13 to 12-19);
- Geology and Soils – Seepage and slope stability (FEIR, pp. 1-33 to 1-37, 13-18 to 13-36);
- Geology and Soils – Erosion and loss of topsoil (FEIR, pp. 1-37, 1-38, 13-36, 13-37);
- Geology and Soils – Paleontological resources (FEIR, pp. 1-38, 13-37);
- Biological Resources – Loss of habitat for and individuals of Sanford's arrowhead (FEIR, pp. 1-39, 1-40, 14-28 to 14-30);
- Biological Resources – Impact to and loss of habitat for vernal pool invertebrates (FEIR, pp. 1-40 to 1-42, 14-31 to 14-33);
- Biological Resources – Loss of habitat and disturbance to western spadefoot toad (FEIR, pp. 1-43, 1-44, 14-33, 14-34);

- Biological Resources – Loss of habitat and disturbance to western pond turtle (FEIR, pp. 1-44, 1-45, 14-34, 14-35);
- Biological Resources – Disturbance to nesting white-tailed kite, Swainson's hawk, northern harrier, and other raptors (FEIR, pp. 1-45 to 1-47, 14-35 to 14-37);
- Biological Resources – Disturbance to nesting or roosting burrowing owl (FEIR, pp. 1-47 to 1-50, 14-37, 14-38);
- Biological Resources – Disturbance to nesting birds protected under the Migratory Bird Treaty Act (FEIR, pp. 1-50, 1-51, 14-38, 14-39);
- Biological Resources – Loss of foraging habitat for white-tailed kite and Swainson's hawk (FEIR, pp. 1-51, 1-52 14-39, 14-40);
- Biological Resources – Disturbance to nesting loggerhead shrike (FEIR, pp. 1-52 to 1-54, 14-41, 14-42);
- Biological Resources – Disturbance to nesting or roosting yellow-billed magpie (FEIR, pp. 1-54 to 1-56, 14-42, 14-43);
- Biological Resources – Disturbance to nesting tricolored blackbird (FEIR, pp. 1-56 to 1-59, 14-43, 14-44);
- Biological Resources – Loss of foraging habitat for tricolored blackbird (FEIR, pp. 1-59, 14-44, 14-45.)
- Biological Resources – Impacts to jurisdictional wetlands (FEIR, pp. 1-59 to 1-61, 14-46 to 14-48);
- Biological Resources – Removal or native or landmark trees (FEIR, pp. 1-61 to 1-67, 14-48 to 14-51);
- Biological Resources – Conflict with local policies or ordinances protecting biological resources (FEIR, pp. 1-67, 14-51);
- Cultural Resources – Unanticipated discovery of archaeological resources (FEIR, pp. 1-68 to 1-70, 15-18, 15-19);
- Cultural Resources – Unintended discovery of human remains (FEIR, pp. 1-70, 15-19);
- Hazardous Materials – Transport, use, or disposal of hazardous materials (FEIR, pp. 1-70, 1-71, 16-9, 16-10).

The EIR identified mitigation measures to reduce these impacts to a less-than-significant level.

The Project would result in significant and unavoidable environmental effects with respect to the following impacts:

- Aesthetics – Degradation of visual character/change of landform (FEIR, pp. 1-5, 1-6, 6-3 to 6-12);
- Air Quality – NO_x emissions (FEIR, pp. 1-20, 1-21, 10-26 to 10-30);

A. AGRICULTURAL RESOURCES

1. Impact: Conversion of Prime Farmland, Farmland of Statewide

Importance, and Farmland of Local Importance. The Project would result in the conversion of prime farmland, Farmland of Statewide Importance, and Farmland of Local Importance (Significant). The project will convert 355 acres of farmland (39 acres of prime farmland, 225 acres of farmland of statewide importance, and 91 acres of local importance). General Plan Policy AG-5 requires mitigation for conversions of over 50 acres. Therefore, mitigation has been proposed to reduce the farmland impacts on 355 acres. (FEIR, pp. 1-2 to 1-4, 5-9 to 5-12.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. (FEIR, pp. 1-2 to 1-4, 5-11, 5-12.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

AG-1: Agricultural Farmland Impacts Mitigation Measure
Prior to approval of the Work Authorization Permit, grant an agricultural easement for the farmland converted on the Aspen VIII portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 34 acres of prime farmland, 166 acres of statewide importance farmland, and 54 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

Prior to any work south of Elder Creek Road, grant an agricultural easement for the farmland converted on the Aspen IX portion of the project site to an accredited land conservancy that is acceptable to the County, for not less than 5 acres of prime farmland, 59 acres of statewide importance farmland, and 37 acres of local importance farmland located within Sacramento County. The agricultural easement shall include at a minimum the following provisions:

- Statement of purpose, including that the land is to remain in productive agricultural and/or open space use
- List of prohibited uses, including but not limited to, mining, resort facilities, golf courses, public airstrips, or other structures and

improvements that do not contribute to the agricultural production on the property
- Annual monitoring program
- Enforcement procedures
- Statement of perpetual duration

(FEIR , pp. 1-2 to 1-4, 5-11, 5-12.)

Level of Significance After Mitigation: Less Than Significant

B. AESTHETICS

1. **Impact: Degradation of existing visual character or quality of the site and its surroundings (Significant and Unavoidable).** The project will degrade the visual character of the project site. The project when implemented will irreversibly change the landform of the project area. The mining pits will be approximately 355 acres in size and will be excavated down to 25 to 50 feet below grade. Therefore, the aesthetic impacts are significant. (FEIR, pp. 1-5, 1-6, 6-3 to 6-12)

Finding: Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the Final EIR. Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. While proposed aesthetics mitigation measure would reduce the Project's impact on visual quality or character somewhat, this impact is considered significant and unavoidable because the Project site cannot be returned to its current natural state. (FEIR, p. 6-11.) The No Project Alternative, i.e., not implementing the Project, is the only identified alternative that would reduce this impact to a less-than-significant level, but that alternative is infeasible because it does not meet the project objectives. (FEIR, pp. 3-5, 3-10.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact, but not to a less-than-significant level:

AE-1: Viewsheds Mitigation Measure
Direct views of the site shall be screened from public view through the use of landscaping. Landscaping will include the following large trees: valley oak (Quercus lobata) and interior live oak (Quercus wislizenii); and the following shrubs: western redbud (Cercis occidentalis), toyon (Heteromeles arbutifolia), hoary coffeeberry (Rhamnus tomentella), snowdrop bush (Styrax officinalis), and Howard McMinn' manzanita (Arctostaphylus densiflora). The landscaping that will be installed under the large transmission towers along Elder Creek Road shall be limited to landscaping that at maturity will not exceed 15 feet in height.

Additional berms and landscaping, an 8-foot tall solid fence, shall be placed to screen the view of the mining pit for the benefit of those properties located west of Aspen VIII, including the residence at 9895 Elder Creek Road, on accessor parcel number 063-0180-022, and the cemeteries at 9899 Elder Creek Road, on assessor parcel number 0630-0180-029. This shall consist of a berm and landscaping combination, or a fence to visually screen, to the satisfaction of the Department of Community Development with input from the neighboring property owners.
(FEIR, pp. 1-5, 1-6, 6-11, 6-12.)

Level of Significant After Mitigation: Significant and Unavoidable. (FEIR, pp. 1-5, 6-11.)

2. **Impact: The Project may create a new source of substantial light or glare that would result in a safety hazard or adversely affect nighttime views in the area (Potentially Significant).** The project when implemented could potentially include lighting facilities for after sunset operations. The mine will have only limited after sunset operations based on the operating hours from the Zoning Code. However, the project has the potential to impact neighboring properties. (FEIR, pp. 1-6, 1-7, 6-13.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. (FEIR, pp. 1-6, 1-7, 6-13.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

AE-2: Reducing Impacts Associated with Lighting Mitigation Measure
Any lighting shall be arranged and controlled so as not to illuminate public right of-ways or adjacent properties. In order to reduce direct and reflected light pollution, lighting at the project site shall be equipped with shields that concentrate the illumination downward such that no direct light is cast off the site. Energy efficient lights shall be used. The candle power of the illumination at ground level shall not exceed what is required by any safety or security regulations of any government agency with regulatory oversight of the mining operation.
(FEIR, pp. 1-6, 1-7, 6-13.)

Level of Significance After Mitigation: Less Than Significant (FEIR, pp. 1-6, 6-13.)

C. PUBLIC SERVICES

1. **Impact: The Project could interfere with adopted plans or result in substantial adverse physical impacts associated with the provision of parks and recreation services (Potentially Significant).** The excavation of mining pits at the site could preclude Southgate Recreation and Park District's ability to provide a planned multi-use trail for the area. This impact is considered potentially significant. Although a trail easement is already proposed as part of the project's reclamation plans, mitigation is recommended to ensure that the easement is in place prior to any on-site excavation and that the area within the easement is structurally appropriate for future trail use after reclamation of the site. (FEIR, pp. 1-11 to 1-13, 8-25, 8-26).

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. (FEIR, pp. 1-11 to 1-13, 8-26.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

PS-1: Multi-Use Interconnected Trail System Easement Mitigation Measure

A. Prior to issuance of the Work Authorization Permit, the applicant shall acknowledge through a memorandum of understanding or any other similar mechanism approved by Southgate Recreation and Park District, that the applicant intends to fully comply with mitigation measures B and C below to the satisfaction of Sacramento County Department of Community Development.

