American River Common Features 2016 Project
Sacramento River, Reach D, Contract 1
Front Street Stability Berm
Draft Supplemental Environmental Assessment
Draft Supplemental Initial Study

December 2018

State Clearinghouse Number 2005072046

US Army Corps of Engineers ®
Sacramento District

SAFCA
Sacramento Area Flood Control Agency

CENTRAL VALLEY FLOOD PROTECTION BOARD
PUBLIC SAFETY AND FLOOD MANAGEMENT
STATE OF CALIFORNIA

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
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Environmental Resources Branch

DRAFT FINDING OF NO SIGNIFICANT IMPACT
Sacramento River, Reach D, Contract 1
Front Street Stability Berm

I have reviewed and evaluated the information presented in this Supplemental Environmental Assessment/Initial Study (EA/IS) prepared for the Sacramento River, Reach D, Contract 1, Front Street Stability Berm Project. This project is a portion the American River Common Features (ARCF) 2016 Project. The ARCF 2016 Project was authorized by the Water Resources Development Act of 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707. The U.S. Army Corps of Engineers (Corps), with their non-federal partners the Central Valley Flood Protection Board (CVFPB) and the Sacramento Area Flood Control Agency (SAFCA) will construct a 400-foot-long landside stability berm along the Sacramento River east levee near downtown Sacramento, California. The project area is located adjacent to Front Street, north of U Street, west of Interstate 5, and north of U.S. Highway 50. Once constructed, the berm will improve the levee's slope stability and reduce the risk of levee failure due to through-seepage.

The possible consequences of the work described in the EA/IS have been studied with consideration to environmental, socioeconomic, cultural, and engineering feasibility. I have considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service and the California State Historic Preservation Officer. Best management practices, avoidance protocols, and minimization measures would be used to reduce effects related to noise, air quality, climate change, recreation, and traffic. In addition, 0.26-acre of native riparian tree mitigation would be provided to compensate for the removal of 4 non-native trees and 2 native tress in the stability berm footprint.

Based on my review of the EA/IS and my knowledge of the project area, I have determined that the proposed stability berm would have no significant, long-term effects on environmental or cultural resources. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and Finding of No Significant Impact will fulfill the compliance requirements of the National Environmental Policy Act for this project.

_____ _____

Date

David G. Ray, P.E.
Colonel, U.S. Army
District Commander

Draft Supplemental Mitigated Negative Declaration
American River Common Features 2016 Project Sacramento River, Reach D, Contract 1
Front Street Stability Berm

Project Background

The American River Common Features (ARCF) 2016 Project is a cooperative effort between U.S. Army Corps of Engineers (USACE), Sacramento Area Flood Control Agency (SAFCA), and the Central Valley Flood Protection Board (Board). USACE is the NEPA lead agency and the Board is the CEQA lead agency for the ARCF 2016 Project.

Following the 1986 floods, and the associated severe impacts to Sacramento's levee system, Congress directed USACE to investigate means to reduce flood risk to the City of Sacramento. USACE completed an initial investigation in 1991 and a supplemental analysis in 1996. Recognizing that there were "common features" across the 1991 and 1996 candidate plans, Congress used the term American River Common Features in authorizing the project in the Water Resources Development Act (WRDA) of 1996. Following WRDA 1996 authorization, the ARCF Project was expanded and re-authorized in WRDA 1999 and again in WRDA 2016 (ARCF 2016 Project).

The American River Watershed Common Features General Reevaluation Report (ARCF GRR) Final Environmental Impact Statement / Environmental Impact Report (EIS/EIR) (State Clearinghouse Number 2005072046) evaluated the potential impacts of the entire ARCF Project and in 2016 the document, in combination with the Statement of Overriding Consideration and Mitigation and Monitoring Reporting Plan was certified by the Board.

Through the Bipartisan Budget Act of 2018, Congress granted USACE construction funding to complete urgent flood control projects. The ARCF 2016 Project was identified for urgent implementation, and Congress supplied full funding to implement all identified levee improvements.

Project Description

USACE, SAFCA, and the Board propose, as part of the ARCF 2016 Project, to construct a levee improvement consisting of an approximately 400-foot-long stability berm against the landside slope of the Sacramento River east levee (SREL) in Sacramento, California. The purpose of the Reach D Contract 1 Front Street Stability Berm (proposed Project) is to reinforce and reduce seepage through this section of the SREL.

The levee system along the Sacramento River does not meet the current federal standards for flood protection. Seepage beneath and through segments of the levee system has been identified as a significant risk to the stability and reliability of the levee system throughout the Sacramento Area. Through-seepage is seepage through a levee embankment that can occur during periods of high river stages. Through-seepage conditions in the proposed Project site make this levee segment susceptible to failure during high water events.

Although many of the environmental impacts were addressed in the ARCF GRR EIS/EIR, some work, such as the proposed Project, was not fully analyzed. The attached Draft Supplemental Environmental Assessment / Initial Study (SEA/IS) for the proposed Project, in combination with the ARCF GRR EIS/EIR,

fully disclose the potential environmental effects of the proposed Project. This Mitigated Negative Declaration (MND) is supported by the SEA/IS.

Project Location

The proposed Project site is located adjacent to Front Street, north of U.S. Highway 50, west of Interstate 5, and south of the Tower Bridge in Sacramento, CA. The site consists of four parcels with two landowners and was previously used as a lumber yard, a vehicle storage and refueling station, a cardboard box company, a lumber and pulp production mill, and a river discharge for heating and cooling systems for State buildings. Remnant walls, fences, and pavement are still present at the site from previous activities. The State no longer discharges water at this location. The southern parcel is used as a City of Sacramento stockpile site and is the primary staging area for the Old Sacramento horses and carriages.

Mitigation Measures

The following mitigation measure is detailed in the SEA/IS. This measure, in addition to those identified in the ARCF GRR EIS/EIR, would reduce the environmental impacts of this project to less than significant.

Vegetation and Wildlife

- Compensate the loss of 0.13-acre of tree canopy cover by performing off-site mitigation at a 2:1 ratio. This follows the recommended mitigation ratio for riparian trees in the U.S. Fish and Wildlife Coordination Act Report and U.S. Fish and Wildlife Service Biological Opinion for the ARCF 2016 Project. USACE has coordinated with the U.S. Fish and Wildlife Service and determined that the 2:1 ratio should be applied to habitat canopy acreage. USACE would mitigate through the planting of 0.26-acre of native riparian woodland species, which would be incorporated into the forthcoming Beach-Stone Lakes Mitigation Site. The draft EA/IS for the Beach-Stone Lakes Mitigation Site will be available for public review in spring 2019.

Avoidance and Minimization Measures

The following avoidance and minimization measures are detailed in the SEA/IS. These measures, in addition to those identified in the ARCF GRR EIS/EIR, would further reduce the environmental impacts of the proposed Project.

Air Quality

Although the proposed Project would not exceed established significance criteria for air quality impacts, the following measures to reduce project-associated emissions would be implemented:

- Implement, at minimum, Sacramento Metro Air Quality Management District's (SMAQMD) Basic Construction Emissions Control Practices. Consider implementing SMAQMD's Enhanced Construction Emission Control Practices;
- Water exposed soil with adequate frequency to minimize fugitive dust;
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour (mph);
- Treat site access locations to a distance of a 100 feet of a 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 CEQA lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of SMAQMD shall also be visible to ensure compliance;

- USACE would encourage its construction contractor to use construction equipment outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB). Any emissions control device used by the construction Contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions strategy for a similarly sized engine as defined by CARB regulations; and
- USACE would encourage its contractor to use Tier 4 equipment for construction to further reduce potential emissions.

Climate Change

While GHG emissions associated with the proposed Project would not violate significance thresholds established in the SEA/IS, the following measures to reduce project-associated GHG emissions would be implemented:

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes;
- Recycle at least 75 percent of construction waste and demolition debris; and
- Purchase at least 20 percent of the building materials and imported soils from sources within 100 miles of the proposed Project site.

Cultural Resources

Consultation with the State Historic Preservation Office (SHPO) regarding the inventory, determination of eligibility and findings of effects for the proposed Project is ongoing and would be completed before a decision is reached on the findings of the SEA/IS. In addition to consultation, the following avoidance and minimization measures to ensure no significant impacts to cultural resources would be implemented:

- The proposed Project would temporarily remove an existing railroad switch level during construction. To maintain the integrity of the Walnut Grove Branch Line of the Southern Pacific Railroad (considered a Historic Property), the construction Contractor would reinstall the switch level upon completion of construction; and
- To minimize any effects to Historic Properties that may be encountered during construction activities, the construction Contractor would follow the procedures for the discovery of previously unknown Historic Properties described in Stipulation IX of the existing Programmatic Agreement for the ARCF 2016 Project.

Recreation

Although the proposed Project would not exceed the established significance criteria for recreational impacts, the following measures to reduce project-associated impacts to recreation would be implemented:

- USACE would provide public information, including on-site signage and public notification of the proposed Project to the public and to operators of the affected recreation facilities;
- Ensure complete restoration of the proposed Project site to pre-project conditions;
- USACE would coordinate with California State Parks at least 30 days prior to start of construction to coordinate the closure of the railroad staging spur; and
- After construction is complete, USACE would coordinate with California State Parks to repair any construction related damage to the staging spur of the railroad to pre-project conditions.

Traffic

Although the proposed Project would not exceed established significance criteria for traffic impacts, the following measures to reduce project-associated impacts to traffic would be implemented:

- The construction Contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets;
- The construction Contractor would assess damage to roadways its vehicles cause during construction and would repair all potholes, fractures, or other damages;
- The construction Contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transportation of construction vehicles, equipment, and personnel to and from the work site; and
- The construction Contractor would follow the standard construction specifications of the City of Sacramento and obtain the appropriate encroachment permits, as required. The conditions of the permit would be incorporated into the construction contract and would be enforced by the City of Sacramento.

Aesthetics

Although the proposed Project would not exceed established significance criteria for aesthetic impacts, the following measures to reduce project-associated impacts to aesthetics would be implemented:

- Following construction, the construction Contractor would be required to remove all waste, equipment, and materials from the site. The construction Contractor would restore the site to pre-construction conditions, to the greatest extent feasible; and
- Disturbed areas would be revegetated by hydroseeding the soil with native grass seed.

Noise

Although the proposed Project would not exceed established significance criteria for noise impacts, the following measures to further minimize noise levels during construction would be implemented:

- Display notices with information including, but no limited to, construction Contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences; and
- Construction equipment would be equipped with factory-installed muffling devices, and all equipment would be operated and maintained in good working order to minimize noise generation.

Vegetation and Wildlife

The following recommendations from the U.S. Fish and Wildlife Service Coordination Act Report for the ARCF 2016 Project would be implemented to minimize effects to vegetation and wildlife to less than significant:

- Woody vegetation that needs to be removed within the proposed Project site should be removed during the non-nesting season to avoid affecting active migratory bird nests;
- Avoid impacts to migratory birds nesting in and adjacent to the proposed Project site by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. Pre-construction surveys would be conducted by a qualified biologist. Work around active nests should

be avoided until the young have fledged. If active nests are identified within or adjacent to the proposed Project site, a no-construction buffer would be established, and CDFW would be contacted if deemed necessary by the qualified biologist. The following protocol from the CDFW for Swainson's hawk would be followed for the pre-construction survey for raptors:

- *A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 mile of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 mile of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Wildlife. If work is begun and completed between September 1 and January 31, a survey is not required.*

- Avoid future impacts to the site by ensuring all fill material is free of contaminants (including hazardous waste and invasive species);
- Minimize project impacts by reseeding all disturbed areas, including staging areas, at the completion of construction with native forbs and grasses. Reseeding should be conducted just prior to the rainy season to enhance germination and plant establishment. The reseeding mix should include species beneficial for native pollinators; and
- Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.

Water Quality

Although the proposed Project would not exceed established significance criteria for water quality impacts, the following measures to further reduce project-related impacts to water quality would be implemented:

- Prior to construction, the construction Contractor would prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and would obtain a National Pollutant Discharge Elimination Systems permit, as applicable, and comply with all conditions of the permit; and
- This plan would detail the construction activities to take place, Best Management Practices (BMPs) to be implemented to prevent any discharges of contaminated storm water into waterways, and inspection and monitoring activities that would be conducted.

Findings

Based on the information in the ARCF GRR EIS/EIR (State Clearinghouse Number 2005072046), the SEA/IS, and the administrative record for the ARCF 2016 Project, the Board finds that the proposed Project, with the mitigation and avoidance and minimization measures listed above and those from the ARCF GRR EIS/EIR, would not result in a significant impact on the environment.

This MND reflects the Board's independent judgment and analysis.

The environmental document and other materials, which constitute the record, are located at 3310 El Camino Avenue, Room 170, Sacramento, California 95821. In accordance with California Code of Regulations, Title 14, Section 15075, Board staff will file a Notice of Determination (NOD) with the State Clearinghouse within five days of adopting this MND.

By: _____ Date: _____

William H. Edgar

President

By: _____ Date: _____

Jane Dolan

Secretary

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ACRONYMS AND ABBREVIATIONS

APE	area of potential effects
ARCF	American River Common Features
BACT	best available control technologies
BMP	best management practices
BSLMS	Beach-Stone Lakes Mitigation Site
CAA	Clean Water Act
CAAQS	California Ambient Air Quality Standards
CAR	Coordination Act Report
CARB	California Air Resources Board
CCCA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CESA	California Endangered Species Act
cfs	cubic feet per second
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
dbA	A-weighted decibels
dbh	diameter at breast height
DPM	diesel particulate matter
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
EA	environmental assessment
EIR	environmental impact report
EIS	environmental impact statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
FWCA	Fish and Wildlife Coordination Act
GEI	GEI Consultants, Inc.
GHG	greenhouse gases
GRR	General Revaluation Report
GWET	groundwater extraction and treatment system
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
JFP	Joint Federal Project
MBTA	Migratory Bird Treaty Act
MIAD	Mormon Island Auxiliary Dam
MND	mitigated negative declaration
N_2O	nitrous oxides

NAAQS	National Ambient Air Quality Standards
ND	Negative Declaration
NEPA	National Environmental Policy Act
NF_3	nitrogen trifluoride
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	national pollution discharge elimination system
NRHP	National Register of Historic Places
O_3	ozone
O&M	operations and maintenance
PA	programmatic agreement
PACR	Post Authorization Change Report
PAHS	polynuclear aromatic hydrocarbons
Pb	lead
PG&E	Pacific Gas & Electric
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter
RDC1	Reach D Contract 1
RM	river mile
ROD	Record of Decision
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
Sac Urban	Sacramento River Flood Control System Evaluation, Phase I, Sacramento Urban Area
SAFCA	Sacramento Area Flood Control Agency
SF_6	sulfur hexafluoride
SHRA	Sacramento Housing and Redevelopment Agency
SIP	state implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPRR	Southern Pacific Railroad
SRBPP	Sacramento River Bank Protection Project
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
UAIC	United Auburn Indian Community
ULDC	urban levee design criteria
USEPA	U. S. Environmental Protection Agency
USFWS	U. S. Fish and Wildlife Service
VOC	volatile organic compounds
WCM	water control manual
WRDA	Water Resources Development Act
WRRDA	Water Resources Reform and Development Act

1.0 INTRODUCTION

1.1 Proposed Action

The U.S. Army Corps of Engineers, Sacramento District (Corps), Sacramento Area Flood Control Agency (SAFCA), and the Central Valley Flood Protection Board (CVFPB) propose to construct, as a part of the American River Common Features (ARCF) 2016 Project, a levee improvement consisting of an approximately 400 foot long stability berm against the landside slope of the Sacramento River east levee in Sacramento, California. This portion of the ARCF 2016 Project is referred to as the Reach D Contract 1 (RDC1) Stability Berm project.

The Corps has determined that the levee system along the Sacramento River does not meet the current federal standards for flood protection, due to seepage and slope stability. Seepage is occurring beneath and through segments of the levee system, creating a significant risk to the stability and reliability of the levee system throughout the Sacramento area. In the RDC1 Stability Berm project area, the Corps, CVFPB, and SAFCA have documented that through-seepage conditions and steep landside levee slopes make this levee segment susceptible to failure during high water events. Through-seepage is seepage through a levee embankment that can occur during periods of high river stages. If unaddressed, through-seepage can destabilize the levee prism and eventually lead to levee failure. The purpose of the RDC1 Stability Berm is to reinforce the Sacramento River east levee along this vulnerable 400-foot reach in order to reinforce the levee slope and significantly reduce seepage through the levee in the downtown Sacramento area.

1.2 Project Location

The RDC1 Stability Berm project area is located along the east bank of the Sacramento River, adjacent to Front Street, just north of U Street, immediately west of Interstate 5, and north of U.S. Highway 50 in the downtown area of the city of Sacramento (Figure 1). The site consists of four parcels with two landowners, and was previously used as a lumber yard. Wall remnants, fences, and paved areas are still present at the site. The northern segment of the project area previously housed a vehicle storage and refueling area, a cardboard box company, a lumber and pulp product mill, and a river discharge for heating and cooling systems for State buildings. The State no longer discharges water at this location, however a remnant concrete headwall structure from the discharge is still present on the waterside of the levee, along with an abandoned 30-inch diameter pipeline that penetrates the levee. The southern parcel is currently used as a City of Sacramento materials stockpile site and as the primary staging area for the Old Sacramento horses and carriages. The Sacramento River east levee in this reach supports both the Sacramento River Bike Trail and the California Railroad Museum's Excursion Train on its crown.

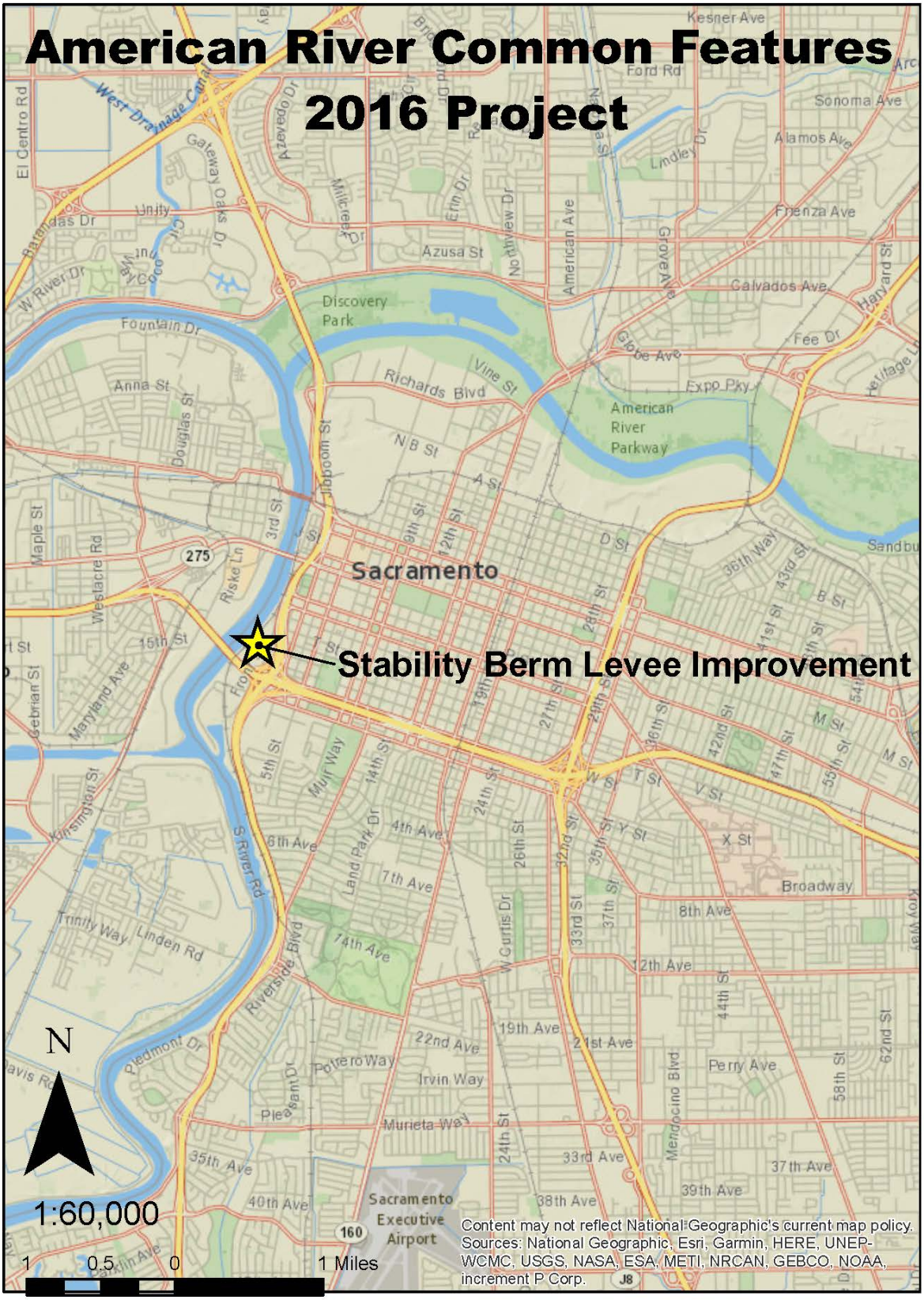

Figure 1. RDC1 Stability Berm Project Location.