B. Prior to sign-off of the reclamation plan, the applicant shall dedicate a 20-foot wide easement for the multi-use trail along Elder Creek and to the satisfaction of Southgate Recreation and Park District.

C. Prior to signoff of the reclamation plan the applicant shall improve the trail easement area by construction a trail surface 20-foot wide, which will include a 12-foot wide section of suitably compacted base rock foundation for the multi-use trail along Elder Creek, to the satisfaction of Southgate Recreation and Park District; it is anticipated that the trail easement should be consistent with Plate PS-4, Plate PS-5, Plate PS-6, and Plate PS-7.

(FEIR, pp. 1-11 to 1-13, 8-26.)

Level of Significance After Mitigation: Less Than Significant (FEIR, pp. 1-11, 8-26.)

D. TRANSPORTATION/TRAFFIC

1. **Impact: The Project could result in a substantial adverse impact to access and/or circulation (Potentially Significant).** The excavation of the mining pits at the project site could preclude Sacramento County Department of Transportation's ability to provide a planned roadway extension (Knox/Vineyard Road). Although a roadway easement is currently shown on the project's site plans, mitigation is nonetheless recommended to ensure that the roadway easement is in place prior to on-site excavation. (FEIR, pp. 1-14 to 1-16, 9-8 to 9-18).

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. (FEIR, pp. 1-14 to 1-16, 9-18.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

TT-1: Knox/Vineyard Road Mitigation Measure

A. Prior to issuance of Work Authorization Permit, the applicant shall dedicate an area sufficient to accommodate the north/south extension of Knox/Vineyard Road and dedicate the necessary slope easements for the Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8. Furthermore, if the County adopts a trails master plan requiring easements the applicant shall dedicated for the future easements along Knox/Vineyard Road. This entire mitigation measure shall be to the satisfaction of Sacramento County Department of Transportation.

B. Prior to signoff of the reclamation plan the applicant shall rough grade an area sufficient to accommodate the north/south extension of Knox/Vineyard Road as indicated on Plate TT-6, Plate TT-7, and Plate TT-8 to the satisfaction of Sacramento County Department of Transportation. The applicant shall return-to-grade and rough grade an area

(FEIR, pp. 1-14 to 1-16, 9-18.)

Level of Significance After Mitigation: Less Than Significant (FEIR, pp. 1-14, 9-18.)

E. AIR QUALITY

1. **Impact: Project emissions of ROG could exceed SMAQMD's threshold for that pollutant (Significant).** The project's maximum daily emissions for ROG is 72.3 pounds per day which is over the threshold of 65 pounds per day. The average daily emission for ROG is 27.2 pounds per day which is under the

threshold of 65 pounds per day. The maximum daily emissions of ROG generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Mitigation will reduce the impacts to less than significant. (FEIR, pp. 1-16 to 1-20, 10-26 to 10-30.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the potentially significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

AQ-1.1: Reducing ROG and NOx Mitigation Measure
To mitigate construction-related ozone precursor emissions, the following shall apply:

A. Prior to approval of the Work Authorization Permit, an equipment inventory must be submitted to the Sacramento Metropolitan Air Quality Management District and approved demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction, 20 percent ROG reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be discontinued immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. By May 1st of each year and for the duration of the project, an annual summary of all off road equipment used on the site, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the Sacramento Metropolitan Air Quality Management District representing the previous years use. The District and/or other officials may conduct periodic site

inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

(FEIR, pp. 1-16 to 1-20, 10-29, 10-30.)

Level of Significance After Mitigation: Less Than Significant (FEIR, pp. 1-16, 10-30.)

2. **Impact: Project emissions of NO_x could exceed SMAQMD significance threshold for that pollutant (Significant and Unavoidable).** The project's maximum daily emissions for NOx is 861.3 pounds per day which is substantially above the 65 pound per day threshold and the average daily emissions for NOX is 317.1 pounds per day which is also substantially above the 65 pound per day threshold. The emissions of NOx generated by the project will exceed the Sacramento Metropolitan Air Quality Management District thresholds of 65 pounds per day. Even with mitigation the impacts are significant and unavoidable. (FEIR, pp. 1-20, 1-21, 10-26 to 10-30.)

Finding: Specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the Final EIR. Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR. Mitigation measures are recommended to reduce the Project's operational NO_X and ROG emissions to the extent feasible, but those measures are not expected to reduce NO_X and ROG emissions below the SMAQMD significance thresholds for those pollutants. Therefore, this impact is considered significant and unavoidable. (FEIR, pp. 1-20, 1-21, 10-26 to 10-30.)

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact, but not to a less-than-significant level:

AQ-1.1: Reducing ROG and NOx Mitigation Measure
To mitigate construction-related ozone precursor emissions, the following shall apply:

A. Prior to approval of the Work Authorization Permit, an equipment inventory must be submitted to the Sacramento Metropolitan Air Quality Management District and approved demonstrating that the

heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction, 20 percent ROG reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

B. The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be discontinued immediately, and the lead agency and District shall be notified within 48 hours of identification of non-compliant equipment. By May 1st of each year and for the duration of the project, an annual summary of all off road equipment used on the site, hours operated, and equipment exceeding 40% opacity standard shall be submitted to the Sacramento Metropolitan Air Quality Management District representing the previous years use. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other District or state rules or regulations.

C. If at the time of mine operation, the District has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with the District prior to the start of mining activities will be necessary to make this determination.

(FEIR, pp. 1-16 to 1-20, 10-29, 10-30.)

Level of Significance After Mitigation: Significant and Unavoidable (FEIR, pp. 1-20, 10-30.)

3. **Impact: Project emissions of PM could exceed SMAQMD significance threshold for PM_{10} and $PM_{2.5}$.** The project's maximum daily emissions for PM10 are 79.6 pounds per day and for PM2.5 the maximum daily emissions are 32.3 pounds per day. The average daily emissions for PM10 are 51.0 pounds per day and PM2.5 average daily emission is 14.7 pounds per day. These emissions exceed the SMAQMD significance threshold of zero emissions for both types of particulates. However, the district's significance thresholds increase to 80 pounds per day for PM10 and 82 pounds per day for PM2.5 if all feasible Best Available

Control Technology (BACT) and Best Management Practices (BMPs) are applied. Therefore, mitigation has been added to implement BACT and BMP's to the project. (FEIR, pp. 1-21 to 1-26, 10-30 to 10-33.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

AQ-1.2: Implementation of Best Available Control Technology (BACT) and Best Management Practices (BMPs) to Reduce PM Emissions Mitigation Measure

Implement Basic Construction Emission Control Practices to control PM emissions on and off-site, including:

- All disturbed areas on site shall be treated with appropriate dust suppressants, watered regularly, vegetated or otherwise treated to minimize fugitive dust. Comply with Zoning Code Section 4.8.14.H.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material off the site and onto public roadways. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Visible trackout of mud or dirt onto adjacent public roads shall be prevented through the incorporation of rumble strips, gravel aprons, appropriate dust suppressant, long sinuous driveway, or a combination thereof. If these measures are not adequate the applicant shall work with the County and SMAQMD to implement additional measures. If trackout is present on public roads adjacent to the mine entrances, wet power vacuum street sweepers shall be used to remove any visible trackout mud or dirt. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Implement Enhanced Fugitive PM Dust Control Practices including:

SOIL DISTURBANCE AREAS

- All disturbed areas on site shall be treated with appropriate dust suppressants, watered regularly, vegetated or otherwise treated to minimize fugitive dust.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

UNPAVED ROADS (ENTRAINED ROAD DUST)

- Post a publicly visible sign with the number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

(FEIR, pp. 1-21 to 1-26, 10-31 to 10-33.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-21, 10-33.)

F. NOISE

1. **Impact: The Project could result in the exposure of persons to, or generation of, noise levels in excess of applicable standards (Significant).** The General Plan standard of 75 dB Lmax would be satisfied at each of the nearest residences. Furthermore, the General Plan standard of 55 dB L50 for outside areas would be satisfied at each of the nearest residences with the exception of Residence 3. Residence 3 is located 250 feet from the proposed excavation and the predicted median hourly outside noise level is 57 dB which would exceed the County's outside or exterior noise standard by 2 dB. With noise mitigation the project's impacts are less than significant. (FEIR, pp. 1-27 to 1-29, 11-9 to 11-11.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

NO-1: Median Noise Levels Mitigation Measure

A. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

B. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.

C. For excavation operations that occur within 400 feet of the property line of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) or Residence 4 (9897 Elder Creek Road: APN 063-0180-021), the number of scrapers shall be limited to a maximum of three until the mining pit has reached a sufficient depth that the scrapers shielded from view of these residences.

D. An 8-foot tall earthen berm or temporary noise barrier shall be constructed at the property line between initial excavation operations and of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) and between initial excavation operations and Residence 4 (9897 Elder Creek Road: APN 063-0180-021) as shown in Plate NO-1.

(FEIR, pp. 1-27 to 1-29, 11-11.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-27, 11-11.)

2. **Impact: The Project could result in a substantial temporary increase in ambient noise levels (Significant).** The ambient noise measurement for Site A (45-46 dB) is combined with the predicted noise level at residence 3 (57 dB), the resulting total is approximately 57 dB (existing ambient noise and project noise) which is an increase of approximately 11 dB to ambient noise. With noise mitigation the project's impacts are less than significant. (FEIR, pp. 1-29, 11-11 to 11-13.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

NO-1: Median Noise Levels Mitigation Measure

A. All internal combustion engines associated with either stationary or mobile equipment shall be fitted with appropriate mufflers.

B. The electric conveyor shall be kept in good repair to prevent excess noise that may be caused by damage to the conveyor or

worn out components. The conveyor shall be service regularly to keep excess noises such as "squeaking conveyor wheels" or a non-vulcanized connection on the conveyor from making excess noise.

C. For excavation operations that occur within 400 feet of the property line of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) or Residence 4 (9897 Elder Creek Road: APN 063-0180-021), the number of scrapers shall be limited to a maximum of three until the mining pit has reached a sufficient depth that the scrapers shielded from view of these residences.

D. An 8-foot tall earthen berm or temporary noise barrier shall be constructed at the property line between initial excavation operations and of Residence 3 (9895 Elder Creek Road: APN 063-0180-022) and between initial excavation operations and Residence 4 (9897 Elder Creek Road: APN 063-0180-021) as shown in Plate NO-1.

(FEIR, pp. 1-27 to 1-29, 11-11.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-29, 11-13.)

G. HYDROLOGY AND WATER QUALITY

1. **Impact: The Project could substantially alter the existing drainage pattern of the project area and/or increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site (Potentially Significant).** The Project proposes to eliminate the existing roadway overtopping at Elder Creek Road and the two existing creek spills on the Aspen VIII site for events up to the 200-year storm. The elimination of the existing spills on the Aspen VIII site will result in an increase in Elder Creek's peak flow downstream from the project site. Cunningham Engineering's 2016 analysis which is based on the 2015 DWR model indicates that downstream of the project site the increase in peak water levels of 0.01 feet (100-year) and 0.04 feet (200-year) from the project site to Bradshaw Road would not exceed the Sacramento County Floodplain Management Ordinance threshold of 0.1 feet. However, relative to the emerging May 2016 DWR model, the increase in peak water levels may exceed 0.1 feet. Therefore, this impact is considered potentially significant. (FEIR, pp. 1-29 to 1-31, 12-13 to 12-19.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

HW-1: Elder Creek Base Flood Elevations Mitigation Measure
Prior to approval of the Work Authorization Permit, the applicant shall prepare and submit to the County of Sacramento Department of Water Resources an analysis prepared by a Registered Civil Engineer that demonstrates the project will not result in an increase in base flood elevation of 0.1 feet or greater, as follows:

1. The applicant shall implement measures to reduce the project related increase in base flood elevation to below 0.1 feet. Such measures may include, but not be limited to the following and are subject to review and approval by County of Sacramento Department of Water Resources and the Sacramento County Department of Community Development.

   - Construction of a side-weir on Elder Creek within Aspen VIII or IX, to divert excess flows from the creek directly from Elder Creek into the pit.
   - Construction of a side-weir on the stream's right bank just upstream of Elder Creek Road at the location of the current westbound spill on Aspen VIII. The new weir would be sized to pass the equivalent of the flow that the County of Sacramento Department of Water Resources modeling predicts would flow to Morrison Creek. A path would be provided to convey this flow to the west edge of Aspen VIII. Alternatively, the flow would be accepted into a proposed retention area near the southwest corner of the Aspen VIII mining pit.

This mitigation measures shall be incorporated into the Project's mining and reclamation plans prior to the issuance of the Work Authorization Permit for the Project. The project proponent shall obtain all required federal, state, and local permits/approvals for implementing the identified mitigation measure(s) prior to initiating work in the FEMA floodplain. (FEIR, pp. 1-29 to 1-31, 12-19.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-29, 12-19.)

H. GEOLOGY AND SOILS

1. Impact: The Project is located on a geological unit or soil that is unstable, or could become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse

(Potentially Significant). The project's impacts to unstable soil and off-site landslides, lateral spreading, subsidence, liquefaction or collapse are potentially significant but with mitigation the impacts are less than significant. (FEIR, pp. 1-33 to 1-37, 13-18 to 13-36.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

GS-1: Reclamation Slopes and Berms Mitigation Measure

A. Reclamation slopes shall be constructed at 2H:1V or flatter.

B. To increase stability, reduce underseepage potential, and provide a stable foundation for the embankment/berm located adjacent to Elder Creek, the full length of the embankment shall be provided with an embankment-width keyway. The keyway shall have a minimum embedment depth of three feet into firm, competent, undisturbed soil. The actual depth of the keyway shall be determined based upon field evaluation conducted during construction by a qualified geotechnical consultant. Keyway backslopes should be no flatter than 1:1. The final design of the keyway shall be to the satisfaction of the County of Sacramento Department of Water Resources.

C. For future reclamation slopes north of Elder Creek, if the pit bottom slopes greater than 5H:1V, the applicant shall construct a keyway into the mine pit bottom at the toe of the reclamation fill slope to the satisfaction of the County of Sacramento, Department of Water Resources. The keyway shall be at least 20 feet wide and extend at least three feet into competent, undisturbed soil. The reclamation fill shall be benched into the adjacent native material as the fill is placed. Benches should roughly parallel the slope anticipated, if active seepage is encountered in the temporary mining slopes, subdrains may be required along the back edge of the keyway and/or benches of the reclamation fill. Keyway and benching construction criteria may need revision during construction based on actual conditions encountered at the site and the final design shall be to the satisfaction of the County of Sacramento Department of Water Resources.

D. To reduce potential for seepage along pipe penetrations (if present), concrete cut-off collars at pipe penetrations through the

embankment shall be constructed to the satisfaction of the County of Sacramento Department of Water Resources. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized so that they are 12 to 18 inches larger than the normal outside diameter of the pipe. Thickness should be at least six inches. Water-tight filler should be used between collars and pipes.

E. At the beginning of each year (in the month of January) a written report identifying the slopes built adjacent to Elder Creek during the previous calendar year and the methodology employed shall be submitted to the Department of Community Development, Aggregate Resources Manager for review. The report shall indicate whether such slopes were constructed in a manner consistent with the Geocon Seepage and Stability Evaluation. The report shall also include a performance evaluation of all slopes built adjacent to Elder Creek to date and appropriate measures to correct any deficiencies, if necessary. This report shall be prepared by a registered and licensed civil engineer in good standing.

F. Before final reclamation signoff; a statement prepared by a registered and licensed civil engineer in good standing that documents that the slopes are in good repair, stable and safe shall be presented to the Department of Community Development, Aggregate Resources Manager for review.

(FEIR, pp. 1-33 to 1-37, 13-35, 13-36.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-33 13-36.)

2. **Impact: The Project could result in substantial erosion or loss of topsoil (Potentially Significant).** The proposed reclamation plan includes measures to insure there is not a loss of topsoil through erosion or improper handling; compliance with the topsoil handling measures in that plan is therefore recommended to mitigate this potentially significant impact. (FEIR, pp. 1-37, 1-38,, 13-29, 13-30.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

GS-2: Topsoil Management Mitigation Measure
Comply with the topsoil handling and stockpiling measures contained in Section 6.0 (Resoiling and Revegetation) of the Reclamation Plan for Aspen VIII and IX.
(FEIR, pp. 1-37, 1-38, 13-37.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-37, 13-37.)

3. **Impact: The Project could directly or indirectly destroy a unique paleontological resource or site (Potentially Significant).** The area is not known to contain paleontological resources (fossil remains). However the project excavation creates the possibility for unanticipated discoveries. The mitigation for unanticipated cultural discoveries includes provisions for paleontological resources and will prevent the direct or indirect destruction of a unique paleontological resource or site. (FEIR, pp. 1-38, 13-37.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure
If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and

project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.
(FEIR, pp. 1-38, 1-68 to 1-70, 13-37, 15-18, 15-19.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-38, 13-37.)

I. BIOLOGICAL RESOURCES

1. **Impact: The Project could result in a substantial adverse effect on Sanford's arrowhead (Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to Sanford's arrowhead. (FEIR, pp. 1-39, 1-40, 14-28 to 14-30.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.1: Sanford's Arrowhead Mitigation Measure

A. The applicant shall transplant no less than 40 plugs (1ft x 1ft x 1ft), with no fewer than three individual Sanford's arrowhead plants per plug, to a portion of Elder Creek that is within 2 miles of the project site. The plugs shall be taken from areas as far away as possible from each other and with the most diverse soil and hydrologic conditions from each other. This is to insure the greatest potential genetic diversity of the source plants.

B. Surveys shall be performed annually at the transplant location of the Sanford's Arrowhead for a period of three years, to ensure success. If survival is not meeting a minimum 70% survivorship,

transplantation will be deemed failed. In cases where transplanting has failed, compensatory mitigation shall be provided. Compensatory mitigation shall consist of placement of a conservation easement over a known, unprotected population of the species.

(FEIR, pp. 1-39, 1-40, 14-30.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-39, 14-30.)

2. **Impact: The Project could result in a substantial adverse effect on vernal pool invertebrates (Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to vernal pool invertebrates. (FEIR, pp. 1-40 to 1-42, 14-31 to 14-33.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.2: Invertebrates Mitigation Measure
Presence of listed vernal pool crustaceans shall be assumed unless determinate surveys that comply with the U.S. Fish and Wildlife protocol "Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods" (published April 19, 1996) conclude that the species is absent. In order to reduce impacts to listed vernal pool branchiopods and wetland habitat the applicant shall:

A. Prior to issuance of Work Authorization Permit, obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Game.

B. Where a Section 404 Permit has been issued by the U.S. Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the U.S. Army Corps of Engineers for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento County Environmental

Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation.

C. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

D. The Project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction.

E. Prior to issuance of Work Authorization Permit, all areas designated within the project area as Avoided shall be placed within a permanent conservation easement, which shall be reviewed and approved by the Environmental Coordinator. At a minimum, the permanent conservation easements must cover all areas which are required to be preserved as part of the Section 404 and Section 401 wetland permits.

(FEIR, pp. 1-40 to 1-42, 14-32, 14-33.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-40, 14-33.)

3. **Impact: The Project could result in a substantial adverse effect on western spadefoot toad (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western spadefoot toad. (FEIR, pp. 1-43, 1-44, 14-33, 14-34.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.3: Western Spadefoot Toad Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable

habitat within the project area shall be surveyed for western spadefoot toad by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western spadefoot toad and their habitat.

C. If a western spadefoot toad is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

(FEIR, pp. 1-43, 1-44, 14-34.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-44, 14-34.)

4. **Impact: The Project could result in a substantial adverse effect on western pond turtle (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to western pond turtle. (FEIR, pp. 1-44, 1-45, 14-34, 14-35.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.4: Western Pond Turtle Mitigation Measure

A. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method,

name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.

B. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.

C. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

(FEIR, pp. 1-44, 1-45, 14-35.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-44, 14-35.)

5. **Impact: The Project could result in a substantial adverse effect on nesting white-tailed kite, Swainson's hawk, northern harrier, and other nesting raptors (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting white-tailed kite, Swainson's hawk, northern harrier, and other raptors. (FEIR, pp. 1-45 to 1-47, 14-35 to 14-37.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.5: Nesting White-Tailed Kite, Swainson's Hawk, Northern Harrier and Other Raptors Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence between February 1 and September 15, a survey for nesting birds of prey shall be conducted by a qualified biologist within 30 days prior to the start of construction.

B. The survey shall include a focused survey for Swainson's hawk nests within a ½ mile radius of the project site, and shall cover all potential habitat on-site and off-site up to a distance of 500 feet

from the project boundary for other special status birds of prey. A letter report documenting survey methods and findings shall be submitted to the Environmental Coordinator prior to commencement of construction.

C. If no active nests are found in the survey area, no further mitigation is necessary.

D. If active nests are found, the applicant shall contact the Environmental Coordinator and consult with California Department of Fish and Wildlife prior to mining or construction to determine the appropriate protective measures. Protective measures shall be implemented prior to the start of construction activity.

E. A non-disturbance buffer shall be established and maintained around the nest(s). The buffer area shall be determined through consultation with California Department of Fish and Wildlife. All mining or construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 15 unless otherwise approved by California Department of Fish and Wildlife.

(FEIR, pp. 1-45 to 1-47, 14-36, 14-37.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-45, 14-37.)

6. **Impact: The Project could result in a substantial adverse effect on nesting or roosting burrowing owl (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting or roosting burrowing owl. (FEIR, pp. 1-47 to 1-50, 14-37, 14-38.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR 1.6: Nesting or Roosting Burrowing Owl Mitigation Measure
A pre-mining burrowing owl survey shall be conducted by a qualified wildlife biologist prior to any mining-related vegetation removal or earthmoving (including rough grading) conducted between January 1 and February 14.

The pre-mining survey shall be conducted by a qualified biologist within 500 feet of proposed mining-related vegetation removal or earthmoving according to the methodology provided in the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). All burrows or atypical refugium showing evidence of occupation by burrowing owls that are found during the survey shall be geo-referenced with a global positioning system (GPS) unit and mapped on an appropriate scale map of the project site (no smaller than 1 inch = 100 feet).

The results of the survey, including negative findings, shall be submitted to California Department of Fish and Wildlife within three days of their conclusion. If burrowing owls are found during the nesting season (i.e., during February 15 through August 31), no ground disturbance shall occur within 250 feet of occupied burrows until a qualified biologist determines that fledging has occurred (i.e., the juveniles are no longer dependent upon the nest burrows). If burrowing owls are found during the non-nesting season (i.e., September 1 through February 14) no ground disturbance shall occur within 160 feet of occupied burrows.

Alternatively, the applicant may retain a qualified biologist to conduct passive relocation of individuals from occupied burrows utilizing one-way doors for a minimum of three consecutive days (only during the non-nesting season). Once the occupied burrows have been cleared, the applicant may backfill the burrows. If passive relocation is utilized, the applicant shall also provide alternate natural or artificial burrows that are beyond 160 feet from the impact area and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated burrowing owls. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact area. Artificial burrow creation, if utilized, shall follow the guidelines in Trulio (1995) and the California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012). The applicant shall be responsible for reporting all observations of burrowing owl to the California Natural Diversity Database (CNDDB) within ten (10) days of sighting.
(FEIR, pp. 1-47 to 1-50, 14-37, 14-38.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-47, 14-38.)

7. **Impact: The Project could result in a substantial adverse effect on nesting birds protected under the Migratory Bird Treaty Act (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting birds protected under the Migratory Bird Treaty Act. (FEIR, pp. 1-50, 1-51, 14-38, 14-39.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.7: Nesting Birds Protected Under the Migratory Bird Treaty Act Mitigation Measure

A. If mining activity or construction activity (which includes clearing, grubbing, or grading) is to commence within 50 feet of nesting habitat between February 1 and August 31, a survey for active migratory bird nests shall be conducted no more than 14 day prior to construction by a qualified biologist.

B. Trees slated for removal shall be removed during the period of September through January, in order to avoid the nesting season. Any trees that are to be removed during the nesting season, which is February through August, shall be surveyed by a qualified biologist and will only be removed if no nesting migratory birds are found.

C. If active nest(s) are found in the survey area, a non-disturbance buffer, the size of which has been determined by a qualified biologist, shall be established and maintained around the nest to prevent nest failure. All construction activities shall be avoided within this buffer area until a qualified biologist determines that nestlings have fledged, or until September 1.

(FEIR, pp. 1-50, 1-51, 14-39.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-50, 14-39.)

8. **Impact: The Project could result in a substantial adverse effect on foraging habitat for tricolored blackbird, white-tailed kite and Swainson's hawk (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts associated with the loss of foraging habitat for tricolored blackbird, white-tailed kite and Swainson's hawk. (FEIR, pp. 1-51, 1-52, 14-39, 14-40.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.8: Loss of Foraging Habitat for Tricolored Blackbird, White-Tailed Kite and Swainson's Hawk Mitigation Measure
Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat.

A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).

B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat.

C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.

(FEIR, pp. 1-51, 1-52, 14-40.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-51, 14-40.)

9. **Impact: The Project could result in a substantial adverse effect on nesting loggerhead shrike (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting loggerhead shrike. (FEIR, pp. 1-52 to 1-54, 14-41, 14-42.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.9: Disturbance to Nesting Loggerhead Shrike Mitigation Measure
To avoid and minimize impacts to nesting loggerhead shrikes, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.
(FEIR, pp. 1-52 to 1-54, 14-41.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-52, 14-42.)

10. **Impact: The Project could result in a substantial adverse effect on nesting or roosting yellow-billed magpie (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting yellow-billed magpie. (FEIR, pp. 1-54 to 1-56, 14-42, 14-43.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.10: Disturbance to Nesting or Roosting Yellow-Billed Magpie Mitigation Measure
To avoid and minimize impacts to nesting yellow-billed magpies, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial vegetation removal or earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for nesting yellow-billed magpies in all suitable trees that are within 200 feet of the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting individuals are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nests that are within 200 feet from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun.
(FEIR, pp. 1-54 to 1-56, 14-42, 14-43.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-54, 14-43.)

11. **Impact: The Project could result in a substantial adverse effect on nesting tricolored blackbird (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting tricolored blackbird. (FEIR, pp. 1-56 to 1-59, 14-43, 14-44.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.11: Disturbance to Nesting Tricolored Blackbird Mitigation Measure

To avoid and minimize impacts to nesting tricolored blackbirds, the applicant shall not initiate mining-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial mining-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively, if the applicant initiates mining-related vegetation removal or earthmoving between February 15 and August 31, surveys shall be conducted for prospecting or nesting tricolored blackbird colonies in all potentially suitable Himalayan blackberry stands that are within and out to 250 feet from the project boundaries. The surveys shall be conducted by a qualified biologist immediately preceding initiation of each phase of mining-related vegetation removal or earthmoving on the project site according to the following schedule: the first visit shall occur within 14 days prior to vegetation removal or earthmoving and the second visit shall occur within three days prior to vegetation removal or earthmoving.

If nesting colonies are found prior to initiation of mining-related vegetation removal or earthmoving in the year of the survey, a mining exclusion zone shall be established within 250 feet of each active nesting colony until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, the applicant may retain a qualified biologist to monitor any active nesting colonies that are within 250 feet or less from mining-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 250 feet of the nesting colony will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall mining-related vegetation removal or

earthmoving be initiated within 150 feet of an active nest colony once prospecting or nesting has begun.
(FEIR, pp. 1-56 to 1-59, 14-43, 14-44.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-56, 14-44.)