1.3 Background and Need for Action

Following the 1986 flood, and the associated severe impacts to Sacramento's levee system, Congress directed the Corps to investigate additional means to reduce flood risk to the city of Sacramento. The Corps completed this investigation in 1991, recommending construction of Auburn Dam and levee improvements downstream of Folsom Dam. Congress directed the Corps to conduct supplemental analysis of the flood management options considered in the 1991 study. The resulting Supplemental Information Report, American River Watershed Project, California (March 1996) recommended a similar alternative, with Auburn Dam and downstream levee work (Corps, 1996). It considered, but did not advance, additional alternatives for Folsom Dam improvements and a stepped release plan for Folsom Dam. All three alternatives were accompanied by downstream levee improvements.

Congress recognized that levee improvements were "common" to all candidate plans in the report and that there was a Federal interest in participating in these "common features". Thus, the ARCF Project was authorized in the Water Resources Development Act of 1996, Pub. L. No. 104-303, § 101(a)(1), 110 Stat. 3658, 3662-3663 (1996) (WRDA 1996), and the decision about construction of Auburn Dam was deferred. Major construction components for the ARCF Project in the WRDA 1996 authorization included construction of seepage remediation along approximately 22 miles of American River levees, and levee strengthening and the raising of 12 miles of the Sacramento River levee in the Natomas Basin.

The ARCF Project was modified by the Water Resources Development Act of 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999) (WRDA 1999), to include additional levee improvements to safely convey an emergency release of 160,000 cubic feet per second (cfs) from Folsom Dam. These improvements included construction of seepage remediation and levee raises along four stretches of the American River, and construction of levee strengthening features and raising of 5.5 miles of the Natomas Cross Canal levee in Natomas. Additional construction components for both WRDA 1996 and WRDA 1999 were authorized and have been constructed by the Corps. However, the Natomas Basin features authorized in WRDA 1996 and WRDA 1999 were deferred and later reassessed in the Natomas Post Authorization Change Report (PACR). The Natomas PACR was authorized in the Water Resources Reform and Development Act (WRRDA) of 2014, Pub. L. No. 113-121, § 7002, 128 Stat. 1193, 1366 (2014), and the associated levee improvements, referred to as the ARCF, Natomas Basin Project, are currently under construction.

Additionally, following the flood of 1986, significant seepage occurred on the Sacramento River levees from Verona (upstream end of Natomas) at river mile (RM) 79 to Freeport at RM 45.5 and on both the north and south banks of the American River levees. Seepage on the Sacramento River was so extensive that soon after the 1986 flood event, Congress funded levee improvements as part of the Sacramento River System Evaluation, Phase I, Sacramento Urban Area (Sac Urban). The Sac Urban Project constructed shallow seepage cutoff walls from Powerline Road in Natomas at approximately RM 64 downstream to Freeport. At the time, seepage through the levees was considered to be the only significant seepage problem affecting the levees in the Sacramento area.

After construction of the Sac Urban project, the Sacramento Valley experienced another flood event in 1997. The seepage from this event led to a geotechnical evaluation of levees in the vicinity of the city of Sacramento, which showed that deep underseepage was of concern. Considerable seepage occurred on the Sacramento River as well as on the American River. Seepage on the American River was expected because levee improvements had yet to be constructed. However, the significant seepage on the Sacramento River in reaches where levees had been improved as part of the Sac Urban project exposed that deep underseepage was a significant concern in this area, a conclusion later confirmed by the Levee Seepage Task Force in 2003.

While the reevaluation study was beginning for the ARCF Project, the Folsom Dam Post Authorization Change Report (PACR) was being completed by the Sacramento District. The results of the PACR, and of the follow-on Economic Reevaluation Report for Folsom Dam improvements, showed that additional levee improvements were needed on the American River and on the Sacramento River below their confluence in order to capture the benefits of the Folsom Dam projects. The levee problems identified in these reports consisted primarily of the potential for erosion on the American River and seepage, stability, erosion, and height concerns on the Sacramento River below its confluence with the American River. These findings pointed to a need for additional reevaluation in the two remaining basins comprising the city of Sacramento: American River North and American River South. The ARCF GRR was completed in December 2015, and the Record of Decision (ROD) for the EIS/EIR was signed in August 2016. Congress authorized the reevaluated ARCF Project in the Water Resources Development Act (WRDA) of 2016.

The Corps' non-Federal partner, SAFCA, reviewed, investigated, and conducted analyses to determine the scope of the required improvements on the Sacramento River to meet Federal Emergency Management Agency (FEMA) and State urban levee design criteria (ULDC) standards as a potential early implementation action under their Levee Accreditation Program prior to the authorization of the ARCF GRR. Under this evaluation, SAFCA initiated design on the seepage and stability improvements to the Sacramento River east levee. However, since the Corps has now received authorization and appropriations from Congress, it is moving forward as the lead implementation agency for these improvements rather than SAFCA.

In July 2018, Congress granted the Corps construction funding to complete urgent flood control projects under the Bipartisan Budget Act of 2018. ARCF 2016 was identified for urgent implementation, and Congress supplied full funding to allow the Corps to implement the much-needed levee improvements as quickly as possible. Although most environmental effects were addressed in the ARCF GRR EIS/EIR, impacts associated with some of the work, including the RDC1 Stability Berm, were identified as a part of SAFCA's later assessment, and therefore were not assessed in the ARCF GRR EIS/EIR. Supplemental NEPA and CEQA analyses will be conducted, as needed, for any actions or effects that were not previously addressed in the ARCF GRR EIS/EIR.

1.4 Authority

The American River Common Features Project was authorized by Section 106(a)(1) of WRDA 1996, Pub. L. No. 104-303 § 106(a)(1), 110 Stat. 3658, 3662-3663 (1996), as amended by Section 130 of the Energy and Water Development and Related Agencies Appropriation Act of 2008, Pub. L. No. 110-161, § 130, 121 Stat. 1844, 1947 (2007). Additional authority was provided in Section 366 of WRDA of 1999. WRDA 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999).

The proposed RDC1 Stability Berm would address seepage and stability risks to the Sacramento River east levee identified in the interim general reevaluation study of the American River Common Features (ARCF) Project, which was authorized by WRDA 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707.

1.5 Purpose and Need for the Environmental Assessment/Initial Study

The proposed RDC1 Stability Berm would reduce the risk of a levee failure in the project reach from flooding the downtown Sacramento area. In this reach, the levee embankment consists of silty gravel, poorly-graded sand with silt, and silty sand. The levee foundation is made of an inter-bedded silty sand and silt blanket underlain by a sand and gravel aquifer. There are no previously constructed levee repairs or improvements at this site.

While the crown of the levee along this levee reach is wide enough to accommodate both a paved bike trail and two railroad tracks, the slope is steep, typically measuring at a ratio 1.8 Horizontal:1Vertical (1.8H:1V) on the landside and 1.6H:1V on the waterside. This steepness, particularly in the case of a levee constructed with unsuitable materials over a porous foundation, significantly increases the risk of instability. Through-seepage also increases the instability of the levee, as does the location of the project area, which is low ground between landside berms both upstream and downstream of the project area (Figure 2). Constructing a stability berm would fill this gap and strengthen the levee in the project area. If this levee reach is not addressed, the Sacramento River east levee would remain at risk of failure from through-seepage, and downtown Sacramento, including Interstate 5 and the California State Capitol, could be significantly damaged during a future flood event.

Figure 2. RDC1 Project Area Upstream Existing Berm.

This Supplemental Environmental Assessment/Initial Study (EA/IS) describes the existing environmental conditions in the proposed RDC1 Stability Berm's project area, evaluates the anticipated environmental effects of the alternatives on these conditions, and identifies measures to avoid or reduce any adverse environmental effects to a less-than-significant level where practicable. This EA/IS has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) and the guidelines for implementation of the California Environmental Quality Act (CEQA). This EA/IS, in combination with the ARCF GRR EIS/EIR (Corps, 2016), which it supplements, fully discloses the potential environmental effects of the project to the public and provides an opportunity for the public to comment on the proposed action.

1.6 Previous Environmental Documentation

- May 1988, Sacramento River Flood Control System Evaluation, Initial Appraisal Report – Sacramento Urban Area. Phase I. U.S. Army Corps of Engineers, Sacramento District.

- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—Environmental Impact Statement/Environmental Impact Report;
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation;
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental Environmental Impact Statement (FSEIS)/Environmental Impact Report;
- June 27, 1996, Chief's Report on FSEIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, ROD on FSEIS, signed by Director of Civil Works, Major General Russell L. Furman;
- November 2008, Final Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento CA. Prepared by EDAW/AECOM, Sacramento, CA;
- October 2010, Final Environmental Impact Statement on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento CA, prepared by AECOM, Sacramento, CA;
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report;
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project. Prepared for SAFCA by GEI Consultants;
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy.

1.7 Decisions Required

The Corps' District Engineer must decide whether the proposed project qualifies for a Finding of No Significant Impact (FONSI) under NEPA, or whether an Environmental Impact Statement (EIS) must be prepared to analyze potentially significant environmental impacts. In addition, the CVFPB must decide if the RDC1 Stability Berm qualifies for a Negative Declaration (ND) or Mitigated Negative Declaration (MND) under CEQA, meaning that after taking into consideration proposed mitigation measures, the project's adverse environmental effects would not be significant, or whether an Environmental Impact Report (EIR) must be prepared due to potentially significant environmental impacts.

2.0 ALTERNATIVES

2.1 Alternatives Not Considered in Detail

Alternatives that were eliminated from detailed consideration for the overall ARCF 2016 project were described in detail in the ARCF GRR EIS/EIR (Corps, 2016). For the proposed RDC1 Stability Berm site, alternatives for potential consideration included addressing seepage through a cutoff wall or jet grouting. Additionally, the levee could have been degraded, and a new levee constructed with appropriate materials to mitigate the problems. The cutoff wall and levee replacement alternatives were eliminated because both options would have required degrading the levee and removing of the railroad tracks and bike trail during construction. Although jet grouting would not require degrading the levee or removing the railroad tracks, it would significantly disrupt train operations and force closure of the bike trail during construction. The stability berm alternative minimized adverse impacts to these recreational features on the crown of the levee and thus was selected for assessment as the proposed action.

2.2 Alternative 1 – No Action

NEPA requires the analysis of a "no action" alternative that illustrates project conditions if the proposed action is not taken. Under the No Action Alternative, the RDC1 Stability Berm would not be constructed. As a result, this segment of the levee would remain susceptible to through-seepage and instability and would continue to be a weak spot in the system. Levee failure at this location could lead to catastrophic flooding of downtown Sacramento, including the State Capitol and Interstate 5, a major transportation artery less than 200 yards from the levee. Numerous Federal, State, and local government offices, residences, and businesses lie within the potential flood inundation area. Damage to infrastructure, utility systems, government function, and commercial and residential interests would be significant.

2.3 Alternative 2 – Drained Stability Berm Construction (Proposed Action)

This section describes the features, construction details, staging, borrow and disposal sites, and construction schedule necessary to build the RDC1 Stability Berm. In addition, long-term operations and maintenance (O&M) requirements are described below. Existing conditions and the analysis of environmental effects follow in Section 3.

2.3.1 Features of Proposed Project

The Sacramento River east levee does not currently meet Corps criteria for seepage and slope stability. To reduce the risk of levee failure due to seepage, a stability berm would be constructed against the landside slope to control through-seepage and slope stability (Figure 3). The berm would be constructed by trimming the landside slope of the levee to the design excavation lines and by placing an engineered fill section with internal drainage against the

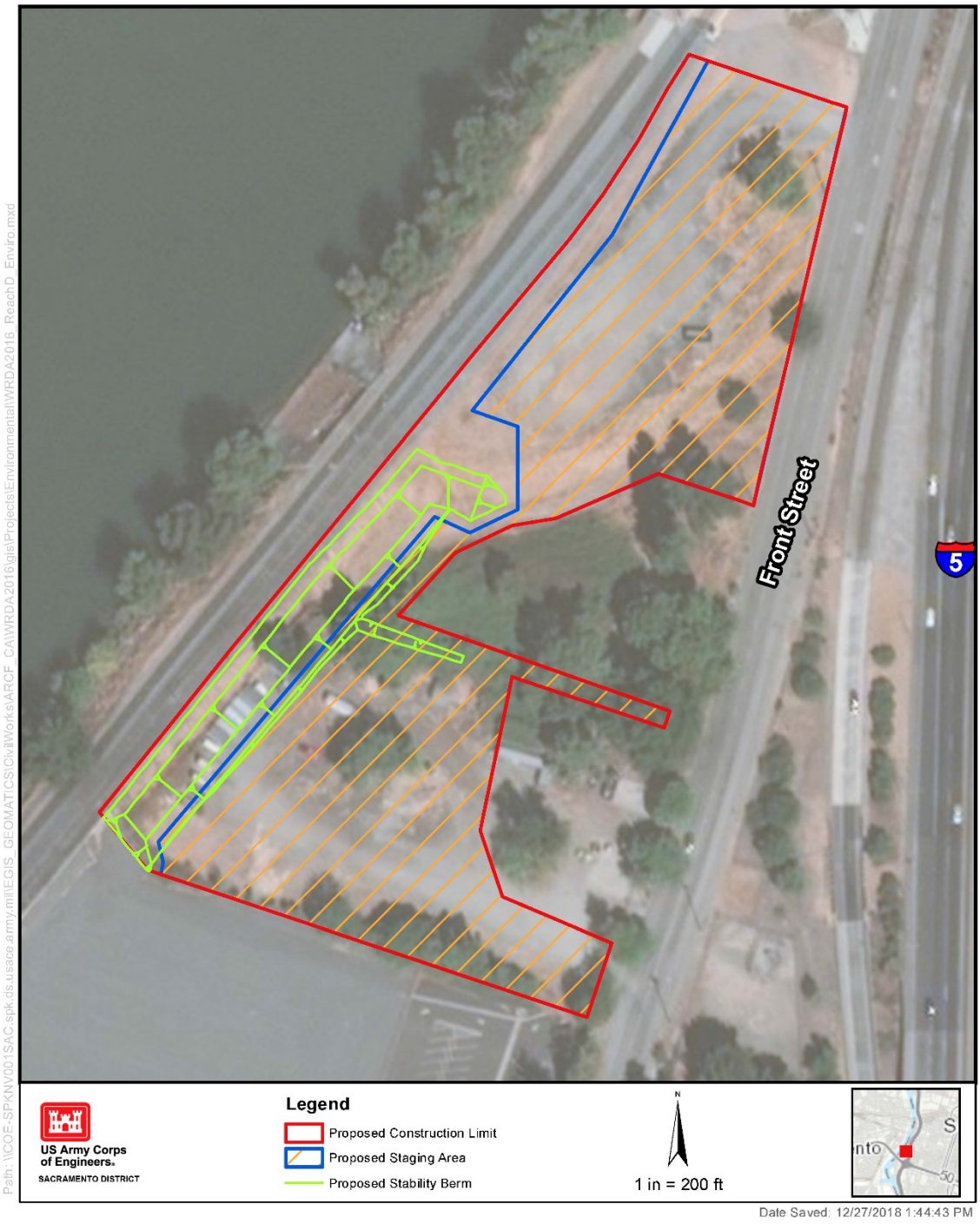

Figure 3. Alternative 2 – Drained Stability Berm Construction (Proposed Action).

landside slope. The northern end of the site would require additional excavation due to its slightly higher toe elevation and to provide reasonably uniform drainage along the 400-foot length of the berm.

2.3.2 Construction Details

The stability berm is expected to be approximately 400 feet along the landside slope of the levee, with a base width of 20 feet, a top width of 12 feet, and an average height of 16 feet. The construction limit for the berm and adjacent staging area extends approximately 900 feet along the levee alignment and 170 to 450 feet laterally. Roughly 2,500 cubic yards of existing levee material would be removed during excavation, with 1,500 cubic yards of drainage aggregate and 3,000 cubic yards of berm fill required for stability berm construction. The drainage aggregate would be purchased by the contractor from commercial sources. It is anticipated that some berm fill would come from excavation, however, the balance of the borrow material would be acquired from a licensed commercial facility or from another source approved in writing by the Corps prior to use.

Construction would include the following activities and processes:

- Set up temporary construction access and staging areas on designated areas of the site.
- Protect trees and structures that are not removed.
- Clear and grub work area, including, but not limited to, the following actions:
    - Remove trees and vegetation growing on the landside levee toe and within and immediately adjacent to the berm footprint.
    - Clear grass, brush, and debris from the existing ditch that drains the site to the east.
    - Removal of the existing fence and posts along the landside toe and drainage ditch.
    - Removal of existing wooden utility pole and pavement along landside levee toe by the construction contractor.
    - Temporary removal of the existing railroad switch lever which protrudes into the work area above the berm by the construction contractor.
- Strip levee landside slope and berm foundation; dispose of strippings at an off-site disposal location.
- Perform shallow excavation to shape the slope and berm foundation to the design lines and to develop a shallow drainage swale parallel to the berm toe. Stockpile excavated soil that meets Corps specifications for reuse as berm fill. Dispose of soil that does not meet specifications at an off-site disposal location.
- Remove a portion of an abandoned 30-inch diameter outfall pipe if encountered in the limits of excavation. Plug and cap remaining pipe ends.

- Import additional borrow material for berm and aggregate for drainage layer construction.
- Place and compact of the stability berm fill.
- Seed and place erosion protection measures on the levee landside slope, drainage swale, and other disturbed areas.
- Reinstall railroad switch lever.
- Install new fence landside of the berm toe.

Site Access and Staging

The RDC1 Stability Berm project area is accessed via Front Street, which is immediately adjacent to the site. Haul trucks, construction equipment and construction workers will likely access Front street from either Interstate 5, the Capital City Freeway, or Highway 50. From any of these highways, surface streets would be taken to arrive at the project site. The construction contractor would be required to coordinate their final haul route with the City of Sacramento and obtain required hauling permits prior to initiating construction activities.

A staging area for equipment and materials is proposed for the parcels north of and immediately adjacent to the site. These parcels are owned by the City of Sacramento and California Department of Parks and Recreation. During construction, access to the site would only be permitted from the landside of the levee.

Site Preparation

Prior to the start of construction, the RDC1 Stability Berm project area will be enclosed by a temporary fence to limit entry into the site and ensure site safety and security. Two existing, abandoned wooden utility poles would be removed and disposed of prior to any construction activity. Additionally, an existing railroad switch lever would be removed by the contractor before construction can begin.

Before the general site grading would begin, approximately 3 to 6 inches of surface material would be stripped along the stability berm alignment to remove vegetation, organic soil, and any debris. This vegetation and debris would be disposed of at an approved commercial disposal site, while the topsoil would be stockpiled for application on the finished site. Deeper stripping may be required to ensure all roots are removed. To the greatest extent possible, existing trees would be protected in place, but approximately four non-native trees of heaven (*Ailanthus altissima*) and two black willows (*Salix nigra*) would need to be removed at the northern end of the construction footprint.