12. **Impact: The Project could result in the loss of foraging habitat for tricolored blackbird (Potentially Significant).** The implementation of the proposed project would result in temporary, direct, and/or indirect impacts to nesting tricolored blackbird. (FEIR, pp. 1-59, 14-44, 14-45.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-1.8: Loss of Foraging Habitat for Tricolored Blackbird, White-Tailed Kite and Swainson's Hawk Mitigation Measure
Prior to any site disturbance, such as clearing or grubbing, the issuance of any permits such as a Work Authorization Permit for grading, building, or other site improvements, one of the following options to mitigate for the loss of 371.2 acres of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat on the project site at a 1:1 ratio to account for the permanent loss of foraging habitat.

A. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).

B. The project proponent shall, to the satisfaction of the California Fish and Wildlife, prepare and implement a Swainson's hawk mitigation plan that will include preservation of tricolored blackbird, white-tailed kite and Swainson's hawk foraging habitat.

C. Should the County Board of Supervisors adopt a Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the project proponent may be subject to that program instead.

(FEIR, pp. 1-51, 1-52, 14-40.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-59, 14-45.)

13. **Impact: The Project could result in a substantial adverse effect on wetlands designated as jurisdictional waters of the United States as defined by Section 404 of the Clean Water Act (Significant).** The proposed project will result in substantial impacts to 5.373 acres of federally jurisdictional Water of the U.S., including wetlands. The impacts will also constitute an adverse effect on Waters of the State subject to the Regional Water Quality Control Board (Regional Water Board) jurisdiction. Mitigation will lessen the impact to less than significant. (FEIR, pp. 1-59 to 1-61, 14-46 to 14-48.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-3: Wetlands and Water of the U.S. Mitigation Measure
To compensate for the permanent loss of wetlands and waters, the applicant shall perform one or a combination of the following prior to issuance of Work Authorization Permit, and shall also obtain all applicable permits from the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Wildlife:

A. Mitigate for all wetlands directly impacted on a 1:1 basis. Acceptable means of mitigation include placement of a permanent conservation easement over an equivalent amount of wetland habitat, purchase of credits from a mitigation bank, or other similar methods. Also, obtain all applicable permits from the U.S. Fish and Wildlife, U.S. Army Corps of Engineers, California Fish and Wildlife, and the Central Valley Regional Water Quality Control Board for the proposed modifications to on-site wetlands and mitigate for habitat loss in accordance with the published regulatory guidelines. If mitigation implemented through the permit process results in 1:1 mitigation, no further compensation is required. Proof of mitigation for impacts to Waters of the U.S. shall be provided to the Environmental Coordinator.

B. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/ uncompensated as a result of permitting have been mitigated

through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator.

(FEIR, pp. 1-59 to 1-61, 14-48.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-59, 14-48.)

14. **Impact: The Project could adversely affect or result in the removal of native or landmark trees (Significant).** The project site contains a total of 102 trees and there are three valley oak and nine California black walnut trees that will be removed as part of the project. In addition to the native oak and walnut trees, the Sacramento County General Plan affords protection to a mixed riparian and non-native tree canopy. There are 1.574 acres (0.229 riparian forest and 1.345 other canopy) of the total tree canopy would be potentially impacted by the project. Mitigation has been included to reduce the impact to less than significant. (FEIR, pp. 1-61 to 1-67, 14-48 to 14-51.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-4: Native Tree and Tree Canopy Protection Mitigation Measure
The removal of 23 inches dbh of valley oak trees shall be compensated for by planting oak trees and the removal of 157 inches of dbh of California black walnut trees (other native trees) shall be compensated by planning in kind native trees equivalent to the dbh inches lost, based on the ratios listed below, at locations that are authorized by the Environmental Coordinator. On-site preservation of native trees that are less than 6 inches (<6 inches) dbh, may also be used to meet this compensation requirement. Native trees include: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus), California sycamore (Platanus racemosa), California black walnut (Juglans californica, which is also a List 1B plant), Oregon ash (Fraxinus latifolia), western redbud (Cercis occidentalis), gray pine (Pinus sabiniana), California white alder (Alnus rhombifolia), boxelder (Acer negundo), California buckeye (Aesculus californica), narrowleaf willow (Salix exigua), Gooding's willow (Salix gooddingii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), shining willow (Salix lucida), Pacific willow (Salix lasiandra), and dusky willow (Salix melanopsis).

A total of 23 inches of oak trees and 157 inches of California black walnut will require compensation.

Equivalent compensation based on the following ratio is required:

- one preserved native tree < 6 inches dbh on-site = 1 inch dbh
- one D-pot seedling (40 cubic inches or larger) = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh

Prior to the approval of Work Authorization Permit, a Replacement Tree Planting Plan shall be prepared by a certified arborist or licensed landscape architect and shall be submitted to the Environmental Coordinator for approval. The Replacement Tree Planting Plan(s) shall include the following minimum elements:

1. Species, size and locations of all replacement plantings and < 6-inch dbh trees to be preserved
2. Method of irrigation
3. If planting in soils with a hardpan/duripan or claypan layer, include the Sacramento County Standard Tree Planting Detail L-1, including the 10-foot deep boring hole to provide for adequate drainage
4. Planting, irrigation, and maintenance schedules;
5. Identification of the maintenance entity and a written agreement with that entity to provide care and irrigation of the trees for a 3-year establishment period, and to replace any of the replacement trees which do not survive during that period.
6. Designation of 20-foot root zone radius and landscaping to occur within the radius of trees < 6 inches dbh to be preserved on-site.

No replacement tree shall be planted within 15 feet of the driplines of existing native trees or landmark size trees that are retained on-site, or within 15 feet of a building foundation or swimming pool excavation. The minimum spacing for replacement native trees shall be 20 feet on-center. Examples of acceptable planting locations are publicly owned lands, common areas, and landscaped frontages (with adequate spacing). Generally unacceptable locations are utility easements (PUE, sewer, storm drains), under overhead utility lines, private yards of single family lots (including front yards), and roadway medians.

Native trees <6 inches dbh to be retained on-site shall have at least a 20-foot radius suitable root zone. The suitable root zone shall not have impermeable surfaces, turf/lawn, dense plantings, soil compaction, drainage conditions that create ponding (in the case of oak trees), utility easements, or other overstory tree(s) within 20 feet of the tree to be preserved. Trees to be retained shall be determined to be healthy and

structurally sound for future growth, by an ISA Certified Arborist subject to Environmental Coordinator approval.

If tree replacement plantings are demonstrated to the satisfaction of the Environmental Coordinator to be infeasible for any or all trees removed, then compensation shall be through payment into the County Tree Preservation Fund. Payment shall be made at a rate of $325.00 per dbh inch removed but not otherwise compensated, or at the prevailing rate at the time payment into the fund is made.

Removal of non-native tree canopy shall be mitigated by creation of new tree canopy equivalent to the acreage of non-native tree canopy removed. New tree canopy acreage shall be calculated using the Sacramento County Department of Transportation 15-year shade cover values for tree species. Preference is given to on-site mitigation, but if this is infeasible, then funding shall be contributed to the Sacramento Tree Foundation's Greenprint program in an amount proportional to the tree canopy lost (as determined by the 15-year shade cover calculations for the tree species to be planted through the funding, with the cost to be determined by the Sacramento County Tree Foundation).
(FEIR, pp. 1-61 to 1-67, 14-49 to 14-51.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-61, 14-51.)

15. **Impact: The Project could conflict with local policies or ordinances protecting biological resources (Potentially Significant).** The proposed project does conflict with some local policies and ordinances that protect biological resources. The proposed project also conflicts with several General Plan policies that protect biological resources. Mitigation measures have been tailored to each impacted species or wetlands to lessen the impacts associated with local policies and ordinances to less than significant. (FEIR, pp. 1-67, 14-51.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

BR-5: Local Policies Protecting Biological Resources Mitigation Measure
Comply with mitigation measures BR-1.1 through BR1.12, BR-3, and BR-4.
(FEIR, pp. 1-67, 14-51.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-67, 14-51.)

J. CULTURAL RESOURCES

1. **Impact: The Project could result in a substantial adverse effect on an archaeological resource (Potentially Significant).** Field surveys were conducted on the site and a record search was conducted for the project area through the North Central Information Center of the California Historical Resources Information System. The Information Center indicated no additional work in the area since the original survey for the project. The historical sites in the project area are not eligible for the National Register of Historic Places or for the California Register. But, as a precaution for unintended discoveries of archaeological resources, mitigation measures have been added in the event such a discovery is made. (FEIR, pp. 1-68 to 1-70, 15-18, 15-19.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure
If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.
(FEIR, pp. 1-68 to 1-70, 15-18, 15-19.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-68, 15-19.)

2. **Impact: The Project could disturb human remains, including those interred outside of formal cemeteries (Potentially Significant).**
The site was surveyed for subsurface anomalies and trenching of the site's anomalies revealed that there are no graves or buried features of concern in the tested portions of the project site. But, as a precaution for unintended discoveries of human remains, mitigation measures have been added in the event such a discovery is made. (FEIR, pp. 1-70, 15-19.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

CR-2: Cultural Resources Unanticipated Discoveries Mitigation Measure
If subsurface deposits believed to be cultural, paleontological or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and history archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native America monitor is required, the Guidelines for Monitors/Consultants of Native

American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense.

Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places of California Register of Historical Resources.

If a potentially eligible resource is encountered, then the archaeologist and project proponent shall coordinate with Planning and Environmental Review and arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Planning and Environmental Review as verification that the provisions of CEQA for managing unanticipated discoveries have been met.

In addition, pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.
(FEIR, pp. 1-68 to 1-70, 15-18, 15-19.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-70, 15-19.)

K. HAZARDOUS MATERIALS

1. **Impact: The Project could create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (Potentially Significant).** The applicant has stated that hazardous materials will not be stored or disposed of at the site. Although the applicant has indicted no storage or disposal of hazardous materials will occur at the project site, mitigation measures are still recommended to ensure no storage occurs at the site or that if storage does occur it meets all applicable standards. (FEIR, pp. 1-70, 1-71, 16-9, 16-10.)

Finding: Changes or alterations have been required in, or incorporated into, the Project which avoid or substantially lessen the significant environmental effect as identified in the EIR.

Mitigation: The following mitigation measures or agency recommendations/requirements have been incorporated into the Project as conditions of approval to reduce this impact to a less-than-significant level:

HM-1: Transport, Use, or Disposal of Hazardous Materials Mitigation Measure

A. Non-functional equipment, scrap metal, construction debris, used batteries and tires, and similar objects shall be removed from the site on a regular basis and disposed of at appropriately licensed facilities.

B. Spare equipment such as heavy equipment parts, conveyor belts, tires and other replacement or extra equipment pieces, shall be stored indoors or on impermeable surfaces that do not drain off-site whenever possible to avoid surface water contamination. Spare parts containing petroleum products (i.e., lubricants, hydraulic oil, etc.) shall be stored using Best Management Practices (BMP's) to prevent contamination of soil or storm water runoff.

C. All delivery, maintenance, and repair trucks containing petroleum products or other hazardous materials shall comply with the State of California, Department of Transportation's regulations for transport of hazardous materials. All trucks carrying petroleum products shall be equipped with quick connect couplings and automatic shut-off valves to prevent spills, and shall carry appropriate absorbent materials to contain and recover spillage.

(FEIR, pp. 1-70, 1-71, 16-10.)

Level of Significance After Mitigation: Less than significant (FEIR, pp. 1-70, 16-10.)

IX. PROJECT ALTERNATIVES

The Project will cause unavoidable significant environmental effects to aesthetics, agriculture, air quality, biological resources, land use, traffic, and climate change, as discussed above. Thus, the County must consider the feasibility of any environmentally superior alternatives to the Project, as proposed. The County must evaluate whether one or more of these alternatives could substantially lessen or avoid these unavoidable significant environmental effects. (Citizens for Quality Growth v. City of Mount Shasta (1988) 198 Cal.App.3d 433, 443-445; see also, Pub. Resources Code, § 21002.)

In seeking to effectuate the substantive policy of CEQA to substantially lessen or avoid significant environmental effects to the extent feasible, an agency, in adopting findings, need not necessarily address the feasibility of *both* mitigation measures and environmentally superior alternatives when contemplating approval of a proposed project

with significant impacts. Where a significant impact can be mitigated to an "acceptable" level solely by the adoption of feasible mitigation measures, the agency in drafting its findings, has no obligation even to consider the feasibility of any environmentally superior alternative that could also substantially lessen or avoid that same impact--even if the alternative would render the impact less severe than would the proposed project as mitigated. (Laurel Hills Homeowners Association v. City Council (1978) 83 Cal.App.3d 515, 521 [147 Cal.Rptr. 842]; see also Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692, 730-731 [270 Cal.Rptr. 650]; and Laurel Heights Improvement Association v. Regents of the University of California ("Laurel Heights I") (1988) 47 Cal.3d 376, 400-403 [253 Cal Rptr. 426].)

The Project will result in significant and unavoidable environmental effects with respect to aesthetics and air quality. (FEIR, p. 3-2.)

The EIR examined alternatives to the Project to determine whether each alternative could meet the Project's objectives, while avoiding or substantially lessening the significant unavoidable impacts of the Project. The EIR examined in detail the following alternatives to the Project:

- No Project Alternative;
- Reduced Production Rate Alternative.

(FEIR, pp. 3-4 to 3-21.)

The following objectives apply to the Project:

1. To mine an alluvial sand and gravel deposit, specifically resources that can be used to create Portland Cement Concrete (PCC).
2. To extract available alluvial aggregate resources located near the urban core prior to encroachment by future urban land uses.
3. To utilize a site which can provide a minimum of fifteen (15) million tons of construction aggregate material.
4. To continue to supply construction materials to the Sacramento County market utilizing Teichert's existing Perkins processing facility and associated infrastructure.
5. To locate the mining operation in close proximity to Teichert's Perkins processing facility such that mined aggregate can continue to be transported to the facility via an electric conveyor belt system, the use of which minimizes the economic and environmental (air quality, traffic, noise) impacts associated with hauling material from the mining site to the processing facility.
6. To mine in an area that would contain a buffer between mining operations and any use potentially incompatible with mining including, but not limited to, residences, schools, or offices.
7. To minimize impacts to wetlands and other protected habitat from mining operations.

8. To ensure the responsible reclamation of mined lands and the removal of all associated equipment upon the completion of mining operations.

(FEIR, pp., 2-22, 2-23, 3-1, 3-2.)

A. No Project Alternative

Description

With respect to the analysis of a "no project" alternative, CEQA Guidelines §15126.6(e)(2) provides:

> The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Consistent with this direction, the EIR assumes that, under the No Project Alternative, no mining would occur at the site. Furthermore, the No Project Alternative assumes that the General Plan designation and zoning for the site would not change. The project site would remain in its present state and be used for grazing and other agricultural uses permitted under the existing General Plan designation and zoning. (FEIR, p. 3-4.)

Environmental Impacts

The No Project Alternative would avoid most of the significant impacts of the proposed Project. It would not result in the conversion of farmland. The significant and unavoidable aesthetics impacts of the proposed project would not occur under the No Project Alternative, as there would be no permanent alteration of the landform associated with mining pits. The No Project Alternative would have no impacts on public services and would not affect the planned location of the multi-use trail. The significant and unavoidable impacts associated with air quality for the proposed project would not occur under the No Project Alternative. The No Project Alternative would not result in the significant noise impacts identified for the proposed project. The No Project Alternative would have no impacts on geology and soils. The No Project Alternative would create no new impacts to biological resources, because the existing use of the site would continue and no mining would occur at the site. Under the No Project Alternative, the potential for cultural resource impacts would be lessened, because the historic agricultural use of the site will continue and discoveries are not expected to occur. However, because agricultural uses do not receive the same level of scrutiny as mining projects; the agricultural uses on the site could have greater hazardous materials impacts than the proposed project. Overall, the No Project Alternative would be environmentally superior to the proposed project. (FEIR, pp. 3-5 to 3-20.)

Relationship to Project Objectives

The No Project Alternative would not achieve any of the project objectives except for the minimization of impacts to wetland and other protected habitats (Objective 7). (FEIR, p. 3-10.)

Finding

The Board rejects this alternative as infeasible because it does not meet most of the Project objectives. (FEIR, p. 3-10.)

B. Reduced Production Rate Alternative

Description

The Reduced Production Rate Alternative is designed to address the project's significant air quality (NOx) impacts by reducing the number pieces of heavy equipment operating at any one time. This could be accomplished through a specific restriction on the number of pieces of equipment or by prohibiting the operator from conducting multiple operations at the same time, such as overburden hauling combined with aggregate extraction. (FEIR, p. 3-4.)

Environmental Impacts

The reduced processing rate alternative appears to result in lessened air quality and noise impacts compared to the proposed project and it meets the stated project objectives. However, the objectives do not specify a minimum extraction rate or mining time-frame, therefore what is not captured is that a restriction on the amount of mining equipment may not meet the applicant's needs to provide a steady supply of aggregate to the market at a rate commensurate with their existing processing plant. Additionally, because aggregate is an inflexible commodity, meaning it will be supplied to the market regardless of price and because there are other permitted mines in the market area, if the reduced production rate alternative were imposed, the market would adapt by supplying more aggregate from other mines in the area or even by importing aggregate from outside the area. (FEIR, p. 3-20.)

Because the other mines are in the same air basin, the average cumulative air quality impacts would be about the same if other mines ramped up production to make up for artificial restrictions on the proposed project's production. Similarly, if other mines ramp up production, their noise impacts would increase. If aggregate was imported, noise and air quality impacts would increase as well as traffic impacts from the extra on-road heavy truck hauling needed to bring the material in from other areas such as the Yuba Goldfields. There could also be additional impacts if other mines built new processing plants and/or capacity to serve the market. Since the proposed project would be served by an existing, permitted processing plant with an existing conveyor system and existing

capacity, it is environmentally superior to a reduced processing rate alternative that could restrict the applicant's ability to capture as much market share and thus result in additional impacts from other mines ramping up, building additional capacity or from aggregate import outside the area. (FEIR, pp. 3-20, 3-21).

Although the Reduced Production Alternative would have reductions in impacts related to air quality and noise locally, when considering the air basin as a whole and the inherent cumulative nature of air quality analysis, and that increased mining elsewhere or the import of aggregate for outside the areas would add additional air quality, noise and possible traffic impacts, the alternative would be no better than the proposed project. It may even result in greater impacts if other mines built additional processing capacity or aggregate was imported from other markets. For these reasons, the proposed project is considered the environmentally superior alternative. It results in the fewest impacts while still meeting the full objectives of the applicant. (FEIR, p. 3-21.)

Relationship to Project Objectives

The Reduced Production Rate Alternative would meet all project objectives but at a slower rate than the proposed project. This alterative would produce the same amount of material but it would take a longer period of time. While not specifically stated in the project objectives, this alternative may not meet the needs of the applicant to supply a certain percentage of the local aggregate market. (FEIR, p. 3-10.)

Finding

The Board rejects this alternative because it is not environmentally superior to the Project in that it would not reduce any of the significant unavoidable Project impacts to a less-than-significant level. (FEIR, pp. 3-20, 3-21.)

X. STATEMENT OF OVERRIDING CONSIDERATIONS

As set forth in the preceding sections, the Board's approval of the Project will result in significant adverse environmental effects on aesthetics and air quality that cannot be avoided even with the adoption of all feasible mitigation measures. Despite the occurrence of these effects, however, the Board chooses to approve the Project because, in the Board's view, the economic, social, environmental, and other benefits that the Project will produce render the significant effects acceptable.

The following statement identifies the reasons why, in the Board's judgment, the benefits of the Project as approved outweigh its significant and unavoidable effects. Any one of these reasons is sufficient to justify approval of the Project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, the Board would stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this section (X), and in the documents found in the Record of Proceedings, as defined in section V.

The Board finds that the Project would have the following economic, social, and environmental benefits:

A. The Project would provide aggregate, an essential construction material.

Aggregate includes sand, gravel, and crushed stone. Aggregate provides the bulk and strength to Portland Cement Concrete (PCC), asphalt, plaster, and stucco. Aggregate is also used as road base, sub-base, railroad ballast, and fill. Aggregate normally provides from 80 to 100% of the material volume in these uses. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 1.) Aggregate, such as will be produced by the Project, is essential for construction to occur. It is also necessary for the maintenance of existing infrastructure.

B. Substantial quantities of aggregate are required to meet the growth and maintenance needs of Sacramento County.

According to the California Geological Survey (CGS), Californians consumed an average of more than 180 million tons of construction aggregate per year or about 5.7 tons per person per year during the 30-year period from 1981 to 2010. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 20.) Over the next 50 years, CGS estimated that Sacramento County needs approximately 670 million tons of aggregate, based on anticipated population growth. (*Id.*, p. 7; FEIR, p. 2-23.)

C. Existing permitted aggregate reserves in Sacramento County will soon be depleted unless new sources such as the Project are approved.

The source of aggregate for Sacramento County has predominantly been the alluvial deposits stemming from the Old American River channel south of Rancho Cordova. (General Plan, Conservation Element, pp. 13-15.) The CGS estimated that Sacramento County's demand for aggregate over the next 50 years is approximately 670 million tons. CGS determined that, as of 2011, the County had only 42 million tons of permitted aggregates reserves, enough to meet only 6% of the County's projected 50-year demand for aggregate. This equates to less than ten years' worth of reserves. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 7.) At the same time, projections indicate that the County's population will increase by close to 500,000 people over the next 25 years. (California Dept. of Finance, Demographic Research Unit, "Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-Year Increments (January 2013).) In recognition of the importance of aggregate material, Sacramento County's General Plan protects known mineral resources from land uses that would preclude or inhibit timely mineral extraction to meet market demand. (FEIR, p. 2-23.)

D. Importation of aggregate from outside Sacramento County would result in adverse fiscal impacts.

Permitted aggregate resources outside Sacramento County are available as a replacement source of material to meet the County's growth and maintenance needs. Out-of-County sources include the Yuba River near Marysville, Cache Creek in Yolo County, and various aggregate sources in El Dorado and Placer counties. However, because aggregate is a low unit-value, high bulk weight commodity, it must be obtained from nearby sources to limit economic costs associated with transportation. If nearby sources do not exist, then transportation costs can quickly exceed the value of the aggregate. Transportation of aggregate from distant sources results in increased construction and road maintenance costs. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 1.) It is estimated that each additional mile traveled currently adds about 15 cents to the cost of a ton of delivered aggregate. This factor is important to public agencies such as Sacramento County because they purchase substantial amounts of aggregate, either directly or indirectly. Thus, it is in the fiscal interest of the public, as well as private parties, to avoid excessive travel distances and the associated cost increases which would arise from the unnecessary importation of aggregate. (See September 30, 2008 California Department of Transportation Director Letter.)

E. Importation of aggregate would result in adverse air quality impacts and greenhouse gas emissions.

Greater haul distances will also lead to undesirable air quality and greenhouse gas impacts simply because greater fuel consumption will be required. As noted in the EIR, if aggregate were imported, noise and air quality impacts would increase as well as traffic impacts from the extra on-road heavy truck hauling needed to bring the material in from other areas such as the Yuba Goldfields. (FEIR, pp. 3-20, 3-21). Transporting aggregate from distant sources results in increased fuel consumption, greenhouse gas emissions, and air pollution. The CGS estimates that California consumed an average of about 180 million tons of construction aggregate per year from 1981 to 2010. Assuming an average haul distance of 25 miles (50-mile round trip), delivering California's annual aggregate demands results in more than 360 million truck miles traveled, almost 47 million gallons of diesel fuel consumed, and more than 520,000 tons of carbon dioxide emissions produced annually. If the haul distance is doubled to 50 miles (100-mile round trip), the numbers double to 721 million truck miles traveled, almost 94 million gallons of diesel fuel used, and over 1 million tons of carbon dioxide produced on an annual basis. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 1.)

F. Importation of aggregate will lead to increased regional traffic and associated congestion.

Transporting aggregate from distant sources results in increased traffic congestion and wear and tear on roadways. Greater haul distances will result in trucks traveling

more miles to deliver aggregate to various construction sites. This will lead to increased overall traffic throughout the region, with resulting congestion in various areas including downtown Sacramento. Another by-product will be greater wear and tear of the regional road system and associated roadway maintenance and repair costs. (*Aggregate Sustainability in California*, 2012, Department of Conservation, California Geological Survey, p. 1.)

G. The Project would provide an in-County source of quality aggregate material to help reduce adverse fiscal, air quality, greenhouse gas and traffic impacts associated with the importation of aggregate.

In order to provide homes, jobs and other services for the current and future residents of the County, as well as to maintain necessary infrastructure, it is imperative that the region continue to identify reliable, cost-effective sources of aggregate material. The Project is one such source. The project site contains a large quantity of aggregate material that is suitable to make construction products in high demand, including Portland Cement concrete (PCC) and asphalt products. The Project will result in the mining of quality PCC-grade aggregate material that can be used to meet the construction needs of Sacramento County. The Project would provide over 15 million tons of aggregate over the next 15 years. Most important, it is located proximate to the local market. By providing an in-County source of aggregate, the Project will minimize future haul distances and associated cost increases, adverse air quality and greenhouse gas emissions and increased regional traffic and congestion. (FEIR, p. 2-23.)

H. The Project would result in air quality and traffic benefits associated with the proposed extension and use of the existing electric conveyor system to transport aggregate to Teichert's Perkins Plant.

The Project has been designed to minimize environmental impacts typically associated with aggregate mining and reclamation activities. The project site is located in close proximity to Teichert's existing Perkins aggregate processing plant, which allows the mined aggregate material to be transported to the Perkins Plant via an extension of the existing conveyor belt system. This method results in substantially less air quality and traffic impacts than the alternative: using haul trucks to transport material. (FEIR, p. 2-23.)

I. The Project will provide long-term employment and tax revenue.

The Project will provide various economic benefits to the County. It will provide both direct company jobs and indirect jobs from associated commerce and industry. It is estimated that the Project would require seven to ten full-time employees at the mining site. (FEIR, pp. 9-6 to 9-8, 10-33.) Moreover, the Project will allow for the continued operation of Teichert's Perkins Plant, which currently employs approximately 70 people to perform necessary work related to aggregate processing, sales, and administrative functions. Employees will be skilled workers in the construction materials industry (e.g., heavy equipment operators, maintenance personnel, and support staff). Furthermore, the

Project will generate tax revenue associated with aggregate production itself, as well as providing the aggregate required to develop other revenue-generating uses in the County.

ADOPTION OF FINDINGS

The Board hereby recognizes and adopts the Findings of Fact and Statement of Overriding Considerations for the Project.

DATE: 10/3 **, 2016** **By:** Roberta MacGlashan

CHAIR, BOARD OF SUPERVISORS
COUNTY OF SACRAMENTO
STATE OF CALIFORNIA

RESOLUTION NO. 2016-0747

RESOLUTION OF THE BOARD OF SUPERVISORS OF SACRAMENTO COUNTY, STATE OF CALIFORNIA, AMENDING THE VINEYARD COMMUNITY PLAN ASSESSOR'S PARCEL NO. 063-0180-005, 063-0180-006, 063-0160-001, 066-0020-006, 066-0030-001, and 066-0050-003

WHEREAS, County of Sacramento has adopted the Vineyard Community Plan for the purpose of guiding the County of Sacramento, relative to the development of said community; and,

WHEREAS, on July 23, public hearings have been held before the Sacramento County Planning Commission; and,

WHEREAS, the Sacramento County Planning Commission forwarded a recommendation for approval of the proposed amendment to the Vineyard Community Plan to this Board.