Restoration and Cleanup

After construction is complete, a permanent fence would be installed along the toe of the stability berm and the railroad switch would be reinstalled by the contractor. The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas

damaged by construction activities would be fully repaired and restored to its preconstruction condition. All trash, excess construction materials, and construction equipment would be removed and the site will be left in a safe and clean condition.

Borrow and Disposal Sites

Borrow material would be acquired both onsite and from an outside source by the contractor and must meet the requirements established in the plans and specifications by the Corps. The contractor is responsible for selecting a disposal site located outside the construction limits. This site must have current permits for operation, meet the required environmental standards, and be approved in writing by the Corps.

Construction Workers and Schedule

The contractor is estimated to need between 10 to 20 construction workers onsite each day during construction operations. All workers would access the site by regional and local roadways and would park in the proposed staging areas. Construction hours would comply with the City noise ordinance, which allows construction from 7:00 a.m. to 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. to 6:00 p.m. on Sundays. No work or hauling would take place outside of the construction exemption times without permission applied for and given by the City of Sacramento. Construction is expected to begin in June 2019 and would take 6 to 12 weeks to complete.

2.3.3 Operations and Maintenance

Once construction is complete, the site would be turned over to the non-Federal partners, who would be responsible for the long term operation and maintenance (O&M) of the site, including repair, rehabilitation, and replacement of all project features. Regular O&M activities include mowing, herbicide application, rodent control, and inspecting the levee. Long-term O&M of the RDC1 Stability Berm would not require additional measures beyond those required for the Sacramento River levees. The local maintaining agency for the project area is currently the City of Sacramento, and it is likely that the CVFPB and SAFCA would return the project to the City for long term maintenance.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the environmental resources in the project area and potential environmental impacts of the alternatives considered.

3.1 Resources Not Considered in Detail

Some resources were eliminated from further analysis in this EA/IS because effects were negligible, or because the proposed action would not create additional impacts to the resources beyond the scope of those addressed regionally within the ARCF GRR EIS/EIR (Corps, 2016). The RDC1 Stability Berm was not identified in the ARCF GRR EIS/EIR as part of the recommended plan and was later identified by SAFCA for implementation, as described in Section 1.3 above. Accordingly, site specific resource conditions are detailed below because they were not described in the ARCF GRR EIS/EIR.

3.1.1 Fisheries

All construction activities would occur on the landside of the levee. The contractor would not be permitted to use the levee crown or affect waterside vegetation that provides shaded riverine aquatic habitat for fish species in the Sacramento River. Additionally, since the crown of the levee is broad enough to accommodate a bike trail and two railroad tracks, any trees that could be affected by construction are far enough from the river that they would not provide additional benefits to fish species. The contractor will be responsible for implementing best management practices (BMPs) in compliance with their National Pollutant Discharge Elimination System (NPDES) Construction General Permit and its associated Stormwater Pollution Prevention Plan (SWPPP), which would reduce or eliminate the possibility of sediment runoff entering the landside drainage system and ultimately the Sacramento River. As a result, the proposed action would have no effects to fisheries and no further analysis is required.

3.1.2 Special Status Species

The RDC1 Stability Berm project area includes no habitat onsite suitable for State or Federally listed species protected under the California Endangered Species Act (CESA) and Endangered Species Act (ESA) respectively and, and no listed species are known to occur in the project area. As described above, the project would not affect fish species, including listed fish species. There are no elderberry shrubs on site, the host plant for the threatened Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*), therefore no effects to the Valley Elderberry Longhorn Beetle are anticipated. Other than the Sacramento River, there are no aquatic features in the project area and no connectivity to rice fields or emergent marsh, therefore the project area contains no habitat suitable for the threatened Giant Garter Snake (*Thamnophis gigas*). Additionally, while there are trees on site, including trees that would be

affected by the proposed action, these trees provide limited cover habitat within the riparian corridor and thus are unlikely to be used by the threatened Western yellow-billed cuckoo (*Coccyzus americanus*), which prefers wide, dense riparian corridors.

In spring 2018, preliminary nesting raptor and migratory bird surveys occurred in the project area to determine if any species were likely to be present on the site, such as the State-listed Swainson's hawk (*Buteo swainsoni*) and White-tailed kite (*Elanus leucurus*), or birds protected under the Migratory Bird Treaty Act (MBTA). No nests were identified during the surveys within a ½ mile of the RDC1 Stability Berm project area, therefore it is also unlikely that nesting birds would be present during construction.

On the basis of this analysis the Corps anticipates that the proposed action would have no effect on special status species. Additional raptor and migratory bird surveys will be conducted in spring 2019 to verify the presence or absence of these species prior to the start of construction. If nesting birds are identified within ½ mile of the project area, coordination with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) would occur to ensure that appropriate avoidance and minimization measures are implemented.

3.1.3 Public Utilities

As a part of the design process, engineers conducted an assessment of the RDC1 project area to determine the presence of underground utility lines that have the potential to be affected by the proposed action. The assessment determined that there are no known utility lines in the RDC1 Stability Berm project area. Additionally, since the project only incorporates a limited amount of excavation, it is not anticipated that any unanticipated utilities would be found during project construction. The construction contractor would follow standard procedures for further identifying underground utilities in the project area to confirm the site conditions. If underground utilities are identified by the utility providers or the City of Sacramento, the contractor would coordinate any necessary BMPs that would need to be implemented. Based on current site data and available information, no effects to public utilities are anticipated during construction.

3.1.4 Socioeconomics and Environmental Justice

The RDC1 Stability Berm project area is currently zoned for industrial use and is separated from downtown Sacramento by Interstate 5, West Sacramento by the Sacramento River, and other residential areas to the south by the Highway 50/Pioneer Bridge. The closest permanent residences to the project area are single family homes located on 3rd Street in downtown Sacramento, which are approximately ¼ mile east of the project area, with I-5 as a barrier in between. Because of the site's geographic location the proposed action would not adversely affect any minority or low income neighborhoods.

Small numbers of homeless individuals sometimes camp on the property due north of the project area. These camps are temporary and often relocate along the Sacramento River and

American River Parkway. Since these groups are transient by nature, the likelihood that a homeless encampment would be active near the project area during construction is speculative. Such a group could be temporarily disturbed during construction by noise and air pollutant emissions. No practical mitigation measures exist, but the mobility of these camps would provide a remedy.

3.2 Resources Considered in Detail

Adverse effects to air quality, climate, cultural artifacts, hazardous waste, recreation, traffic, environmental aesthetics, land use, vegetation and wildlife, and water quality could occur if the proposed project is built. As a result, these subjects are discussed in detail below. Note that in many cases, the regulatory setting and methodology of assessment are incorporated by reference from the ARCF GRR EIS/EIR (Corps, 2016).

3.2.1 Air Quality

Section 3.11 of the ARCF GRR EIS/EIR adequately describes the regulatory setting and analytical methodology for this resource.

Existing Conditions

The RDC1 Stability Berm project area is located in Sacramento County, which is in the Sacramento Valley Air Basin (SVAB), within the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The study area is located at the southern end of the Sacramento Valley, which has a Mediterranean climate characterized by hot, dry summers and mild, rainy winters. Summer high temperatures are hot, often exceeding 100 degrees Fahrenheit (°F). Winter temperatures are cool to cold, with minimum temperatures often dropping into the high 30s. Most of the precipitation occurs as rainfall during winter storms. The rare occurrence of precipitation during summer is in the form of convective rain showers. Also characteristic of the SVAB are winters with periods of dense and persistent low-level fog that are most prevalent between storms. Prevailing wind speeds are moderate.

The topographic features giving shape to the SVAB include the Coast Range to the west, the Sierra Nevada to the east, and the Cascade Range to the north. These mountain ranges channel winds through the SVAB, but also inhibit the dispersion of pollutant emissions. Ozone pollution presents a serious problem when an inversion layer traps pollutants close to the ground, causing unhealthy air quality levels. Vehicles and other mobile sources, including trucks, locomotives, buses, motorcycles, agricultural equipment, and construction equipment cause about 70 percent of the region's air pollution problems during the summer (SMAQMD 2010).

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings and the arrival of the Delta breeze from the southwest in the afternoons. 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 between July and September. The Schultz Eddy causes the wind pattern to shift southward, causing air pollutants that have moved to the northern end of the Sacramento Valley to be blown back toward the south before leaving the valley. This phenomenon exacerbates concentrations of air pollutants in the area and contributes to violations of the ambient air quality standards (Solano County, 2008).

Criteria Pollutants

The Clean Air Act established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). O3 is a secondary pollutant that is not emitted directly into the atmosphere. Instead it forms by the reaction of two ozone precursors: reactive organic gases (ROG) and nitrogen oxides (NO_X).

For these criteria pollutants, NAAQS and the California Ambient Air Quality Standards (CAAQS) were established to protect public health and welfare. The standards create a margin of safety protecting the public from adverse health impacts caused by exposure to air pollution. The U.S. Environmental Protection Agency (USEPA) is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs) for each state. In California, the California Air Resources Board (CARB) is responsible for the establishment of the SIP. The local air quality management districts are responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in "attainment". Areas that are noncompliant are "non-attainment" areas. The State and Federal attainment status for the SVAB are shown on Table 1 below.

Table 1. State and Federal Attainment Status.

Criteria Pollutant	Averaging Time	Federal Status	State Status
O_3	1 hour	N/A	Non-Attainment – Serious
	8 hour	Non-Attainment –Severe	Non-Attainment – Serious
PM_{10}	24 hour	Attainment	Attainment
	Annual	N/A	Attainment
$PM_{2.5}$	24 hour	Non-Attainment	N/A
	Annual	N/A	Non-Attainment
CO	1 hour	Attainment	Attainment
	8 hour	Attainment	Attainment
NO_2	1 hour	N/A	Attainment
	Annual	Attainment	N/A
SO_2	3 hour	Attainment	N/A
	24 hour	Attainment	Attainment
	Annual	Attainment	N/A
Pb	30 day	N/A	Attainment
	Quarter	Attainment	N/A

Source: SMAQMD, 2017

N/A Not Applicable; State or Federal Standard does not exist.

Due to the non-attainment designations for the SVAB discussed above, SMAQMD is required to prepare SIPs for O_3, PM_{10}, and $PM_{2.5}$ to establish how the area will attain the standards by dates specified within the plans.

Additionally, Federal projects are subject to the Clean Air Act General Conformity Rule (40 CFR 51, Subpart W). The General Conformity Rule ensures that Federal projects conform to applicable SIPs so that Federal actions do not interfere with a state's strategies used to attain the NAAQS. The rule applies to Federal projects in non-attainment areas for any of the six criteria pollutants for which the USEPA has established these standards, and in any areas designated as "maintenance" areas. The rule covers both direct and indirect emission of criteria pollutants or their precursors that result from a Federal project, are reasonably foreseeable, and can be practicably controlled by the Federal agency through its continuing program responsibility.

Toxic Air Contaminants/Hazardous Air Pollutants

A Toxic Air Contaminant (TAC) is defined by California law as an air pollutant that "may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." The USEPA refers to TACs as Hazardous Air Pollutants. TACs can be emitted from stationary or mobile sources. Ten TACs have been identified through ambient air quality data as posing the greatest health risk in California. Direct exposure to these pollutants has caused cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. TACs do not have ambient air quality standards because no safe levels of TACs have been determined. Instead, TAC impacts are evaluated by calculating the health risks associated with exposure.

TACs relevant to the project were determined based on SMAQMD guidance and the project area conditions. The only TAC that could occur due to this project is diesel particulate matter (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Most researchers believe that diesel exhaust particles contribute most of the risk because the particles in the exhaust carry many harmful organics and metals. Unlike other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists (DWR, 2017).

Sensitive Receptors

In the RDC1 project area, the primary sensitive receptors would be local homeless residents camping in the area, users of the bike trail on the top of the levee, and any wildlife in the area. There are no schools, hospitals, or senior facilities in the vicinity of the project area.

Environmental Effects

Significance Criteria

For this analysis, an effect was considered significant if it would:

- Conflict with, or obstruct implementation of, the applicable air quality plan;
- Violate any air quality standard or substantial contribution to existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under NAAQS and CAAQS;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.
- Exceed federal general conformity *de minimis* thresholds

Alternative 1 – No Action

Under this alternative, the Corps would not construct the RDC1 Stability Berm, therefore no air pollutant emissions would occur as a result of construction. The ambient air quality conditions in the project area would remain consistent with current conditions. However, if a high-water event were to occur and the levee were to fail, there would be impacts to air quality from flood fighting, emergency repair, as well as effects from odors and other toxins present in the floodwaters.

Alternative 2 – Proposed Action

Air quality emissions would be generated by heavy equipment constructing the RDC1 Stability Berm, and the hauling of material from the borrow source to the project area. There would be no operational emissions associated with the proposed action. The total emissions for the proposed action are shown in Table 2. Appendix C includes the full air quality emissions modeling results. As shown in Table 2, the emissions resulting from the proposed action are relatively minor and would not exceed or even approach the federal general conformity or SMAQMD daily thresholds.

In addition to the emissions associated with construction equipment and trucks, there would be an increase in fugitive dust in the area due to the earth moving associated with construction. Additionally, DPM would be generated by construction equipment. The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 70-year exposure period is often assumed. However, while cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e., exposure periods of 2 to 3 years) to diesel exhaust are not anticipated to result in an increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposures periods

that are chronic. Because construction activities for RDC1 are expected to only last 6 to 12 weeks, effects associated with DPM exposure would be less than significant.

Table 2. Emissions Estimates for the Proposed Action.

Pollutant	lbs/day	CEQA Significance Threshold	Tons/year	General Conformity *de minimis* Thresholds in Tons/year
ROG	0.79	N/A	0.02	25
CO	11.40	N/A	0.25	100
NO_x	6.76	85 lbs/day	0.15	25
PM_{10}	2.97	0. If all feasible BMPs are applied, then 80 pounds/day and 14.6 tons/year	0.07	100
$PM_{2.5}$	0.74	0. If all feasible BMPs are applied, then 82 pounds/day and 15 tons/year	0.02	100

Notes: Under CEQA, CO is not considered a pollutant of concern by SMAQMD, because construction activities are not likely to generate a substantial quantity of CO (SMAQMD, 2018)
* California Ambient Air Quality Standard
** ROG, CO, and NOx are ozone precursors
*** Road Construction Emissions Model 8.1.0
ppm parts per million

Additionally, BMPs would be implemented to further reduce emissions to the greatest extent practicable. These minimization measures described below would further reduce criteria pollutant emissions, DPM emissions, and fugitive dust associated with construction activities. As a result dust and equipment emissions would be minor and there would be no significant impacts to air quality in the region due to construction of the RDC1 Stability Berm.

Avoidance and Minimization Measures

Although the project would not exceed significance criteria, the Corps would still implement the following measures to reduce emissions associated with the project:

- Implement, at minimum, SMAQMD's Basic Construction Emission Control Practices (SMAQMD, 2015). Consider implementing SMAQMD's Enhanced Construction Emission Control Practices.
- Water exposed soil with adequate frequency to minimize fugitive dust.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.

- Treat site access locations 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.
- The Corps would encourage its construction contractors to use construction equipment outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the Contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
- The Corps would encourage its construction contractor to use Tier 4 equipment for construction to further reduce potential emissions.

3.2.2 Climate Change

Section 3.12 of the ARCF GRR Final EIS/EIR adequately describes the regulatory setting and methodology for this resource.

Existing Conditions

This section addresses the impacts of GHG emissions associated with implementation of the RDC1 stability berm on global climate change. Emissions of GHGs are a concern because all GHGs and GHG emissions contribute, on a cumulative basis, to global climate change. Global climate change has the potential to result in sea level rise (which may result in flooding of low-lying areas), to affect rainfall and snowfall levels (which may lead to changes in water supply and runoff), to affect temperatures and habitats (which in turn may affect biological and agricultural resources), and to result in many other adverse effects.

Global warming is the name given to the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered by a vast majority of the scientific community to be unequivocal, based on observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (IPCC, 2014).

The Intergovernmental Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from preindustrial times to 1950 and had a small cooling effect afterward. However, since 1950, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science,

including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion (DWR, 2017).

Increases in GHG concentrations in the Earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reradiated back into space as infrared radiation. Some GHGs occur naturally and are necessary for keeping the Earth's surface habitable. However, increases in the concentrations of these gases in the atmosphere above natural levels during the last 100 years have increased the amount of infrared radiation that is trapped in the lower atmosphere, intensifying the natural greenhouse effect and resulting in increased global average temperatures.

Warming of the Earth's atmosphere and oceans affects global and local climate systems. Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, in addition to temperature increases (IPCC, 2014). Based on growing evidence, there is high confidence that the following effects on hydrologic systems are occurring: (1) increased runoff and earlier spring peak discharge in many glacier- and snow-fed rivers; and (2) warming of lakes and rivers in many regions, with effects on thermal structure and water quality (IPCC, 2014).

With respect to California's water resources, the most important effects of global warming have been changes to the water cycle and sea level rise. Over the past century, the precipitation mix between snow and rain has shifted in favor of more rainfall and less snow (Mote and Sharp, 2016; USGCRP, 2017), and snowpack in the Sierra Nevada is melting earlier in the spring (Kapnick and Hall, 2009). The average early-spring snowpack in the Sierra Nevada has decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage (Mote and Sharp, 2016). These changes have major implications for water supply, flooding, aquatic ecosystems, energy generation, and recreation throughout the state.

Greenhouse Gas Emissions

As defined in Section 38505(g) of the California Health and Safety Code, the principal GHGs of concern are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). With the exception of NF_3, these are the same gases named in the USEPA's Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. Each of the principal GHGs has a long atmospheric lifetime (one year to several thousand years) and is globally well mixed. In addition, the potential heat trapping ability of each of these gases varies significantly from one another. On a 100-year timescale, methane is about 25 times as potent as CO_2, nitrous oxide is about 298 times as potent as CO_2, and sulfur hexafluoride is about 22,800 times more potent than CO_2 (IPCC, 2007). Conventionally, GHGs have been reported as CO_2 equivalents (CO_2e). CO_2e takes into account the relative potency of non-CO_2 GHGs and converts their quantities to an equivalent amount of CO_2 so that all emissions can be reported as a single quantity.

The primary human-made processes that release these gases include: (1) the burning of fossil fuels for transportation, heating, and electricity generation; (2) agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and (3) industrial processes that release smaller amounts of high global warming potential gases, such as SF_6, perfluorocarbons, and hydrofluorocarbons. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth's capacity to remove CO_2 from the air and altering the Earth's surface reflectance. The major sources of GHGs that are relevant to the RDC1 project are transportation sources and construction emissions. These are discussed in greater detail below.

Construction emissions are generated when materials and workers are transported to and from construction sites and when machinery is used for construction activities such as trenching, grading, dredging, paving, and building. Emissions from construction activities are generated for shorter periods than operational emissions; however, GHGs remain in the atmosphere for hundreds of years or more, so once released, they contribute to global climate change unless they are removed through absorption by the oceans or by terrestrial sequestration.

Environmental Effects

Significance Criteria

On August 1, 2016, the Council on Environmental Quality (CEQ) issued final guidance on considering GHG emissions and climate change in NEPA analyses. Fundamental to this guidance are the recommendations that when addressing climate change, agencies should consider:

1) The potential effects of a proposed action on climate change as indicated by assessing GHG emissions; and,

2) The effects of climate change on a proposed action and its environmental impacts.

For this analysis, an effect pertaining to climate change was analyzed based on professional judgment, final NEPA guidance from the CEQ, and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.). An effect is considered significant if it will:

- Conflict with an applicable plan adopted for reducing GHG emissions.

SMAQMD has local jurisdiction over the Project area. In October 2014, the SMAQMD adopted a resolution that recommends GHG thresholds of significance as follows:

- Construction phase of projects: 1,000 metric tons of CO_2e per year
- Operational phase of land development projects: 1,100 metric tons of CO_2e per year; and,
- Stationary source projects: 10,000 direct metric tons of CO_2e per year.

The SMAQMD recommends that GHG emissions from construction activities be quantified and disclosed, a determination regarding the significance of these GHG emissions be made based on a threshold determined by the lead agency, and BMPs be incorporated to reduce GHG emissions during construction, as feasible and applicable.

Alternative 1 – No Action

Under the No Action Alternative, the RDC1 stability berm would not be constructed, and global climate change could expose this reach of the Sacramento River levee to increased rainfall runoff and flood flows in the Sacramento River. Without levee improvements, the risk of levee failure due to through-seepage and subsequent flooding of the downtown Sacramento area remains high. If a catastrophic flood were to occur, emergency flood fighting and clean-up actions would require the use of a considerable amount of heavy construction equipment. The use of equipment in this scenario would likely generate GHG emissions above the stated thresholds. Furthermore, no BMPs to manage GHG emissions would be in place, due to the emergency nature of the flood fight activities. Each of these effects could be significant.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would result in GHG emissions due to fuel combustion from on-site construction vehicles, as well as indirect emissions from the electricity used to operate machinery. In addition to construction vehicles, there would be GHG emissions from the workforce vehicles. Workers would commute from their homes to the construction site and park in one of the staging areas.

The air quality modeling discussed previously also assesses the estimated GHG emissions that would result from the proposed construction activities. Table 3 shows the results of the GHG, which determined that the proposed Project would not reach the significance threshold of 1,000 metric tons of CO_2e per year for project construction, as described above.

Table 3. Estimated Greenhouse Gas Emissions from the Proposed Action.

GHG	Pounds Per Day	Metric Tons per Year
CO_2	1,521.04	12.25
CH_4	0.38	0.00
N_2O	0.02	0.00
TOTAL CO_2e	1,535.03	13.39

* Road Construction Emissions Model 8.1.0

While emissions associated with this alternative would not reach GHG thresholds, these emissions would still contribute to the overall global cumulative GHG emissions. As a result, during implementation of the proposed action, the Corps would implement avoidance and minimization measures, as discussed below, to reduce GHG emissions to the greatest extent feasible.

Avoidance and Minimization Measures

The avoidance and minimization measures discussed in the Air Quality section above would reduce GHG emissions as well and would be implemented to reduce emissions to the greatest extent feasible. In addition, the following measures would also be implemented to the extent feasible to minimize GHG emissions:

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Recycle at least 75% of construction waste and demolition debris.
- Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site.

3.2.3 Cultural Resources

Section 3.9 of the ARCF GRR EIS/EIR describes the environmental setting, regulatory setting, and methodology for cultural resources, including the historical and cultural context and baseline for the area.

Existing Conditions

The Corps conducted SHPO and Native American consultation, including issuing a letter that identified the RDC1 Stability Berm project's area of potential effects (APE). GEI Consultants, Inc. (GEI), working under contract to SAFCA and in coordination with the Corps, conducted an investigation of cultural resources within the APE. The investigation consisted of a review of previous documentation, pre-field research, historical society consultation, field surveys, a built environment resources assessment, a geoarchaeological sensitivity assessment and geoarchaeological excavation, and coordination and consultation with interested Native American Tribes.

Much of the APE along the Sacramento River consists largely of fill material used in the construction and maintenance of the levee. Archival research conducted by GEI historians was not able to conclusively determine the source material for the levee fill. On the landside of the levee, much of the area near the RDC1 Stability Berm project area had been landscaped or altered by modern development.

On April 27, 2018, a records search was conducted at the NCIC by GEI archaeologist Jesse Martinez, MA, RPA, for the RDC1 Stability Berm project area. A 0.25-mile search radius surrounding the APE for this portion of the proposed project was included in the records search. The records search identified two previous investigations that extended through or encompassed a portion of the proposed project APE; the two reports in total covered approximately 50 percent of the current proposed project APE in the Reach D Stability Berm Area. Two previously

reported resources are mapped within the Reach D Stability Berm APE; The Southern Pacific R Street Railroad and the Walnut Grove Branch Line of the Southern Pacific Railroad (SPRR).

As a result of excavation of three archaeological trenches and monitoring of an additional six geotechnical trenches in the Reach D Stability Berm project APE, no archaeological materials were identified. Based on the findings, the Reach D Stability Berm portion of the APE appears to have low sensitivity for the presence of buried archaeological deposits within the proposed depth of project disturbance.

Environmental Effects

Significance Criteria

An alternative would be considered to have a significant adverse effect on cultural resources if it diminishes the integrity of the resource's locations, design, setting, materials, workmanship, feeling, or association to the extent that the resource could no longer convey its historic significance. Types of adverse effects can include: physical destruction, damage, or alteration; alteration of the character of the setting; introduction of elements that diminish setting, feeling, or association; neglect; and transfer, lease, or sale.

Alternative 1 - No Action

Under the No Action Alternative no cultural resources would be impacted. However, a failure of the levee could result in damages to historic and prehistoric resources, which are assumed to be significant. The degree of damages to cultural resources is speculative due to uncertainties regarding the extent and duration of a flood event.

Alternative 2 – Proposed Action

The proposed project would be conducted in accordance with the Programmatic Agreement (PA) for the American River Common Features Project, executed on September 10, 2015. As discussed above, a records search was completed on April 27, 2018 and two previously recorded resources were identified in the RDC1 Stability Berm's APE.

An intensive survey and a geoarchaeological assessment of the sensitivity of the RDC1 Stability Berm's APE were also conducted on June 11, 2018. During this work, three historic-era (more than 45 years old) built environment resources were observed in the APE. These include a segment of the Sacramento River east levee (Levee Unit 117), a segment of the Walnut Grove Branch Line of the Southern Pacific Railroad Company (SPRR), and a concrete headwall. The levee (Levee Unit 117) appears to meet NRHP criteria within the context of flood management in the Sacramento Valley and is therefore considered to be a Historic Property. The Walnut Grove Branch Line of the SPRR has previously been determined to be eligible for the NRHP and is also considered a Historic Property.

Letters were sent to potentially interested Native American tribes and the State Historic Preservation Office (SHPO) on June 1, 2018, described the proposed project APE for the ARCF 2016 Project. Letters to Tribes that had identified sacred sites on the NAHC sacred lands file included a request for information about those sacred sites. On June 12, 2018, the Corps received an email from Mechoopda Tribe indicating that the Tribe did not require consultation and had no comments at this time. The Tribe requested to be contacted in the event of a discovery of cultural resources in the proposed project APE. The Corps sent an email to Mechoopda Tribe acknowledging their request to be notified in the event of a discovery.

The United Auburn Indian Community (UAIC) provided a confidential map illustrating an area of concern which encompassed the entire RDC1 Stability Berm APE. This area of concern was not characterized as an archaeological site, but rather as an area identified by the UAIC with an elevated sensitivity for the presence of resources important to the UAIC. Native American consultation is ongoing, in accordance with the requirements of the PA.

Consultation with the SHPO regarding the inventory, determination of eligibility and finding of effects for the RDC1 Stability Berm project is still ongoing and will be completed before a decision is reached on the findings of this EA/IS.

Avoidance and Minimization Measures

The Walnut Grove Branch Line of the SPRR segment is eligible for the NRHP and is therefore considered a Historic Property. The proposed project would temporarily remove an existing railroad switch lever during construction activities. The switch lever would be reinstalled upon completion of the proposed project in order to maintain the integrity of the Historic Property.

Procedures for the discovery of previously unknown Historic Properties are provided in Stipulation IX of the PA and shall be followed in order to minimize any effects to Historic Properties that may be encountered during construction activities.

3.2.4 Hazardous Wastes and Materials

Section 3.17 of the ARCF GRR Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

Both the proposed action site and the adjacent paved lot have been the subjects of clean-up efforts by the California Department of Toxic Substances Control (DTSC). The proposed project site, known by DTSC as the Sacramento Housing and Redevelopment Agency (SHRA) site, was previously the site of vehicle storage and refueling, a cardboard box company, and the site of lumber and wood products manufacturing. As a result of the past usage, the site has been under the jurisdiction of DTSC for the clean-up of polynuclear aromatic hydrocarbons (PAHS), total petroleum hydrocarbons (fuel), and volatile organic compounds (8260B VOCS). The paved

site directly to the south of the proposed action site, known to DTSC as the Pacific Gas & Electric (PG&E) Sacramento Site, was previously a manufactured gas plant and has been treated for the contaminants benzene, ethylbenzene, PAHS, toluene, and xylenes. The proposed project site currently has a ground water extraction and treatment system (GWET) and associated monitoring wells.

Environmental Effects

Significance Criteria

The proposed action was determined to result in a significant impact related to hazards and hazardous materials if they would do any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment; or
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency excavation plan.

Alternative 1 – No Action

Under the No Action Alternative, the Corps would not construct the RDC1 Stability Berm and therefore the proposed project site conditions would remain the same. The Sacramento area, including downtown Sacramento and the State Capital, would remain at risk of flooding. If a high water event were to occur, the levee would remain susceptible to failure from through-seepage. Should the levee fail and the site and downtown Sacramento be flooded, hazardous materials, including those in the PG&E Sacramento Site, could enter the floodwaters and spread the hazardous materials throughout the flooded area. It is speculative to assume the scope of this potential effect during and after a flood, but it is assumed that this adverse effect would be significant.

Alternative 2 – Proposed Action

SAFCA investigated the conditions of the SHRA DTSC site in the project area as a part of their preliminary design effort for the Sacramento River east levee. The study, which was conducted by Geosyntec Consultants Inc., determined that the project area has land use restrictions due to the site conditions and is undergoing operations, maintenance, and monitoring. These ongoing monitoring operations include the GWET and associated monitoring wells.

There were two soil excavation actions on the site in 2002 to remove contaminated soils from the site (Geosyntec, 2017)

Geosyntec conducted soil testing at the proposed project site and consulted with DTSC and the City of Sacramento in July 2017. The soil tests indicated that the excavation actions removed the contamination from the site, and the soil proposed for excavation by the project primarily consists of new fill from 2002. As a result of the lack of contamination on the site, DTSC indicated that a soil management plan was not required for implementation of the proposed project (Geosyntec, 2017). Geosyntec's memorandum documenting this consultation is included in Appendix B.

Avoidance and Minimization Measures

SAFCA's study and associated consultation indicates that construction of the RDC1 Stability Berm would cause no effects from hazardous and toxic wastes, and no mitigation would be required.

3.2.5 Recreation

Section 3.14 of the ARCF GRR Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

The regulatory setting and methodology were addressed satisfactorily in the 2015 ARCF GRR Final EIS/EIR.

The proposed action site is along Front Street in Sacramento. The Sacramento River east levee adjacent to the stability berm site has multiple recreation facilities on its crown, including the Sacramento Southern Railroad Excursion Train and the Sacramento River Bike Trail. The Sacramento River through this reach is widely used for recreational boating and tourism. Riverboat tours depart from Old Sacramento just upstream of the project area daily, and there are local boat launches for recreational boating are just upstream in West Sacramento and at Discovery Park and just downstream at Miller Park. Other recreational facilities near the site include Pioneer Landing Park and the Artistic Fountain, the Riverfront Promenade, and the California Automobile Museum.

Environmental Effects

Significance Criteria

Effects on recreation would be considered significant if implementation of the proposed action would result in any of the following:

- Eliminate or substantially restrict or reduce the availability, access, or quality of existing recreational sites or opportunities in the project area;
- Cause substantial long-term disruption in the use of an existing recreation facility or activity; or
- Result in inconsistencies or non-compliance with regional planning documents.

Alternative 1 – No Action

Under the No Action Alternative, the Corps would not construct the RDC1 Stability Berm and the Sacramento River east levee would remain susceptible to through-seepage. As a result there would be no construction in the project area and no effects to recreation from construction activities. However, if a flood event were to occur and the levee were to fail, significant damage to the recreation facilities located on the levee crown could result reducing recreational opportunities in the area. The temporal and physical scope of this effect could be significant.

Alternative 2 – Proposed Action

Public access to the California Automobile Museum, Pioneer Landing Park, the Artistic Fountain, the Riverfront Promenade, the Sacramento River Bike Trail, or the Sacramento River is not expected to be impacted by the proposed activity. However, the Sacramento River Bike Trail, Pioneer Landing Park, the Artistic Fountain, and the southern end of the Riverfront Promenade are in close proximity to the project area. While access to these facilities would not be limited during construction, the recreational experience would likely be diminished during construction due to other resource impacts such as noise, aesthetics, and air pollutant emissions. Effects associated with those resources are addressed elsewhere in this document, and while these effects would degrade the recreational experience, the impact would be limited and temporary in nature and would be less than significant.

The proposed action would require closure of the staging spur for the Sacramento Southern Railroad, a second railroad track on the landside of the levee crown, for approximately 6 to 12 weeks while the stability berm is constructed. Closing the staging spur would not require closure of the main rail line and would not impact operation of the Sacramento Southern Railroad Excursion Train.

Avoidance and Minimization Measures

In order to minimize potential adverse effects to recreationists, the Corps would provide public information, including on-site signage and public notification of the proposed project to the public and to operators of the affected recreation facilities. To reduce the effect of the closure of the railroad staging spur, the Corps will coordinate with California State Parks at least 30 days prior to the start of construction to work through any adjustments that the State Parks would need to make to avoid use of the staging spur. Additionally, after construction is complete, the Corps would coordinate with California State Parks to repair any construction related damage to the

staging spur of the railroad to pre-project conditions. With this coordination implemented, effects to recreation would be less than significant.

3.2.6 Traffic

Section 3.10 of the ARCF GRR Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

All pertinent traffic laws, regulations and conditions were adequately covered in the 2015 ARCF GRR Final EIS/EIR, however, the proposed action site was not specifically discussed. This proposed project location is accessed by a public street, Front Street, in Sacramento. Although the proposed project is within a largely commercial area, the lots adjacent to it and directly across the street are vacant. The closest businesses that could be impacted by construction-related traffic are the PG&E facility at 2001 Front Street, the Front Street Animal Shelter, and the California Automobile Museum.

Environmental Effects

Significance Criteria

The proposed action would result in a significant effect related to transportation and circulation if they would:

- Substantially increase traffic in relation to existing traffic load and capacity of the roadway system.
- Substantially disrupt the flow of traffic.
- Expose people to significant public safety hazards resulting from construction activities on or near the public road system.
- Reduce the supply of parking spaces sufficiently to increase demand above supply.
- Cause substantial deterioration of the physical condition of nearby roadways.
- Result in inadequate emergency access.
- Disrupt railroad services for a significant amount of time.

Alternative 1 – No Action

Under the No Action Alternative, the Corps would not construct the RDC1 Stability Berm and the Sacramento River east levee would remain susceptible to through-seepage in the project area. As a result, no increase in traffic volumes along Front Street associated with hauling of material for the stability berm or workers accessing the site would occur. However, if the levee were to fail during a flood event, roads and freeways in the area would flood,

disrupting motor vehicle access and circulation. Rail lines running along the levee could also be seriously damaged or destroyed. Adverse effects on motor vehicle and rail transportation could be significant.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would result in an increase in traffic on Front Street from haul trucks and equipment entering and leaving the project area. In addition worker commute vehicles would create an increase in daily traffic along Front Street. All vehicles would be required to park in the identified staging areas to prevent or reduce congestion for normal daily traffic along Front Street. Heavy construction equipment could cause damage to Front Street and any other local roadways that could be used to access Front Street from the freeways. Any damage to city streets that occurs during construction would be repaired to pre-project conditions following the completion of construction by the contractor.

In addition to Front Street, these vehicles would likely access the area from either Interstate 5, Interstate 80, or Highway 50. The freeways surrounding downtown Sacramento are highly utilized, particularly during morning and evening commute hours, but also provide significant capacity for both private and commercial vehicles, including large trucks.

A short-term increase in area traffic caused by contractors' vehicles during the period of project construction would be unlikely to significantly degrade service on area freeways and surface streets, and with implementation of the avoidance and minimization measures enumerated below, adverse effects to motor vehicle traffic caused by the project would be less than significant.

Avoidance and Minimization Measures

In order to ensure that the use of area roadways by contractors' vehicles and trucks would not cause significant adverse effects to motor vehicle traffic, the following measures would be implemented during construction:

- The construction contractor would notify and consult with emergency service providers to maintain emergency access and facilitate the passage of emergency vehicles on city streets.
- The construction contractor would assess damage to roadways its vehicles cause during construction and would repair all potholes, fractures, or other damages.
- The construction contractor would provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor would provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- Construction contractors would follow the standard construction specifications of the City of Sacramento and obtain the appropriate encroachment permits, as required. The

conditions of the permit would be incorporated into the construction contract and would be enforced by the City of Sacramento.

3.2.7 Aesthetics

Section 3.15 of the ARCF Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

The vicinity of the RDC1 Stability Berm project area consists primarily of industrial development, which degrades the visual character of the area alongside the Sacramento River in this reach. Near the project area is a City of Sacramento overflow wastewater treatment facility, rail lines, the California Automobile Museum, and aboveground diesel and gasoline fuel storage tanks and associated pipelines operated by Chevron and Union 76. The visual quality in this area is low due to the presence of large human-made structures (such as tall white fuel storage tanks), buildings, trains, pavement, fencing, overhead power lines, and other elements associated with industrial development that represent a lack of vividness, intactness, and unity. The viewer sensitivity is also considered low since this area is generally viewed only from the various industrial facilities and by a relatively small number of employees.

The project area itself is also visually degraded. The land is a disturbed lot used for storage of equipment and staging of horse stalls and carriages. The existing condition is currently further degraded due to the recent fire that occurred on the site in September 2018, which scorched the majority of the project area and destroyed much of the vegetation adjacent to the project area.

Environmental Effects

Significance Criteria

The proposed action would result in a potentially significant impact to visual resources if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Alternative 1 – No Action

Under the No Action alternative, the Corps would not construct the RDC1 Stability Berm and the Sacramento River east levee would remain susceptible to through-seepage. No change in the visual condition of the project area from construction of the proposed action would occur. If the levee were to breach as a consequence of a flood, the visual condition of the project area would be severely degraded by flood fighting activities, and impacts from floodwaters. While the temporal scope of this impact cannot be defined, it can be assumed to be significant.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would add a new flood control feature and would alter the current appearance of the site. However, the existing condition of the site is highly degraded and final grooming and re-seeding of the site after project construction is likely to improve its aesthetic appeal. . The stability berm would include an engineered slope that would require regular maintenance to ensure the berm functions properly in a flood event. Such maintenance would also improve the appearance of the levee over present conditions. Additionally, since there is high land similar to the configuration of the stability berm on either side of the project area, the stability berm would fit more naturally into the visual contours of the area than the existing slope, also contributing to an improvement in the area's aesthetic appeal. As a result none of the significance criteria enumerated above would be expected to apply to the site after project construction and therefore no mitigation would be required.

In addition to the permanent impact created by construction of the berm, there would also be temporary effects to aesthetics during construction activities. Construction of the berm would require the presence and use of heavy construction equipment, haul trucks, worker vehicles, and the placement and compaction of material to form the stability berm. The site would look highly disturbed during and immediately following construction. This would be visually disturbing for anyone using the bike trail on the crown of the levee or riding the Sacramento Southern Railroad Excursion Train. However, recreationists on the river would not be able to see the construction activities since they would all be occurring on the landside of the levee. At the completion of construction, the contractor would be required to clean up any disturbance and reseed the site with native grasses. Once the grasses have established on the stability berm, the area would no longer be in a degraded visual state and the temporary impacts would have ceased. Since these impacts would be limited to the 6 to 12 week construction period, and would not result in a permanent, adverse effect, they are considered less than significant, with the implementation of the avoidance and minimization measures.

Avoidance and Minimization Measures

The following measures would be implemented to reduce the effects associated with aesthetics to less than significant:

- Following construction, the contractor would remove all wastes, equipment, and materials and return the site to a condition similar to the pre-project condition.
- Revegetate any disturbed area by hydroseeding the soil with native grass seed.