NOW, THEREFORE, BE IT RESOLVED that the Vineyard Community Plan is amended as shown in Exhibit "A", which is attached hereto and incorporated herein as though set forth in full.

BE IT FURTHER RESOLVED that the Clerk of the Board of Supervisors and the Secretary of the County Planning Commission are directed to endorse said Community Plan to show that such plan has been amended, and that such amendment has been approved by the Board of Supervisors.

On a motion by Supervisor Nottoli, seconded by Supervisor Serna, the foregoing Resolution was passed and adopted by the Board of Supervisors of the County of Sacramento this 27th day of September, 2016, by the following vote, to wit:

AYES: Supervisors, Kennedy, Nottoli, Peters, Serna, MacGlashan

NOES: Supervisors, None

ABSENT: Supervisors, None

ABSTAIN: Supervisors, None

RECUSAL: Supervisors, None
(PER POLITICAL REFORM ACT (§ 18702.5.)

In accordance with Section [illegible] of the Rules of the Board of Supervisors, County of Sacramento

SEP 27 2016

Kevin Romo
Deputy Clerk, Board of Supervisors

[redacted]
Chair of the Board of Supervisors
of Sacramento County, California

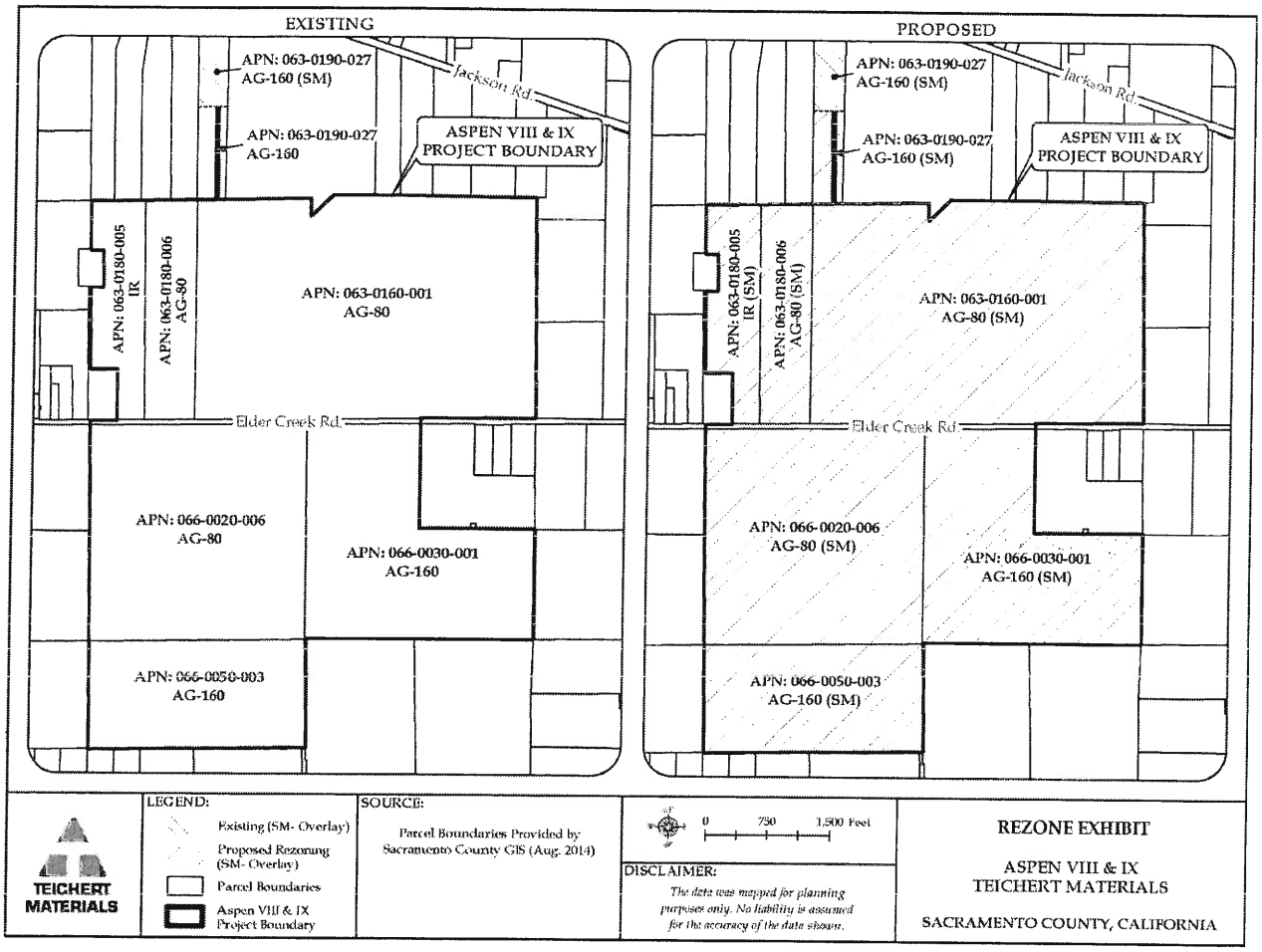
(SEAL)

ATTEST: Florence Evans
Clerk, Board of Supervisors

FILED
SEP 27 2016
BOARD OF SUPERVISORS
BY Florence Evans
CLERK OF THE BOARD

Exhibit A

Community Plan Amendment and Rezone
PLNP2014-00201 Aspen VIII and IX Mining Use Permit



RECORDING REQUESTED
WHEN RECORDED MAIL TO:

ENDORSED
SACRAMENTO COUNTY

SEP 30 2016

DONNA ALLRED, CLERK/RECORDER
BY _____ DEPUTY

COUNTY OF SACRAMENTO
COMMUNITY DEVELOPMENT DEPARTMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 SEVENTH STREET, ROOM 225
SACRAMENTO, CA 95814
WWW.PER.SACCOUNTY.NET

CONTACT PERSON: CATHERINE HACK
TELEPHONE: (916) 874-6141

SPACE ABOVE RESERVED FOR RECORDER'S USE

NOTICE OF DETERMINATION

FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21152 OF THE PUBLIC RESOURCES CODE

PROJECT TITLE: ASPEN VIII AND IX MINING USE PERMIT, COMMUNITY PLAN AMENDMENT AND REZONE, RECLAMATION PLAN, AND DEVELOPMENT AGREEMENT

CONTROL NUMBER: PLNP2014-00201

STATE CLEARINGHOUSE NUMBER (IF SUBMITTED):

PROJECT LOCATION: The Aspen VIII and IX Mining Use Permit, Community Plan Amendment and Rezone, Reclamation Plan, and Development Agreement project site is located within Sacramento County, east of the city of Sacramento limits and south of Jackson Highway (Hwy 16) and approximately one-half mile east of Bradshaw Road. Elder Creek Road bisects the project site, with Aspen VIII to the north and Aspen IX to the south of Elder Creek Road. The project site is in the Vineyard community of unincorporated Sacramento County

APN: Aspen VIII: 063-0160-005, 063-0180-006, and 063-0160-001;
Aspen IX: 066-0020-006, 066-0030-001, and 066-0050-003;
Conveyor Extension 063-0190-027

DESCRIPTION OF PROJECT: A Use Permit to allow surface mining on approximately 353 acres of a 683-acre project site.
A Use Permit to allow a conveyor system to transport the mined materials across adjacent parcels to an off-site processing plant.
A Community Plan Amendment and Rezone to add the Surface Mining Combining Zone (SM) to 682 acres of IR, AG-80, AG-80 (F), AG-160 and AG-160 (F) land. Note: the acreage to be rezoned (682) is one acre less than the 683 acre project site because the conveyor extension on parcel 063-0190-027 does not require a rezone.
A Reclamation Plan to include open space grassland uses as the end use of the mine.
A Development Agreement between the applicant and the County of Sacramento..

NAME OF PUBLIC AGENCY APPROVING PROJECT: SACRAMENTO COUNTY / CEQA@SACCOUNTY.NET

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: TEICHERT MATERIALS , 3500 AMERICAN RIVER DRIVE, SACRAMENTO, CA 95864 JLANE@TEICHERT.COM

This is to advise that the County of Sacramento (Lead Agency) has approved the above described project on 9/27/16 and has made the following determinations concerning the above described project.

1. The project **will not** have a significant effect on the environment.
2. A **Environmental Impact Report was prepared and certified** for this project pursuant to the provisions of CEQA.
3. Mitigation measures **were** made a condition of the approval of the project.
4. A mitigation monitoring and reporting program **was** adopted.
5. A statement of Overriding Considerations **was** adopted for this project.
6. Findings **were** made pursuant to the provisions of CEQA.
7. California State Department of Fish and Game Fees (Fish & Game Code Section 711.4)
   a. **The project is not de minimis and is, therefore, subject to the following fees:**
   i. **$3,070.00 for review of an Environmental Impact Report**
   ii. **$40 for County Clerk processing fees.**

The Final Environmental Impact Report and record of project approval or the Negative Declaration is available to the General Public at the physical and internet addresses located above.

Copy To:

✓	County of Sacramento County Clerk, 600 8th Street, Room 101 Sacramento, CA 95814
	State of California OPR, 1400 Tenth Street, Room121 Sacramento, CA 95814