3.2.8 Land Use

Section 3.3 of the ARCF GRR Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

The project area is currently owned by the City of Sacramento and California Department of Parks and Recreation. The property is zoned for industrial use, but the site is primarily used as storage for Old Sacramento, and as the staging area for the Old Sacramento horses and carriages. There is an existing land use plan for the area for future development, the Sacramento Docks Area Draft Specific Plan (City of Sacramento, 2008). The Docks Plan, while not finalized, did identify a number of land use policies and future development plans for the project area, including a mixed use residential development, extension of the Riverfront Promenade downstream to Miller Park, relocation of Pioneer Reservoir, and some new park space.

Environmental Effects

Significance Criteria

Effects to land use would be considered significant if they would result in any of the following:

- Conflict with any applicable land use plan, policy, or regulation;
- Conflict with approved Habitat Conservation Plans or Natural Community Conservation Plans;
- Physically divide an established community; or,
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Alternative 1 – No Action

Under the No Action alternative, the Corps would not construct the RDC1 stability berm and the Sacramento River east levee would remain susceptible to through-seepage. No change in land use in the project area related to the proposed action would occur.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would result in a temporary effect to the current land use. The Old Sacramento horses and carriages would be relocated and would have to be staged elsewhere during the two month construction period. Coordination with the City on this relocation would be conducted during preconstruction real estate coordination and would not be considered a significant effect of the project. Following construction, the horse and carriage staging could continue on site, just beyond the footprint of the new stability berm. As a result, these temporary effects are less than significant, and no mitigation would be required.

Construction of the RDC1 stability berm would result in a permanent change to the landscape within the project area. The berm would be a flood control feature that would be subject to the responsibilities associated with the Corps' O&M manual for the site and would require a flood control easement. However, the zoning and current use of the area would not change due to the proposed action and the Docks Plan could still be implemented in the future. The Docks Plan identifies a number of improvements to the overall area necessary prior to development, including raising the full project area to an elevation consistent with the levee crown height. As a result, the presence of the stability berm would not be in conflict with this plan and the City of Sacramento could still implement their proposed redevelopment of the area. As a result, the change in land use from construction of the stability berm would be less than significant, and no mitigation would be required.

Avoidance and Minimization Measures

Because effects to land use from construction of the RDC1 stability berm would be less than significant, no mitigation would be required.

3.2.9 Noise

Section 3.13 of the ARCF GRR Final EIS/EIR describes the regulatory setting and methodology for this resource.

Existing Conditions

There are no nearby permanent, stationary sensitive receptors in close proximity to the proposed project. The California Auto Museum and Front Street Animal Shelter are both 500 feet or more from the proposed construction zone and are already impacted by traffic noise from Interstate 5 and Highway 50. The nearest permanent residences to the project area are approximately ¼ mile to the east, on 3rd Street in downtown Sacramento.

Temporary and mobile sensitive receptors present in the area include homeless people camping in the vicinity of the project area. Additionally, recreationists biking or walking on the Sacramento River Bike Trail would be considered temporary receptors. Any wildlife using the river corridor as nesting or resting habitat would also be sensitive receptors during project implementation.

The City of Sacramento exterior noise standard, as stated in the City's noise ordinance, is 55 A-weighted decibels (dBA) during the hours from 7:00 a.m. to 10:00 p.m. for residential areas. The standard then adjusts to 50 dBA between 10:00 p.m. and 7:00 a.m. for residential areas. The noise ordinance also exempts construction noise during the hours from 7:00 a.m. to 6:00 p.m. Monday through Saturday and from 9:00 a.m. to 6:00 p.m. on Sundays. The ordinance further states that the operation of an internal combustion engine is not exempt if the engine is not equipped with suitable exhaust and intake silencers in good working order (8.68.080 Exemptions, Noise Control Standards, City of Sacramento Municipal Code).

Environmental Effects

Significance Criteria

Construction of the RDC1 Stability Berm would cause a significant adverse noise impact if construction activities resulted in any of the following:

- A substantial temporary or permanent increase in ambient noise levels in the study area above the existing levels.
- Exposure of sensitive receptors to excessive noise levels (those levels that exceed the City of Sacramento noise ordinance, discussed above).
- Exposure of sensitive receptors or structures to groundborne vibration.

Alternative 1 – No Action

Under the No Action alternative, the Corps would not construct the RDC1 stability berm and the Sacramento River east levee would remain susceptible to through-seepage. No temporary change in noise conditions in the project area would occur and conditions would remain consistent with existing conditions.

Alternative 2 – Proposed Action

Construction of the RDC1 stability berm would result in noise generation from construction activities in the vicinity of the project area. This noise would be disturbing for sensitive receptors in and around the project area; however, all of these receptors are transient and capable of relocating themselves during project construction (wildlife, homeless camps, etc.). The closest permanent sensitive receptors, the residents in downtown Sacramento, are unlikely to be affected by project activities, as Interstate 5 runs between the project area and their homes, and likely presents a significantly greater ambient noise condition for those residents that would likely buffer any potential noise effects from construction activities. No construction activity is expected to cause significant ground vibration beyond, or within, the project area.

Because traffic flows on the Interstate 5 freeway create a permanently elevated level of ambient noise within the project area, and because project noise would be temporary and all construction activities would comply with the City of Sacramento Noise Ordinance and its construction work exemption, the project's adverse effects from noise would be less than significant.

Avoidance and Minimization Measures

Although effects from noise during construction of the RDC1 Stability Berm are less than significant, the following measures would still be implemented to further minimize noise levels during construction:

- Display notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences.
- Construction equipment would be equipped with factory-installed muffling devices, and all equipment would be operated and maintained in good working order to minimize noise generation.

3.2.10 Vegetation and Wildlife

Section 3.6 of the ARCF GRR Final EIS/EIR describes the regulatory setting and the methodology for this resource.

Existing Conditions

The project area is primarily disturbed and provides only marginal, degraded habitat for common urban species like the California ground squirrel (*Spermophilus beecheyi*), Western grey squirrel (*Sciurus griseus*), and common birds, raccoons, possums, and other urbanized species due to the presence of stored materials and equipment for the city of Sacramento. The majority of the site consists of a dirt lot with limited grasses and some bushes and trees. On the north edge of the RDC1 Stability Berm footprint, the vegetation transitions into trees along the property line. These trees are primarily non-native tree of heaven (*Ailanthus altissima*), with some intermixed black willow (*Salix nigra*) and pine trees (*Pinus spp*.). The trees are covered with heavy vines such as Himalyan blackberry (*Rubus armeniacus*) and California wild grape (*Vitis californica*). Beyond the fenceline into the adjacent property, the site was, until recently, inaccessible due to thick blackberry shrubs and vines.

On September 25, 2018 a fire started in a nearby homeless camp and burned through the blackberry shrubs, effectively removing them from the project area. Trees along the fenceline bordering the two parcels were scorched, and most will recover from the blaze. The fire drastically changed the preconstruction site condition, as can be seen in Figures 4 and 5 below.

Figure 4. RDC1 Site Condition Before the Fire.

Figure 5. RDC1 Site Condition After the Fire.

Environmental Effects

Significance Criteria

Effects on vegetation and wildlife would be considered significant if the proposed action would result in any of the following:

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including federally protected wetlands and other waters of the U.S., as defined by Section 404 of the Clean Water Act.
- Substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species.
- Substantial conflict with the City of Sacramento Protection of Trees Ordinance.

Alternative 1 – No Action

Under the No Action alternative, the Corps would not construct the RDC1 Stability Berm and the Sacramento River east levee would remain susceptible to through-seepage. No effects to vegetation or wildlife in the project area due to project construction would occur. The site is expected to recover from the fire, with nonnative blackberry shrubs remaining its dominant flora. However, if a flood event were to occur, and floodfighting were required in this area, significant adverse impacts to existing vegetation and any wildlife harboring there could result, including loss of trees and vegetation.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would require the removal of six trees that are currently in conflict with the berm's footprint. Four of the six trees are non-native tree of heaven, with two being black willows. Additionally, four of the six trees are multi-trunk tree clusters. The combined canopy cover of these trees is 0.13 acre. The details of the trees are as follows:

1) Tree of heaven, single trunk, 12 inches diameter at breast height (dbh).
2) Tree of heaven, multi-trunk with 4 stems at 6, 8, 10, and 12 inches dbh.
3) Tree of heaven, multi-trunk with 5 stems, 4 stems at 10 inches dbh and 1 stem at 12 inches dbh.
4) Black willow, multi-trunk with 4 stems, 2 stems at 8 inches dbh, 1 stem each at 6 and 10 inches dbh.
5) Black willow, multi-trunk with 4 stems at 8, 10, 12, and 14 inches dbh.
6) Tree of heaven, single trunk, 12 inches dbh.

In addition to the tree removal, the site would be cleared and grubbed of grasses and small shrubby vegetation prior to construction, including the landside levee slope. Shrubby vegetation and tree stumps and roots would likely be chipped down and hauled out for off-site disposal. The stripped topsoil and grasses could be disposed of off-site, or could be staged onsite for reuse following construction. The trees being removed were not significantly affected by the fire on the site, and the majority of the trees that were affected are outside of the project's potential impact area.

While the tree removal is occurring in the city of Sacramento, a tree permit is not required due to an exemption included in the Tree Ordinance (Sacramento City Code 12.56.080 F). The exemption applies specifically to public agencies working on flood protection work on public properties. Since the Corps, CVFPB, and SAFCA are all public agencies, and the project area is public land owned by the City of Sacramento and California State Parks, this exemption applies to the project and no tree removal permit is required.

In 2015, during preparation of the ARCF GRR EIS/EIR, the Corps coordinated with the U.S. Fish and Wildlife Service (USFWS) under the Fish and Wildlife Coordination Act (legal reference) to consider potential effects to vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, the USFWS issued a final Coordination Act Report to the Corps that provided recommendations to the Corps to mitigate adverse effects to vegetation and wildlife that occur from ARCF 2016 project implementation (USFWS File # 08ESMF00-20 13-CPA-0020). The effects associated with the removal of trees for construction of the RDC1 stability berm are covered under this Coordination Act Report (Appendix A). With implementation of the USFWS recommendations, vegetation removal during construction of the proposed action would be less than significant. These recommendations would also minimize any potential adverse effects to wildlife species and vegetation removal to less than significant.

Following the completion of construction, the RDC1 Stability Berm would be incorporated into the Sacramento River Flood Management System, and thus would be maintained in accordance with typical O&M practices for the levee system. In order to maintain access and visibility for the City workers, the berm would be mowed regularly. This mowing would be consistent with current O&M practices and would not result in a significant adverse effect.

Avoidance, Minimization, and Mitigation Measures

The following recommendations from the USFWS Coordination Act Report would be implementation to minimize effects to vegetation and wildlife to less than significant.

- Woody vegetation that needs to be removed within the construction footprint should be removed during the non-nesting season (November to February) to avoid affecting active migratory bird nests.
- Avoid impacts to migratory birds nesting in trees adjacent to the project area by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. Work around active nests should be avoided until the young

have fledged. The following protocol from the CDFW for Swainson's hawk would be followed for the pre-construction survey for raptors:

A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 mile of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 mile of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Wildlife.

- Avoid future impacts to the site by ensuring all fill material is free of contaminants.
- Minimize project impacts by reseeding all disturbed areas, including staging areas, at the completion of construction with native forbs and grasses. Reseeding should be conducted just prior to the rainy season to enhance germination and plant establishment. The reseeding mix should include species beneficial for native pollinators.
- Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.
- Compensate the loss of oak woodland, riparian forest, riparian scrub-scrub, and emergent wetland at a ratio of at least 2:1. The Corps has coordinated with USFWS and determined that the 2:1 ratio should be applied to habitat canopy acreage. The estimated habitat canopy acreage lost on the RDC1 Stability Berm site is 0.13 acre. As a result, the Corps would mitigate through the planting of 0.26 acre of native riparian woodland species, which would be incorporated into the forthcoming Beach-Stone Lakes Mitigation Site. The draft EA/IS for the Beach-Stone Lakes Mitigation Site will be available for public review in spring 2019.

3.2.11 Water Quality

Section 3.5 of the ARCF GRR Final EIS/EIR (Corps, 2016) describes the regulatory setting and the methodology for this resource.

Existing Conditions

The existing conditions for water quality in the Sacramento River watershed are thoroughly discussed in the EIS/EIR. The project area is located fully on the landside of the levee, and there are no surface water features in the impact area. There are curbs and stormwater drainage features along Front Street which drain to the river.

Environmental Effects

Significance Criteria

An effect to water quality from construction of the RDC1 Stability Berm would be considered significant if it would:

- Violate water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with ground water recharge;
- Substantially degrade water quality; and/or,
- Alter regional or local flows resulting in substantial increases in erosion or sedimentation.

Alternative 1 – No Action

Under the No Action alternative, the Corps would not construct the RDC1 Stability Berm and the Sacramento River east levee would remain susceptible to through-seepage. No adverse effects to water quality in the project area due to project construction would occur. However, in the event of levee failure and a consequent flood, there would likely be a significant degradation of water quality in the watershed including contaminants and wastes washed into floodwaters, creating hazardous water quality conditions within an indeterminate area for an indeterminate period.

Alternative 2 – Proposed Action

Construction of the RDC1 Stability Berm would not affect the Sacramento River, since all construction activities would be conducted on the landside of the levee. However turbid runoff water from earth-moving activities could enter the stormwater system along Front Street. By implementing appropriate avoidance and minimization measures during construction, including a site-specific Stormwater Pollution Prevention Plan (SWPPP), the impact of this adverse effect, if any, would be reduced to less than significant.

Since the proposed action involves only limited and shallow excavation work adverse effects to groundwater are unlikely. The risk of spills of fuels and oils occurring during equipment maintenance in the staging area would be reduced by implementation of appropriate avoidance and minimization measures detailed below. Accordingly no significant adverse impact to groundwater quality is expected.

Avoidance and Minimization Measures

Prior to construction, contractor would be required to prepare and implement a SWPPP and would obtain a National Pollution Discharge Elimination System permit, as applicable, and comply with all conditions of the permit. This plan will detail the construction activities to take place, Best Management Practices (BMPs) to be implemented to prevent any discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted. By applying these requirements, effects on water quality due to the proposed action would be less than significant.

4.0 CUMULATIVE EFFECTS

NEPA and CEQA require the consideration of cumulative effects of the proposed action, combined with the effects of other projects. NEPA defines a cumulative effect as an effect on the environment consisting of the incremental effect of an action when combined with other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 C.F.R. § 1508.7). The CEQA Guidelines define cumulative effects as "two or more individual effects which, when considered together, compound or increase other environmental impacts" (C.C.R. Section 15355).

Cumulative environmental effects expected from the overall ARCF 2016 project were covered in Section 4.2 of the ARCF GRR EIS/EIR (Corps, 2016). The analysis in the EIS/EIR sets up a thorough methodology and defines a geographic scope for ARCF 2016 and is incorporated here by reference. The temporal scope for purposes of the RDC1 Stability Berm cumulative effects analysis will include past projects that continue to effect the project area in the summer of 2019, projects that are under construction in the summer of 2019, and future projects that are reasonably foreseeable that could impact the future operation of the RDC1 Stability Berm.

4.1 Past, Present, and Reasonably Foreseeable Future Projects

The ARCF GRR EIS/EIR established a number of other area projects that were considered in the cumulative effects analysis for the overall ARCF 2016 project. However, since the RDC1 Stability Berm project area is just a fraction of the overall ARCF 2016 project, the list below includes past, present and reasonably foreseeable future projects within a narrow geographic and temporal scope consistent with the small footprint of this action.

4.1.1 Lower American River Common Features Project

Based on congressional authorizations in WRDA 1996 and WRDA 1999, the Corps, CVFPB, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 1996, this involved the construction of 26 miles of slurry walls on the American River. The WRDA 1999 authorization included a variety of additional levee improvements to ensure that the levees could pass an emergency release of 160,000 cubic feet per second (cfs), such as levee raises and levee widening improvements. The WRDA 1996 and 1999 projects were completed in 2014.

4.1.2 American River Common Features, Natomas Basin Project

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consisted of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and the Corps initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally-authorized American River Common Features, Natomas Basin Project. Construction on the early implementation project was completed in 2013, and included approximately 18 miles of levee improvements.

The remaining 24 miles of levee improvements under the ARCF Natomas Basin Project were authorized in the Water Resources Reform and Development Act of 2014. The Corps initiated construction in 2018 on the Natomas Cross Canal in Sutter County, and on the American River north levee adjacent to Discovery Park. Proposed improvement primarily involve constructing cutoff walls through the levees, or alternatively an adjacent levee in some reaches. Construction on the Natomas Basin Project is anticipated to continue through 2024.

4.1.3 Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP was instituted in 1960 to be constructed in phases. Bank protection has generally been constructed on an annual basis. Phase I was constructed from 1963 to 1975, and consisted of 436,397 linear feet of bank protection. Phase II was authorized in 1974 and provided 405,000 linear feet of bank protection. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1965, erosion control projects at twelve sites covering 16,141 linear feet of the south and north banks of the lower American River have been implemented. This is an ongoing project, and additional sites requiring maintenance will continue to be identified indefinitely until the remaining authority of 4,966 linear feet is exhausted over the next 3 years. WRDA 2007 authorized an additional 80,000 linear feet of bank protection to Phase II, which will be initiated upon approval of the SRBPP Post Authorization Change Report. Construction proposed for 2019 includes a site on the Feather River levee well to the north of the RDC1 project area.

4.1.4 West Sacramento GRR

The West Sacramento GRR study determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the West Sacramento GRR is to bring the 50-miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address: (1) seepage; (2) stability; (3) levee height; and (4) erosion

concerns along the West Sacramento levee system. Measures to address these concerns would include: (1) seepage cutoff walls; (2) stability berms; (3) stability berms; (4) levee raises; (5) flood walls; (6) relief wells; (7) sheet pile walls; (8) jet grouting; and (9) bank protection. The GRR was authorized in WRDA 2016, and in the Fiscal Year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency's Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along Sacramento River in the northern portion of the city near the neighborhood of Bryte, and improvements to the south levee of the Sacramento Bypass. In addition, the Southport setback levee is currently under construction as part of a local effort, which includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin.

4.1.5 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project (JFP), addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated the project included: the Folsom Dam Auxiliary Spillway, static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The Folsom JFP was completed in fall 2017.

4.1.6 Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual (WCM) is being updated to reflect authorized changes to the flood management and dam safety operations at Folsom Dam to reduce flood risk in the Sacramento area. The WCM Update will utilize the existing and authorized physical features of the dam and reservoir, specifically the recently completed auxiliary spillway. Along with evaluating operational changes to utilize the additional operational capabilities created by the auxiliary spillway, the WCM Update will assess the use of available technologies to enhance the flood risk management performance of Folsom Dam to include a refinement of the basin wetness parameters and the use of real time forecasting to inform dam operation. Further, the WCM Update will evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in an Engineering Report as well as a Water Control Manual that implements the recommendations of the analysis.

It should be noted that the initial WCM Update effort will focus on additional operational capabilities created by the auxiliary spillway. The Water Control Manual will be further revised in the future to reflect the capabilities to be provided by the Folsom Dam Raise Project and ARCF 2016, as appropriate.

4.1.7 Folsom Dam Raise Project

Construction of the Folsom Dam Raise project would follow completion of the JFP and the WCM projects The Dam Raise project includes raising the right and left wing dams, Mormon Island Auxiliary Dam and dikes 1-8 around Folsom Reservoir by 3.5 feet. Similar to the ARCF 2016 Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction on the Folsom Dam Raise Project is scheduled to begin in 2019 with the Dike 8 construction, followed by Dike 7 in 2020, Dikes 1 through 3, the wing dams, and MIAD in 2021, and completing the project with Dikes 4 through 6 in 2022.

4.1.8 American River Common Features 2016 Project

The greater ARCF 2016 project is scheduled for construction from 2019 through 2024. The project will involve construction of levee improvements along the American and Sacramento River levees, as well as proposed improvements to the Natomas East Main Drainage Canal (NEMDC) east levee and Magpie Creek. The levee improvements scheduled for implementation include construction of cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee. In addition, the Corps would widen the Sacramento Weir and Bypass. The project would also involve construction of a number of mitigation sites in the area.

In the summer of 2019, the first mitigation site is scheduled to be constructed concurrently with RDC1. SAFCA will lead construction on a riparian and woodland mitigation site referred to as the Beach-Stone Lakes Mitigation Site (BSLMS) adjacent to the Sacramento River and Morrison Creek near the southern limits of the ARCF 2016 project area. The BSLMS would incorporate mitigation for the impacts to trees associated with the RDC1 Stability Berm construction, as well as other construction actions planned for 2020 and 2021 along the Sacramento River east levee.

4.1.9 The Bridge District Redevelopment

The Bridge District Specific Plan, formerly the Triangle Plan, was adopted in 1993 and significantly updated in 2009 (City of West Sacramento, 2009). The intent of the Bridge District Specific Plan was to provide a framework for the development of a well-planned, waterfront orientated urban district for the City of West Sacramento along the west bank of the Sacramento River. The transition from the industrial past to the vision of an urban mixed-use district is well underway. A number of housing complexes have been built, as well as other riverfront recreational improvements, and the Barn, a local event space and beer garden just south of Raley Field along the Sacramento River. Ongoing development includes additional housing units that are currently under construction.

4.1.10 Sacramento Railyards Redevelopment

The Railyards property is located just north of Downtown and south of the River District. Once serving as the western terminus of the 1860s Transcontinental Railroad, the largest locomotive repair and maintenance facility west of the Mississippi River. Today the Railyards continue to house a major transportation hub and the City of Sacramento has proposed to redevelop the area into a mixed-use, transit-oriented development. The historic 244-acre Southern Pacific site will be transformed into a dynamic, urban environment featuring a state-of-the-art mass transit hub that will serve residents, workers, and visitors. In October, 2016, the City Council approved planning entitlement for the Sacramento Railyards. The project includes housing units, retail space, office space, a medical campus, hotels, parks, and a soccer stadium (City of Sacramento, 2018).

4.1.10 I Street Bridge Replacement Project

The City of Sacramento and City of West Sacramento are partnering on replacement of the over 100 year old I Street Bridge. The I Street Bridge Replacement project will include construction of a new bridge upstream of the existing I Street Bridge. The new bridge will cross the Sacramento River between the Sacramento Railyards and the West Sacramento Washington planned developments and provide a new bicycle, pedestrian, and automobile crossing. The existing I Street Bridge would continue to be used by the railroad. The approach viaducts to the existing I Street Bridge will be demolished, which should result in better access to the water front in both cities. A draft EA/EIR was released for public review in the fall of 2017. Construction is not anticipated to begin until 2021.

4.2 Cumulative Effects Analysis

4.2.1 Air Quality

Air pollutant emissions from the proposed action would combine with other local construction projects scheduled for the summer of 2019 to create a cumulative effect, including the Natomas Basin Project, the multiple redevelopment projects, and the BSLMS. The incremental addition of each of these actions occurring simultaneously could contribute to emissions of pollutants that could exceed local threshold levels. However, the emissions associated with the RDC1 Stability Berm are comparatively low and would be minimized to the maximum extent practicable through adherence to best management practices. Additionally, each local project would be required to implement mitigation to reduce its emissions. Any project that violates applicable air quality thresholds would be required to purchase offset credits to mitigate for its adverse impacts. Modeling shown in Section 3.2.1 above indicates that the incremental contribution of air pollutants from the RDC1 project would be extremely low. As a result, the project's cumulative effect on air quality would be less than significant, in light of its small scale, short duration, and implementation of the proposed avoidance and minimization measures enumerated in Section 3.2.1.

4.2.2 Climate Change

It is unlikely that any single project by itself could have a significant impact on the environment with respect to GHGs. However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which, in turn, have been shown to be the main cause of global climate change (IPCC 2014). Therefore, the analysis of the environmental effects of GHG emissions is inherently a cumulative impact issue. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world are causing a cumulative effect with respect to global climate change.

Similar to air quality, the cumulative emissions associated with construction of RDC1, BSLMS, and the Natomas Basin project, in addition to local redevelopment actions could contribute to a local exceedance of the SMAQMD threshold for GHG emissions during the 2019 construction season. Each of these projects would be required to reduce its GHG emissions to the maximum extent practicable in accordance with State policies. Similarly, the RDC1 Stability Berm project would implement additional emission reduction measures as detailed in Sections 3.2.1 and 3.2.2 in order to minimize effects to the maximum extent practicable. The GHG emissions associated with this action are minimal, when compared to other sources contributing to the cumulative condition in the Sacramento region. As a result, with the implementation of the minimization measures, cumulative effects would be less than significant.

In addition, many of the related projects are flood risk management projects. By implementing these projects, the action agencies would be reducing potential future emissions associated with flood fighting and future emergency actions. The related projects could combine to reduce long-term potential GHG emissions in the Sacramento metropolitan area. As a result, the overall cumulative GHG emissions from these projects are considered to be less than significant.

4.2.3 Cultural Resources

Cumulative effects to cultural resources were adequately covered in the ARCF GRR EIS/EIR (Corps, 2016). The relevant new information for this EA/IS incorporates the temporal scope of the project, and identifies the projects being constructed concurrently with this action (i.e., the redevelopment projects, Natomas Basin Project, and BSLMS). The effects associated with these actions remain consistent with those described in the EIS/EIR, including cumulative effects associated with the described past and future projects.

4.2.4 Hazardous Wastes and Materials

The ARCF GRR EIS/EIR did not identify any potential cumulative effects to hazardous wastes from implementation of the overall project, in combination with other local projects. No new information has been identified to change this determination. Effects associated with hazardous wastes would be site-specific and would not combine with effects from other local projects to create a cumulative effect.

4.2.5 Recreation

The ARCF GRR EIS/EIR concluded that cumulative effects to recreation would only occur if two projects were constructing adjacent to each other, such as the ARCF 2016 project and the West Sacramento GRR. This is not anticipated to occur during the summer of 2019 when the RDC1 Stability Berm project would be under construction. Furthermore, the RDC1 project would not result in the closure of any recreation facilities, so there would be no cumulative effects to recreation that would result from this action.

4.2.6 Traffic

The ARCF GRR EIS/EIR did not identify any potential cumulative effects to traffic from implementation of the overall project, in combination with other local projects, since access and haul routes had not been identified at the time of the study. Of the identified local projects above, the only project that could potentially have a conflict with the RDC1 Stability Berm's haul traffic is any hauling associated with the Sacramento Railyards Redevelopment project, which is scheduled to potentially have two phases under construction in 2019: the new Kaiser Permanente campus, and a residential development.

The likely access route for the RDC1 Stability Berm would likely be via Highway 50 to Broadway to Front Street, and the likely access route for the Railyards is likely Interstate 5 to Richards Boulevard. The RDC1 Stability Berm's haul route is not likely to be used by the Railyards project, as it would require Railyards haul vehicles to access the area through Old Sacramento, which would not be an efficient transportation route. Similarly, if Corps construction vehicles used Interstate 5 to Richards Boulevard or J Street to access the project area, they would also need to either access through Old Sacramento or other more congested parts of downtown Sacramento. As a result, it is reasonable to assume that haul routes from these projects would not be in conflict with each other. Therefore, the Corps has determined that cumulative effects from these actions would be less than significant, with the implementation of the minimization measures discussed for the RDC1 Stability Berm project, including repairing any damage to local roadways.

4.2.7 Aesthetics

While the local projects identified above could cause a cumulative loss of visual quality during and after construction, none of these projects are in the same viewscape as the RDC1 Stability Berm. As a result, no adverse cumulative effects associated with implementation of the proposed action is anticipated.

4.2.8 Land Use

The ARCF GRR EIS/EIR did not identify any potential cumulative effects to land use from implementation of the overall project, in combination with other local projects. No new information has been identified to change this determination. Effects associated with land use would be site-specific and would not combine with effects from other local projects to create a cumulative effect.

4.2.9 Noise

The only projects assessed in the ARCF GRR EIS/EIR in close enough proximity to the RDC1 Stability Berm project to create a potentially adverse cumulative noise effect would be the West Sacramento GRR and the Bridge District redevelopment. However, the West Sacramento GRR would not be constructed adjacent to the RDC1 project area during the summer of 2019. The Bridge District redevelopment would likely be occurring in 2019, however, with both projects constructing during noise exemption hours, any cumulative effects would likely be less than significant. The additional local development projects identified in this EA/IS are not in sufficient proximity to the project area to contribute to a cumulative adverse noise effect.

4.2.10 Vegetation and Wildlife

Impacts to vegetation and wildlife associated with the RDC1 Stability Berm, including the removal of the six identified trees, are not likely to contribute with other local projects to create a cumulative effect. The trees being removed under this action are on the landside of the levee and only provide intermittent habitat for species using the riparian corridor. Additionally, since the trees are primarily invasive, removing them and mitigating with native tree species is a beneficial impact to the overall ecosystem. Other flood risk management actions, as discussed in the ARCF GRR EIS/EIR, including future ARCF 2016 project actions, will result in further vegetation removal. However, mitigation actions such as the BSLMS will offset these effects. As a result, and with the implementation of the minimization measures discussed in Section 3.2.10 above, any cumulative effects to vegetation and wildlife would be less than significant.

4.2.11 Water Quality

The ARCF GRR EIS/EIR identified potential cumulative effects to water quality resulting from the combined effects of waterside construction and related increased turbidity in the Sacramento River. Since the RDC1 Stability Berm involves only landside work, and since any potential impacts from stormwater runoff would be minimized through implementation of required permits and BMPs, the RDC1 Stability Berm would not contribute to a cumulative adverse effect to water quality.

5.0 COMPLIANCE WITH LAWS AND REGULATIONS

5.1 Federal Laws and Regulations

5.1.1 Clean Air Act of 1972, as amended (42 U.S.C. 7401, et seq.)

Full Compliance. The Clean Air Act established National Ambient Air Quality Standards (NAAQS) and requires state and local agencies to develop State Implementation Plans (SIPs) for areas that exceed the NAAQS. Table 1 shows the maximum levels of pollutants allowed to remain in compliance with CAA regulations in the SMAQMD and Table 2 illustrates the estimated emissions based on the SMAQMD Road Construction Emissions Model (see Section 3.2.1, above). This analysis shows minimal emissions caused by the proposed action, and the proposed action is within general conformity limits, therefore the RDC1 Stability Berm project would be in full compliance with the Clean Air Act and General Conformity Rule.

5.1.2 Clean Water Act of 1972, as amended (33 U.S.C. 1251, et seq.)

Full Compliance. The Clean Water Act is the primary federal law governing water pollution. The proposed action would not involve the placement of fill materials or construction within surface waters, local waterways, or any other Waters of the U.S., therefore, the project is in full compliance with Section 401 and 404 of the Clean Water Act. Prior to construction, the contractor will be required to obtain a NPDES permit for potential effects to storm water discharge, including preparation of a SWPPP. With the implementation of these permits, the RDC1 Stability Berm project would be in full compliance with the Clean Water Act.

5.1.3 Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)

Full Compliance. There is no habitat for, or presence of, any Federally listed species in the RDC1 project area, so no consultation was required. Because the project would not trigger any requirements under the ESA, full compliance is assured.

5.1.4 Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661, et seq.)

Full Compliance. The Fish and Wildlife Coordination Act requires federal agencies implementing water resource projects to consult with USFWS, NMFS, and California Department of Fish and Wildlife (CDFW) to determine a project's impacts to fish and wildlife. The Federal agency is required to consider the resource agencies' recommendations for mitigation to be implemented to address project effects. In 2015, during preparation of the ARCF GRR EIS/EIR, the Corps coordinated with USFWS to consider potential effects to vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, the USFWS issued a final Coordination Act Report to the Corps that provided mitigation

recommendations to the Corps (USFWS File # 08ESMF00-20 13-CPA-0020). The Corps considered all recommendations and responded to them in the final ARCF GRR EIS/EIR. Recommendations from the Coordination Act Report are proposed for implementation to reduce effects associated with tree removal for the RDC1 Stability Berm construction. The proposed action would therefore be in full compliance with this Act.

5.1.5 Migratory Bird Treaty Act of 1936, as amended (16 U.S.C. 703, et seq.)

Full Compliance. The Migratory Bird Treaty Act (MBTA) protects migrating birds from harm due to Federal projects. Surveys for migratory birds were conducted in 2018, with no presence of nesting migratory birds found in the project area. Surveys will be conducted again in 2019 prior to any construction. If nesting migratory birds are found to be occupying the project area, the Corps, CVFPB, and SAFCA would coordinate with the CDFW to determine necessary avoidance and minimization measures to reduce these effects. The RDC1 Stability Berm project would therefore be in full compliance with this Act.

5.1.6 National Environmental Policy Act of 1969, as amended (42 U.S.C. 431, et seq.)

Partial Compliance. NEPA applies to all federal actions that affect the natural and human environment, and requires the full disclosure of all potential effects associated with the proposed action. Comments received during the public review period will be considered and incorporated into the final EA/IS. The District Engineer will determine if the proposed action qualifies for a FONSI or if an EIS must be prepared. These actions will complete the Corps' compliance with this Act.

5.1.7 National Historic Preservation Act of 1966, as amended (54 U.S.C. 300101)

Full Compliance. Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of a proposed undertaking on that properties that have been determined to be eligible for, or included in, the National Register of Historic Places (NRHP). Compliance with Section 106 for the overall ARCF 2016 project is achieved through a Programmatic Agreement, which was executed for the final ARCF GRR on September 10, 2015. The Programmatic Agreement stipulates the process for assessing effects and establishing mitigation for cultural and historic resources. With the execution of the Programmatic Agreement, the RDC1 Stability Berm project would therefore be in full compliance with the National Historic Preservation Act.

5.2 State and Local Laws and Regulations

5.2.1 California Clean Air Act of 1988, California Health and Safety Code § 40910, et seq.

Full Compliance. Section 3.2.1 of this document discusses the effects of the proposed Project on local and regional air quality. The CARB is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emissions and goals, and development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act (CCCA) requires projects to determine whether emission sources and emission levels significantly affect air quality based on Federal standards established by the USEPA and State standards set by CARB. SMAQMD has local jurisdiction over the Project area. The analysis in Section 3.2.1 shows that expected short-term Project-related emissions are not expected to exceed local thresholds of the CCCA as administered by SMAQMD or annual general conformity thresholds. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year. Although the Proposed Action would cause GHG emissions from its use of construction-related equipment, emissions are not expected to exceed local thresholds established by SMAQMD. Additional BMPs will be incorporated to reduce GHG emissions during construction, to the maximum extent feasible.

5.2.2 California Environmental Quality Act of 1970, California Public Resources Code § 21000-21177

Partial Compliance. The CVFPB as the non-federal sponsor and CEQA lead agency, will undertake activities to ensure compliance with the requirements of this Act. CEQA requires the full disclosure of the environmental effects, potential mitigation, and environmental compliance of the Project. Adoption of this EA/IS and a MND by the CVFPB will provide full compliance with the requirements of CEQA.

5.2.3 California Endangered Species Act, 14 C.C.R. § 783-786.6

Full Compliance. This Act requires non-federal agencies to consider the potential adverse effects to State-listed species. As discussed in Section 3.2.1 of this document, activities associated with the Proposed Action are not anticipated to adversely impact any State-listed species, so no further action is required to achieve compliance with this Act.

5.2.4 California Fish and Game Code §3503

Full Compliance. Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests of eggs of any bird. Section 3503.3 states that it is unlawful to take, possess, or destroy any raptors, including nests or eggs. As discussed in Section 3.2.10 of this document, activities associated with the proposed project are not anticipated to adversely impact nesting birds, raptors, or their eggs. Surveys for nesting and migratory birds were conducted in 2018, with no presence found in the project area. Surveys will be conducted again in 2019 prior to any construction. If nesting birds or raptors are found to be occupying the project area, the Corps, CVFPB, and SAFCA would coordinate with CDFW to determine necessary avoidance and minimization measures to reduce these effects.

5.2.5 Porter-Cologne Water Quality Control Act of 1970

Full Compliance. This Act requires that each of the State's nine Regional Water Quality Control Boards (RWQCBs) prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes Federally protected waters as well as areas that meet the definition of "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the State's boundaries. There are no waters within the RDC1 Stability Berm project area qualify as Waters of the State, so no further action is required to remain compliant with this Act.

5.2.6 City of Sacramento Tree Ordinances

Full Compliance. City of Sacramento Tree Ordinances. Ordinance No. 2016-0026 of the Sacramento City Code addresses the protection of trees within the City boundaries, including general protection of all trees on City property and specific protection of certain trees located on private property deemed Private Protected Trees. Per Section 12.56.080F, a tree permit is not required for a public agency that performs any flood protection work on public property or within a public easement that may cause injury to or the removal of a city tree or private protected tree. This exemption would apply to the RDC1 Stability Berm.

6.0 FINDINGS

This EA/IS evaluated the environmental effects of the proposed RDC1 Stability Berm. Potential adverse effects to the following resources were evaluated in detail: air quality, climate change, cultural resources, hazardous wastes and materials, recreation, traffic, aesthetics, land use, noise, vegetation and wildlife, and water quality.

Analysis provided in the EA/IS together with field visits and coordination with other agencies, indicates that the proposed project would have no significant long-term adverse effects on environmental resources. Short-term effects during construction would either be less than significant or would be minimized to less than significance using best management practices.

Based on this evaluation, the proposed project qualifies for a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a draft FONSI has been prepared and accompanies this EA.

Based on this evaluation, the proposed project meets the requirement of a mitigated negative declaration, which may be prepared when there is no substantial evidence that a project or any of its aspects could result in significant impacts to the environment (CEQA Guidelines Section 15070). Therefore, a draft mitigated negative declaration has been prepared and accompanies this IS.

7.0 LIST OF PREPARERS

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8.0 REFERENCES

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Appendix A

ARCF GRR
Coordination Act Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2013-CPA-0020

OCT - 5 2015

Alicia E. Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Dear Ms. Kirchner:

The U.S. Army Corps of Engineers' (Corps) has requested coordination under the Fish and Wildlife Coordination Act (FWCA) for the American River Common Features General Re-evaluation Report (GRR) project. The proposed flood risk management construction would occur along the lower American River and the Sacramento River in Sacramento County, California. The enclosed report constitutes the U.S. Fish and Wildlife Service's draft FWCA report for the proposed project. A draft FWCA report was provided to the Corps and other state and federal resource agencies on September 20, 2013. We did not receive any comments on the draft FWCA report.

If you have any questions regarding this report on the proposed project, please contact Jennifer Hobbs, Fish and Wildlife Biologist, at (916) 414-6541.

Sincerely,

for Jennifer M. Norris
Field Supervisor

Enclosure:

cc:
Anne Baker, COE, Sacramento, CA
Amy Kennedy, CDFW, Rancho Cordova, CA
Howard Brown, NOAA Fisheries, Sacramento, CA
Steve Schoenberg, Bay Delta Fish and Wildlife Office, Sacramento, CA

FISH AND WILDLIFE COORDINATION ACT REPORT
AMERICAN RIVER COMMON FEATURES
GENERAL RE-EVALUATION REPORT PROJECT

OCTOBER 2015

BACKGROUND

In February 1986, major storms in northern California caused record flows along the American River. Water releases from Folsom Reservoir into the American River, in combination with high flows on the Sacramento River, almost caused catastrophic flooding to the city of Sacramento and surrounding areas. The result of the February 1986 storms raised concerns over the adequacy of the existing flood control system, which led to a series of investigations to provide additional flood protection to the Sacramento area.

The U.S. Army Corps of Engineers (Corps) completed an initial feasibility study in December 1991 for the American River and Natomas Basin areas. The feasibility report recommended the construction of a concrete gravity flood detention dam just downstream of the confluence of the North and Middle Forks of the American River, and for levee improvements downstream of Folsom Dam. Due to environmental and cost concerns, Congress chose not to authorize the proposed detention dam and instead directed the Corps to supplement the analysis of flood control options considered in the 1991 study.

A supplemental study was completed and presented in the *Supplemental Information Report American River Watershed Project, California*, dated March 1996. The report presented three possible flood control plans: (1) the construction of the concrete gravity flood detention dam recommended in the 1991 report; (2) Folsom Dam improvements; and (3) a stepped release plan for Folsom Dam releases. The report also concluded that levee improvements downstream of Folsom Dam were needed and that these levee improvements were "common" to all three plans. Under the Water Resources Development Act of 1996 (WRDA 96), Congress authorized the American River Common Features Project (Common Features Project), which included levee modifications on both banks of the American River, levee modifications along the east bank of the Sacramento River downstream from the Natomas Cross Canal, installation of streamflow gauges upstream from Folsom Reservoir, modification of the flood warning system along the lower American River, and continued interim reoperation of Folsom Reservoir for flood control.

In 1999, Congress decided to authorize improvements to Folsom Dam to control a 200-year flood event with a peak release of 160,000 cubic feet per second (cfs) from the dam. By doing this, improvements to levees downstream of Folsom Dam could be fine-tuned to work closely with the Folsom Dam improvements being discussed by Congress. Subsequently, the Common Features Project was modified by the Water Resources Development Act of 1999 (WRDA 99) to include additional features so the American River could safely convey an emergency release of 160,000 cfs. Also authorized under WRDA 99 was the Folsom Dam Modification project, which would allow for larger releases from Folsom Dam earlier in a flood event. At the same time, Congress also directed the Corps to review additional modifications to the flood storage of Folsom Dam to maximize the use of the dam for flood damage reduction prior to consideration of any additional storage on the American River. The Folsom Dam Raise project was subsequently authorized by Congress in 2004.

Major construction components for the Common Features Project under the WRDA 96 authorization include construction of seepage remediation along about 22 miles of the American River levees. Under the WRDA 99 authorization, the major construction components include construction of seepage remediation and levee raises along four stretches of the American River. All Common Features Project features authorized under WRDA 96 and WRDA 99 have been constructed or are in design analysis for construction, and the U.S. Fish and Wildlife Service (Service) has previously coordinated with the Corps on the various aspects of the Common Features Project.

Deep under-seepage became a significant concern along the American River levees following a flood event in 1997. Since the levee improvements along the American River were still in the design phase, remediation of deep under-seepage needed to be included in the design plans. This additional effort led to considerable cost increases over what was originally authorized by Congress for the Common Features Project, including the WRDA 99 improvements that had already increased the cost of the original WRDA 96 authorization.

The Folsom Dam Post Authorization Change Report and the Economic Re-evaluation Report for Folsom Dam Improvements revealed that additional levee improvements were needed on the American and Sacramento Rivers in order to truly capture the benefits of the Folsom Dam projects. These levee deficiencies consisted primarily of erosion concerns on the American River, and seepage, stability, erosion, and height deficiencies on the Sacramento River downstream of its confluence with the American River. However, the full extent of these levee deficiencies was not known and additional re-evaluation studies were needed for the flood basins that comprise the city of Sacramento.

The purpose of the Common Features Project is to reduce the flood risk for the city of Sacramento. The following problems were identified within the Sacramento levee system:

- seepage and underseepage;
- levee erosion;
- levee stability;
- levee overtopping;
- access for maintenance and flood fighting;
- vegetation and encroachments;
- releases from Folsom Dam;
- floodplain management; and
- additional upstream storage from existing reservoirs.

DESCRIPTION OF PROJECT AREA

The project area is located along the Sacramento and American River watersheds. The Sacramento River watershed covers 26,000 square miles in central and northern California. Major tributaries of the Sacramento River include the Feather, Yuba, and American Rivers. The American River watershed covers about 2,100 square miles northeast of Sacramento and includes portions of Placer, El Dorado, Alpine, and Sacramento counties. The American River watershed includes Folsom Dam and Folsom Reservoir; inflowing rivers and streams, including the North, South and Middle forks of the American River; and the American River downstream to its confluence with the Sacramento

River in the city of Sacramento. The Sacramento and American rivers form a floodplain covering roughly 110,000 acres at their confluence. This floodplain includes most of the developed portions of the city of Sacramento.

The American River Common Features GRR study area includes: about 12 miles of the north and south banks of the American River immediately upstream of its confluence with the Sacramento River; the east bank of the Natomas East Main Drainage Canal (NEMDC), Dry Creek, Robla Creek, Arcade Creek, and the Magpie Creek Diversion Channel (collectively referred to as the East Side Tributaries); the east bank of the Sacramento River downstream from the American River to the town of Freeport, where the levee ties into the Beach Lake levee; and the Sacramento Weir and Bypass, which is located along the north edge of the city of West Sacramento.

Within the greater project area, there are four distinct flood basins: the American River North Basin, the American River South Basin, the Sacramento Bypass and the Natomas Basin. These basins are described in further detail below.

The American River North Basin is located north of the American River and east of the city of Natomas, and includes the North Sacramento and Arden Arcade communities. Project construction in this basin includes the levees on the north bank of the American River, levees on the east bank of NEMDC, and levees along Arcade Creek, Dry/Robla Creek, and the Magpie Creek Diversion Channel.

The American River South Basin is located south of the American River and east of the Sacramento River. Communities protected by these project levees include Downtown Sacramento, Land Park, Pocket-Meadowview, East Sacramento, South Sacramento and Rancho Cordova. Project construction in this basin would be limited to the south bank of the American River and the east bank of the Sacramento River.

The Sacramento Bypass is located in Yolo County, about 4 miles west of the city of Sacramento and along the northern edge of the city of West Sacramento. The Sacramento Weir runs along the west bank of the Sacramento River and connects the river to the Bypass. The Bypass is located in a rural area owned by the State of California and operated as the Sacramento Bypass Wildlife Area.

The Natomas Basin is located in the northern portion of the study area and is located east of the Sacramento River, west of NEMDC, and north of the American River. The Natomas Basin is considered to be a part of the study area, as described by the GRR; however, the proposed measures to raise the height of the Natomas Basin levees were previously analyzed in the Natomas Levee Improvement Program, Phase 4b Landside Improvements Project (NLIP Phase 4b Project) in 2010. Therefore, the Natomas Basin will not be analyzed in this document.

PROJECT DESCRIPTION

The purpose of the Common Features GRR is to determine if there is a Federal interest in modifying the authorized Common Features Project for flood risk management in the greater Sacramento area. National Environmental Policy Act (NEPA) evaluation is required when a major Federal action is under consideration and may have impacts on the quality of the natural and human environment. The Corps has determined that the proposed project may have significant effects on the environment and therefore, an EIS is required.

The Common Features GRR has identified a number of problems associated with the flood risk management system protecting the city of Sacramento and surrounding areas. There is a high probability that flows in the American and Sacramento Rivers would stress the network of levees protecting Sacramento to the point that levees could fail. The consequences of such a levee failure would be catastrophic since the area inundated by flood water is highly urbanized and the flooding could be up to 20 feet deep.

A wide variety of management measures were developed and then evaluated and screened to address the planning objectives to remedy the Sacramento area levee problems. Formulation strategies were then developed to address various combinations of the planning objectives and planning constraints. The formulation strategies used to address the objectives and constraints included measures to reduce flood stages, address seepage and underseepage, address stability, address erosion, address maintenance/emergency response access, and achieve the urban levee level of protection. Based upon these strategies, various combinations of the measures were assembled to form an array of preliminary plans. The preliminary plans were then evaluated, screened, and reformulated, resulting in a final array of alternatives. From this final array of alternatives, a tentatively selected plan was identified.

No Action Alternative

The Corps is required to consider a No Action Alternative as one of the alternatives for selection in order to comply with the requirements of NEPA. With the No Action Alternative, it is assumed that no additional features would be implemented by the Corps or by local interests to achieve the planning objectives over and above those elements of the previously authorized Common Features Project.

Under the No Action Alternative the Corps would not conduct any additional work to address seepage, slope stability, overtopping, or erosion concerns in the Sacramento metropolitan area. As a result, if a high flow event were to occur, the Sacramento area would remain at risk of a possible levee failure.

The urban development within the project area would continue to be at risk of flooding and lives would continue to be threatened. The levees within the study area could fail and result in a catastrophic disaster. If a levee failure were to occur, major government facilities would be impacted until the flood waters recede. Within the study area are many transportation corridors that could be flooded as well if the levees were to fail.

Alternative 1: Fix Levees in Place

Alternative 1 involves the construction of fix-in-place levee remediation measures to address seepage, stability, erosion, and overtopping concerns identified for the American and Sacramento river levees, and the East Side Tributaries. In addition, Alternative 1 would include levee raises for the Natomas Basin, which were analyzed under NEPA in the NLIP Phase 4b Project EIS/EIR in 2010. As a result, this FWCA report incorporates the analysis of the levee raise by reference, but is not discussed within this report.
Due to the urban nature and proximity of existing development within the American River North and South Basins, Alternative 1 proposes fix in place remediation. The purpose of this alternative would be to improve the flood damage reduction system to safely convey flows to a level that

River in the city of Sacramento. The Sacramento and American rivers form a floodplain covering roughly 110,000 acres at their confluence. This floodplain includes most of the developed portions of the city of Sacramento.

The American River Common Features GRR study area includes: about 12 miles of the north and south banks of the American River immediately upstream of its confluence with the Sacramento River; the east bank of the Natomas East Main Drainage Canal (NEMDC), Dry Creek, Robla Creek, Arcade Creek, and the Magpie Creek Diversion Channel (collectively referred to as the East Side Tributaries); the east bank of the Sacramento River downstream from the American River to the town of Freeport, where the levee ties into the Beach Lake levee; and the Sacramento Weir and Bypass, which is located along the north edge of the city of West Sacramento.

Within the greater project area, there are four distinct flood basins: the American River North Basin, the American River South Basin, the Sacramento Bypass and the Natomas Basin. These basins are described in further detail below.

The American River North Basin is located north of the American River and east of the city of Natomas, and includes the North Sacramento and Arden Arcade communities. Project construction in this basin includes the levees on the north bank of the American River, levees on the east bank of NEMDC, and levees along Arcade Creek, Dry/Robla Creek, and the Magpie Creek Diversion Channel.

The American River South Basin is located south of the American River and east of the Sacramento River. Communities protected by these project levees include Downtown Sacramento, Land Park, Pocket-Meadowview, East Sacramento, South Sacramento and Rancho Cordova. Project construction in this basin would be limited to the south bank of the American River and the east bank of the Sacramento River.

The Sacramento Bypass is located in Yolo County, about 4 miles west of the city of Sacramento and along the northern edge of the city of West Sacramento. The Sacramento Weir runs along the west bank of the Sacramento River and connects the river to the Bypass. The Bypass is located in a rural area owned by the State of California and operated as the Sacramento Bypass Wildlife Area.

The Natomas Basin is located in the northern portion of the study area and is located east of the Sacramento River, west of NEMDC, and north of the American River. The Natomas Basin is considered to be a part of the study area, as described by the GRR; however, the proposed measures to raise the height of the Natomas Basin levees were previously analyzed in the Natomas Levee Improvement Program, Phase 4b Landside Improvements Project (NLIP Phase 4b Project) in 2010. Therefore, the Natomas Basin will not be analyzed in this document.

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The purpose of the Common Features GRR is to determine if there is a Federal interest in modifying the authorized Common Features Project for flood risk management in the greater Sacramento area. National Environmental Policy Act (NEPA) evaluation is required when a major Federal action is under consideration and may have impacts on the quality of the natural and human environment. The Corps has determined that the proposed project may have significant effects on the environment and therefore, an EIS is required.

The Common Features GRR has identified a number of problems associated with the flood risk management system protecting the city of Sacramento and surrounding areas. There is a high probability that flows in the American and Sacramento Rivers would stress the network of levees protecting Sacramento to the point that levees could fail. The consequences of such a levee failure would be catastrophic since the area inundated by flood water is highly urbanized and the flooding could be up to 20 feet deep.

A wide variety of management measures were developed and then evaluated and screened to address the planning objectives to remedy the Sacramento area levee problems. Formulation strategies were then developed to address various combinations of the planning objectives and planning constraints. The formulation strategies used to address the objectives and constraints included measures to reduce flood stages, address seepage and underseepage, address stability, address erosion, address maintenance/emergency response access, and achieve the urban levee level of protection. Based upon these strategies, various combinations of the measures were assembled to form an array of preliminary plans. The preliminary plans were then evaluated, screened, and reformulated, resulting in a final array of alternatives. From this final array of alternatives, a tentatively selected plan was identified.

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The Corps is required to consider a No Action Alternative as one of the alternatives for selection in order to comply with the requirements of NEPA. With the No Action Alternative, it is assumed that no additional features would be implemented by the Corps or by local interests to achieve the planning objectives over and above those elements of the previously authorized Common Features Project.

Under the No Action Alternative the Corps would not conduct any additional work to address seepage, slope stability, overtopping, or erosion concerns in the Sacramento metropolitan area. As a result, if a high flow event were to occur, the Sacramento area would remain at risk of a possible levee failure.

The urban development within the project area would continue to be at risk of flooding and lives would continue to be threatened. The levees within the study area could fail and result in a catastrophic disaster. If a levee failure were to occur, major government facilities would be impacted until the flood waters recede. Within the study area are many transportation corridors that could be flooded as well if the levees were to fail.

Alternative 1: Fix Levees in Place

Alternative 1 involves the construction of fix-in-place levee remediation measures to address seepage, stability, erosion, and overtopping concerns identified for the American and Sacramento river levees, and the East Side Tributaries. In addition, Alternative 1 would include levee raises for the Natomas Basin, which were analyzed under NEPA in the NLIP Phase 4b Project EIS/EIR in 2010. As a result, this FWCA report incorporates the analysis of the levee raise by reference, but is not discussed within this report.
Due to the urban nature and proximity of existing development within the American River North and South Basins, Alternative 1 proposes fix in place remediation. The purpose of this alternative would be to improve the flood damage reduction system to safely convey flows to a level that

maximizes net benefits. Table 1 summarizes the levee problems discussed above and the proposed remediation measure for each waterway.

Table 1. Alternative 1 Proposed Levee Improvement Measures by Waterway

Waterway	Seepage Measures	Stability Measures	Erosion Protection Measures	Overtopping Measures
American River[1]	—	—	Bank Protection, Launchable Rock Trench	—
Sacramento River	Cutoff Wall	Cutoff Wall	Bank Protection, Launchable Rock Trench	Levee Raise
NEMDC	Cutoff Wall	Cutoff Wall	—	Floodwall
Arcade Creek	Cutoff Wall	Cutoff Wall	—	Floodwall
Dry and Robla Creeks	—	—	—	Floodwall
Magpie Creek	—	—	—	Floodwall

In addition to the proposed levee improvement measures shown in Table 1, the following measures and policies would be addressed during construction.

- The Corps' standard levee footprint would be established during construction of structural improvements on all levees that are out of compliance. The standard levee footprint consists of a 20 foot crown width, a 3H:1V waterside slope, and a 2H:1V landside slope, when possible. If the 3H:1V waterside slope is not possible, than a minimum 2H:1V waterside slope would be established instead.

- A 10 foot landside maintenance access would be established, when possible.

- Compliance with Corps levee vegetation requirements would be established. The vegetation requirements include a 15 foot waterside, landside and vertical vegetation-free zone. When possible, a variance would be sought to allow vegetation to remain. If granted, the variance would allow for vegetation to remain on the lower waterside slope and within the waterside 15 foot vegetation-free zone. No vegetation would be permitted on the landside slope.

    - A vegetation variance would be requested to provide compliance for the Sacramento River portion of this project.

    - The erosion measures on the American River is not considered a structural fix, as these measures do not impact the structure of the levee, therefore the vegetation in this portion of the project would not be addressed under the Common Features GRR project. American River vegetation compliance would occur under a System-

1 Seepage, stability, and overtopping measures were addressed in the American River Common Features WRDA 96 and WRDA 99 construction projects.

Wide Improvement Framework by the local sponsors.

  - The East Side Tributaries would be brought into vegetation compliance during construction in those levee reaches.

- Utility encroachments would be brought into compliance with Corps policy. Utilities that penetrate the levee would be removed and replaced with one of two fixes: a surface line over the levee prism or a through-levee line equipped with positive closure devices.

- Private encroachments would be removed by the non-Federal local sponsor or property owner prior to construction.

There would be no proposed measures under Alternative 1 for the Sacramento Bypass. The following sections contain more detailed information on the specific measures proposed by waterway under Alternative 1.

American River

Levees along the American River under Alternative 1 require improvements to address erosion. The proposed measures for these levees consist of waterside armoring to prevent erosion to the river bank and levee, which could potentially undermine the levee foundation. There are two measures proposed to address erosion on the American River levees: bank protection and a launchable rock trench. Both of these measures are described in detail in the subsections below. These measures would be implemented for all of the proposed alternatives discussed in this document.

Bank Protection

This measure consists of placing rock protection on the river's bank, and in some locations, on the levee slope to prevent erosion. The location of rock placement would be based on site-specific analysis. When necessary, the eroded portion of the bank would be filled and compacted prior to the rock placement. The sites would be prepared by clearing and stripping the site prior to construction. Small vegetation and deleterious materials would be removed. In most cases large vegetation would be permitted to remain at these sites. Temporary access ramps would be constructed, if needed, using imported borrow material that would be trucked to the site.

Revetment would be imported from an offsite location via haul trucks and temporarily stored at a staging area located in the immediate vicinity of the construction site. A loader would be used to move revetment from the staging area to the excavator that would be placing material. The revetment would be placed at a slope varying from 2V:1H to 3V:1H, depending on the site specific conditions. A large rock berm would be placed in the water up to an elevation slightly above the mean summer water surface and a planting trench would be established on the rock berm surface for re-vegetation purposes. An excavator would either be working from the top of bank placing revetment on the bank and in the water, or from on top of the rock berm that is established.

Launchable Rock Trench

The launchable rock filled trench is designed to deploy once erosion has removed the bank material beneath it. All launchable rock trenches would be constructed outside of the natural river channel. The vegetation would be removed from the footprint of the trench and the levee slope prior to excavation. The trench configuration would include a 2H:1V landslide slope and a 1H:1V waterside slope, and would be excavated at the toe of the existing levee. All soil removed during trench excavation would be stockpiled for reuse or disposed of. The bottom of the trench would be constructed close to the summer mean water surface elevation in order to reduce the rock launching distance and the amount of rock required.

After excavation, the trench would be filled with revetment that would be imported from an off-site location via haul trucks. After rock placement, the trench would be covered with a minimum of 3 feet of stockpiled soil for a planting berm. Rock placed on the levee slope would be covered with 2 feet of stockpiled soil. All disturbed areas would be reseeded with native grasses and small shrubs where appropriate. Trees would be permitted on the berm if planted outside the specified vegetation free zone.

Sacramento River

Levees along the Sacramento River require improvements to address seepage, stability, and erosion. In addition, these levees require height improvements in order to convey additional flows that exceed the current design levels. To provide access for levee construction, inspection, maintenance, monitoring, and flood-fighting, some properties would need to be acquired.

Where the existing levee does not meet the levee design requirements, slope flattening, crown widening, and/or a levee raise is required. This improvement measure addresses problems with slope stability, geometry, overtopping, and levee access. To begin levee embankment grading, the area would be cleared, grubbed, stripped, and where necessary, portions of the existing embankment would be excavated to allow for bench cuts and keyways to tie in additional embankment fill. Excavated and borrow material from nearby borrow sites would be stockpiled at staging areas. Haul trucks and front end loaders would bring borrow materials to the site, which would then be spread evenly and compacted according to levee design plans.

The existing levee centerline would be shifted landward, where necessary, in order to meet the Corps' current levee footprint requirements; or, in order to construct the levee to the existing footprint, a retaining wall may be constructed at the landside levee toe. This measure would raise the levee landward of the existing levee without reducing the levee crown width or disturbing the waterside slope. Retaining walls would range from 4 to 6 feet high and would require landside slope benching to establish the additional fill into the levee section. The levee crown patrol road would be re-established and a new road at the levee toe would be added 10 feet landward of the retaining wall.

Cutoff Walls

To address seepage concerns, a cutoff wall would be constructed through the levee crown. The cutoff wall would be installed by one of two methods: conventional open trench cutoff walls or deep soil mixing (DSM) cutoff walls. The method of cutoff wall selected for each reach would depend on the depth of the cutoff wall needed to address seepage. The open trench method can be

used to install a cutoff wall to a depth of about 85 feet. For cutoff walls of greater depth, the DSM method would be utilized.

Prior to construction of the cutoff wall, the construction site and staging areas would be cleared, grubbed, and stripped. The levee crown would be degraded to about half of the levee height to create a large enough working platform (about 30 feet) and to reduce the risk of hydraulically fracturing the levee embankment from the insertion of slurry fluids.

Open Trench Cutoff Walls

Under the open trench method, a trench 3 feet wide would be excavated at the top of levee centerline and into the subsurface materials up to 85 feet deep with a long boom excavator. As the trench is excavated, it is filled with low density temporary bentonite water slurry to prevent cave in. The soil from the excavated trench is mixed nearby with hydrated bentonite, and in some applications cement. The soil bentonite mixture is backfilled into the trench, displacing the temporary slurry. Once the slurry has hardened, it would be capped and the levee embankment would be reconstructed with impervious or semi-impervious soil.

DSM Cutoff Wall

The DSM method involves the use of a crane that supports a set of two to four mixing augers used to drill through the levee crown and subsurface to a maximum depth of about 140 feet. As the augers are inserted and withdrawn, a cement bentonite grout would be injected through the augers and mixed with native soils. An overlapping series of mixed columns would be drilled to create a continuous seepage cutoff barrier. Once the slurry has hardened, it would be capped and the levee embankment would be reconstructed with impervious or semi-impervious soil.

Bank Protection

Bank protection on the Sacramento River would be addressed by construction of the launchable rock trench method described for the American River above, or by standard bank protection, which consists of placing rock protection on the bank to prevent erosion. This measure entails filling the eroded portion of the bank, when necessary, and installing revetment along the waterside levee slope and streambank, from the streambed to a height determined by site-specific analysis. The sites would be prepared by removing vegetation along the levee slopes at either end of the site for construction of a temporary access ramp if needed. The ramp would then be constructed using imported borrow material that would be trucked onsite.

The placement of rock onto the levee slope would occur from atop the levee and/or from the waterside by means of barges. Rock required within the channel, both below and slightly above the water line at the time of placement, would be placed by an excavator located on a barge. Construction would require two barges: one barge would carry the excavator, while the other barge would hold the stockpile of rock to be placed on the channel slopes. Rock required on the upper portions of the slopes would be placed by an excavator located on top of the levee. Rock placement from atop the levee would require one excavator and one loader for each potential placement site. The loader brings the rock from a permitted source and stockpiles it near the levee in the

construction area. The excavator then moves the rock from the stockpile to the waterside of the levee.

The revetment would be placed via the methods discussed above on existing banks at a slope varying from 2V:1H to 3V:1H, depending on site specific conditions. After revetment placement has been completed, a small planting berm would be constructed in the rock, when feasible, to allow for some re-vegetation of the site.

NEMDC

The east levee of the NEMDC requires improvements to address seepage and stability at locations where historic creeks had intersected the current levee alignment. A conventional open trench cutoff wall would be constructed at these locations to address these problems. The open trench cutoff walls would be constructed as described for the Sacramento River levee described above.

The NEMDC east levee also has height issues which would be addressed by construction of a floodwall. The floodwall would be placed at the waterside hinge point of the levee and would be designed to disturb a minimal amount of waterside slope and levee crown construction. The heights of the floodwalls vary from 1 to 4 feet, as required by water surface elevations. Constructing the floodwall raise would require doweling into the existing concrete floodwall and adding reinforced concrete to the floodwall section. The waterside slope would be re-established to its existing slope and the levee crown would grade away from the wall and be surfaced with aggregate base.

Arcade Creek

The Arcade Creek levees require improvements to address seepage, slope stability, and overtopping when the flood event exceeds the current design. A cutoff wall would also be constructed to address seepage for portions of the creek. There is a ditch adjacent to the north levee at the landside toe which provides a shortened seepage path and could affect the stability of the levee. The ditch would be replaced with a conduit or box culvert and then backfilled. This would lengthen the seepage path and improve the stability of the levee.

The majority of the levees on Arcade Creek have existing floodwalls; however, there remains a height issue in this reach. A 1 to 4 foot floodwall raise would allow the levees to pass flood events greater than the current design level. Construction of the floodwall would be consistent with the description for NEMDC above.

Dry and Robla Creeks

The Dry Creek and Robla Creek levees require improvements to address overtopping for when flood events exceed the design level. Height improvements would be made with a floodwall raise. The floodwall would be placed at the waterside hinge point of the levee and would be designed to disturb a minimal amount of waterside slope and levee crown construction. The height of the floodwalls would vary from 1 to 4 feet as required by water surface elevations. Construction of the floodwall would be consistent with the description for NEMDC above. The waterside slope would be re-established to its existing slope and the levee crown would be graded away from the wall and be surfaced with aggregate base.

Magpie Creek Diversion Channel

A number of features are proposed for the Magpie Creek Diversion Channel under Alternative 1. These features include the following:

- Strengthening the existing project levee;
- Construction of a 3 to 4 foot tall floodwall along the top of the existing levee for a distance of about 2,100 feet. Construction of the floodwall would be consistent with the description for NEMDC above;
- Construction of a new 1,000-foot-long levee along Raley Boulevard, south of the Magpie Creek bridge;
- Construction of a 79 acre flood detention basin on both sides of Raley Boulevard, primarily through the purchase of properties to preserve the existing floodplain; and
- Raley Boulevard improvements, including widening the Magpie Creek Bridge, raising the elevation of the roadway, and removing the Don Julio Creek culvert.

Alternative 2: Fix Levees in Place and Widen the Sacramento Weir and Bypass

Alternative 2 would include all of the levee improvements discussed in Alternative 1 above, except for the levee raises along the Sacramento River. Instead of the levee raises, the Sacramento Weir and Bypass would be widened to divert more flows into the Yolo Bypass. The levees along the American River, NEMDC, Arcade Creek, Dry Creek, Robla Creek, and the Magpie Creek Diversion Channel would be improved to address identified seepage, stability, erosion, and height concerns through methods described under Alternative 1 above. The levees along the Sacramento River would be improved to address identified seepage, stability, and erosion concerns through the measures described under Alternative 1 above. Due to the urban nature of the project area and proximity of development to the levees, the majority of the levee repairs would be fixed in place.

In addition, Alternative 2 would include levee raises for the Natomas Basin. The Natomas Basin levee raises are proposed under the Common Features Project GRR for authorization; however, these measures were analyzed under NEPA for the NLIP Phase 4b Project EIS/EIR in 2010.

The following sections contain more detailed information on the specific features and reaches included in this alternative. Table 2 summarizes the levee problems discussed above and the proposed measure for each waterway.

Table 2. Alternative 2 Proposed Remediation Measures by Waterway

Waterway	Seepage Measures	Stability Measures	Erosion Protection Measures	Overtopping Measures
American River[2]	–	–	Bank Protection, Launchable Rock Trench	–
Sacramento River	Cutoff Wall	Cutoff Wall	Bank Protection, Launchable Rock Trench	Sacramento Bypass and Weir Widening
NEMDC	Cutoff Wall	Cutoff Wall	–	Floodwall
Arcade Creek	Cutoff Wall	Cutoff Wall	–	Floodwall
Dry and Robla Creeks	–	–	–	Floodwall
Magpie Creek	–	–	–	Floodwall, Levee Raise

Sacramento Weir and Bypass

The existing Sacramento Weir and Bypass, which allow high flows in the Sacramento River to be diverted into the Yolo Bypass, would be expanded to roughly twice the current width to accommodate increased bypass flows. The existing north levee of the Sacramento Bypass would be degraded and a new levee would be constructed about 1,500 feet to the north. The existing Sacramento Weir would be expanded to match the wider bypass. The new north levee of the bypass would include a 300-foot-wide seepage berm on the landside, with a system of relief wells. An existing high tide relief well site near the existing north levee would be remediated by the non-Federal sponsor prior to construction.

American River

Measures for the American River levees under Alternative 2 would address erosion. These measures were identified and described under Alternative 1 and would also be included in Alternative 2. Implementation of these measures under Alternative 2 would be consistent with the description in Alternative 1.

East Side Tributaries

Measures for NEMDC, Arcade Creek, Dry Creek, Robla Creek, and the Magpie Creek Diversion Channel under Alternative 2 would address seepage, slope stability, and erosion control. These measures were identified and described in Alternative 1 and would also be included in Alternative 2. Implementation of these measures under Alternative 2 would be consistent with the description in Alternative 1.

2 Seepage, stability, and overtopping measures were addressed in the American River Common Features WRDA 96 and WRDA 99 construction projects.

Sacramento River

The measures for the Sacramento River levees under Alternative 2 would be consistent with Alternative 1, with one exception. Under Alternative 1, Sacramento River levee remediation measures were proposed to address seepage, stability, erosion control, and levee height problems. Under Alternative 2, there would be no need to address the levee height problems. Therefore, the measures from Alternative 1 that would be implemented under Alternative 2 for the Sacramento River levees would include: (1) installation of cutoff walls to address seepage concerns; (2) slope reshaping to address stability concerns; and (3) bank protection or launchable rock trench measures to address erosion. The description of these measures can be found above under Alternative 1 for the Sacramento River.

BIOLOGICAL RESOURCES

American River

The American River Parkway (Parkway) contains many vegetation types including riparian scrub, riparian forest, oak woodland, open water, grasslands, and some agriculture. Along the river channel, vegetation is primarily considered shaded riverine aquatic (SRA) cover. Trees adjacent to the channel are mainly oaks and cottonwoods with a thick understory of vines, shrubs, and herbaceous vegetation.

The levee slopes along the American River are primarily covered with grasses and a few scattered trees within the levee structure. Several areas within the Parkway have been used as mitigation sites for the Corps and other agency projects for valley elderberry longhorn beetle. There are also some areas within the Parkway that have been used to compensate for loss of riparian habitat or oak woodlands from projects. Vegetation on the landside of the levee is mostly non-native ornamentals and landscape plantings that were planted beyond the legal property and fence lines of residents.

Habitats in the project area around the American River support various wildlife species. Mammal species include mule deer, coyote, black-tailed jackrabbit, striped skunk, and a variety of rodents. Common bird species include American robin, spotted towhee, dark-eyed junco, black phoebe, California towhee, ash-throated flycatcher, northern flicker, mourning dove, California quail, house finch, American and lesser goldfinches, Bewick's and house wrens, northern mockingbird, yellow-billed magpie, red-winged and Brewer's blackbirds, oak titmouse, and Anna's hummingbird. Common raptors include red-tailed hawk, Cooper's hawk, red-shouldered hawk, American kestrel, and great horned owl. Reptile and amphibian species found within the project area include western fence lizard, gopher snake, western rattlesnake, common kingsnake, Pacific treefrog, and western toad.

The river and small backwater areas provide habitat for many water associated species such as raccoon, beaver, Canada goose, wood duck, common merganser, mallard, black phoebe, great blue heron, belted kingfisher, and common yellowthroat. The levee slopes, which are dominated by annual grassland, provide foraging habitat and cover for California ground squirrel, pocket gopher, and western meadowlark.

The lower American River supports a diverse and abundant fish community; altogether, at least 41 species of fish are known to inhabit the river (USFWS 1986). In recognition of its "outstanding and

remarkable" fishery resources, the entire lower American River was included in the Wild and Scenic Rivers System in 1981, which provides some protection for these resources (USFWS 1991). Four anadromous species are important from a commercial and recreational perspective. The lower river supports a large run of fall-run Chinook salmon, a species with both commercial and recreational values. The salmon run is sustained by natural reproduction in the river, and by hatchery production at the Nimbus Salmon and Steelhead Hatchery, operated by the California Department of Fish and Wildlife (CDFW). The average annual production of fall-run Chinook salmon in the American River from 1992-2009 is 109,574 (USFWS 2013).

Steelhead, a popular sport fish, are largely sustained in the river by production from the Nimbus Hatchery, because summer water temperatures often exceed the tolerances of juvenile steelhead, which typically spend about 1 year in the river. American shad and striped bass enter the river to spawn; these two species, introduced into the Sacramento River system in the late 1800s, now support popular sport fisheries. In addition to species of economic interest, the lower American River supports many nongame species, including Sacramento pikeminnow, Sacramento sucker, tule perch, and hardhead (USFWS 1994).

NEMDC

This canal is a narrow channel with many trees in the lower portion. As the canal heads north the channel widens and has less woody vegetation. The levee slopes on the east side of the canal are clear of vegetation due to maintenance practices. The west side of this canal is not part of this project as it is part of the NLIP Phase 4b Project.

Arcade Creek

The levees along Arcade Creek are maintained vegetation free; however, the channel does have some trees and understory. Between Norwood Avenue and Rio Linda Boulevard the channel contains a thick riparian area but vegetation becomes sparse once it passes Rio Linda Boulevard. Due to the urban conditions in this area, wildlife is limited to those similar to the Parkway but in smaller numbers.

Dry and Robla Creeks

The Dry and Robla Creeks area is a wide open space floodplain, with both creeks being contained between the two levees. The creeks maintain sufficient water throughout the year for trees to survive along the channel. There are scattered wetlands located in the floodplain with a higher concentration at the confluence with the NEMDC. The actual levee slopes in this floodplain contain very little vegetation due to maintenance practices. Wildlife in the floodplain is similar to that in the Parkway.

Magpie Creek Diversion Channel

The project area of Magpie Creek Diversion Channel begins in an industrial area where the channel contains primary grasses. Upstream, the area becomes open space before it intersects with Raley Boulevard and additional industrial development. Seasonal wetlands in the area include natural vernal pools and other areas with standing water that provide a similar biological function as natural vernal pools. Wildlife in this area includes jack rabbits, skunks, beavers, and coyotes that also use

the surrounding undeveloped area. Avian species that utilize this habitat include herons and waterfowl. Amphibian and reptile species include treefrog and common garter snake.

Sacramento River

Vegetation along the Sacramento River is mostly SRA cover consisting of oaks and cottonwoods with shrub understory. There are intermittent locations along the waterline with no trees due to revetment. The Sacramento River Bank Protection Project has repaired some erosion sites along this section of the river using rock revetment on the slope and creating small vegetated benches. These sites have been planted with riparian vegetation and woody material has been placed in the rock to provide in water habitat for fish species.

Due to the urban development adjacent to the levees in this area, wildlife is limited to small mammals and various avian species. Domestic animals from residents are also often seen along the levees in this basin of the project. Though a narrow riparian corridor, this area does function as a migratory corridor for wildlife as the area to the east is completely developed with housing. It is important to maintain a corridor to provide connectivity along the Sacramento River.

The Sacramento River contains a variety of habitat characteristics that are important to many fish species. Streamside vegetation provides SRA cover and aids in temperature control, streambank stability, and habitat complexity. Cover is used by all life stages of anadromous fish for shelter and provides habitat for salmonids, Sacramento splittail, delta smelt, black bass and sunfish.

Root structures of riparian vegetation can provide bank stability and shelter for juvenile fish. Woody debris can provide shelter from predation and refugia from stream flow. Riparian vegetation also influences the food chain of a stream, providing organic detritus and terrestrial insects. Terrestrial organisms falling from overhanging branches contribute to the food base of the aquatic community. Salmonids in particular are primarily insectivores and feed mainly on drifting food organisms.

In general, the Sacramento River channel provides a migratory pathway to many anadromous fish and provides seasonal rearing habitat to many other native fish species. Native anadromous fish species include Chinook salmon, green and white sturgeon, Pacific and river lamprey, and steelhead. Native resident fish species include delta smelt, hardhead, hitch, prickly sculpin, Sacramento blackfish, Sacramento pikeminnow, Sacramento splittail, Sacramento sucker, threespine stickleback and tule perch. Non-native anadromous species, such as American shad and striped bass, provide recreational sport fishing opportunities. Non-native resident fish species include several species of catfish, black bass, sunfish and minnows. Some non-native species may provide recreational fishing opportunities, such as largemouth, smallmouth, and striped bass, yet these species also prey upon native juvenile species that use nearshore habitats.

Sacramento Bypass and Weir

The Sacramento Bypass is a 360 acre area that is an important cover and feeding area for wildlife during the late fall, winter and early spring. Vegetation varies from scattered trees, such as mature cottonwoods, willows and valley oaks, to a sparsely covered sand soil area on the eastern end. There are also wetlands within the bypass. Game birds, raptors, songbirds, and native mammals are all present in this area.

The footprint of the expanded weir contains 8 acres of scattered trees along the road, railroad tracks, and levee slope. Primary wildlife use this area is avian species, beavers, skunks, and rabbits. The trees along the river provide shade for many native and non-native species. These trees are also used by various avian species for nesting.

Threatened and Endangered Species

Potentially affected federally-listed species within the project area include the valley elderberry longhorn beetle, giant garter snake, delta smelt, Central Valley steelhead, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and green sturgeon. The valley elderberry longhorn beetle, giant garter snake, delta smelt, yellow-billed cuckoo, and least Bell's vireo fall under the jurisdiction of the Service. The National Marine Fisheries Service (NMFS) is responsible for the listed salmonids and green sturgeon.

The riverbank and associated nearshore aquatic area that would be affected by the proposed action constitute portions of the designated critical habitat of the delta smelt. Indirect effects of the proposed action may also extend to other portions of this critical habitat. The Corps completed section 7 consultation with the Service. The consultation is included as Appendix 1.

In addition, the bank protection action area constitutes elements of essential fish habitat (EFH). EFH is the aquatic habitat (water and substrate) necessary to fish for spawning, breeding, feeding and or growth to maturity that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a health ecosystem. Consultation with NMFS regarding EFH is required for all commercially-harvested runs of salmon, including all runs of salmon in the project's action area.

Future Conditions Without the Project (No Action Alternative)

American River

Under the No Action Alternative, the Corps would not participate in construction of the proposed project. There would be no construction related effects to the vegetation and wildlife. However, looking over the past several decades the largest and most frequent flows come down the American River system, some of the floodplain in the Parkway has eroded away. During the 50 year life span of the project it is expected that larger flows would be released from Folsom Dam and sustained for longer periods, leading to potential loss of floodplain and the vegetation on it within the Parkway. While erosion and accretion within the riverine system is a normal and healthy process, Folsom Dam has cutoff sediment supply to the lower American River which creates a sediment starved section of the river. Sediment starvation means that accretion would not occur and the loss of floodplain and its ability to support habitat would be lost. This loss would also cause any wildlife in the area to relocate to other areas where the habitat they need is present. Because we cannot predict when and how large events would occur, it is not possible to determine when the floodplain would erode. The loss of the Parkway vegetation and wildlife habitat would be considered a significant impact.

East Side Tributaries

Under the No Action Alternative, the Corps would not participate in construction of the proposed project. There would be no construction related effects to the vegetation and wildlife. The riparian habitat on Arcade Creek between Norwood Avenue and Rio Linda Boulevard would remain. The other creeks do not contain much vegetation; however, the little vegetation that does exist would not be removed. Wildlife in these creek areas would not be disturbed due to construction activities.

Sacramento River

Under the No Action Alternative, the Corps would not participate in construction of the proposed project. There would be no construction related effects to the vegetation and wildlife. The banks along the Sacramento River are very erosive and without some kind of erosion control measures, the banks would continue to erode during high flows. As the banks of the river erode, vegetation would be lost and the levees could fail. It is likely that in order to save the levee structures, flood fighting activities would occur during a high flow emergency response. Flood fighting is usually performed by placing large rock along the levee slope to stop erosion and prevent levee failure and loss of lives. The placement of the rock could prevent and/or impede future growth of trees and vegetation on the levee slopes.

In the event that flood fighting activities are not successful and a levee failure occurs, all vegetation could be lost and wildlife could be swept away in the flood waters. The loss of vegetation that could occur in a large flood event and the placement of rock along the banks could have significant impacts to vegetation and wildlife, particularly to the functioning of a migratory corridor.

While this area of the project does not provide large patches of habitat, it does serve as a migratory corridor for wildlife from further south in the Sacramento-San Joaquin Delta to areas further north along the Sacramento River, such as the Parkway. Riparian corridors can be especially important for reptiles, amphibians, and small mammals.

Future Conditions With the Project

Impacts to vegetation and wildlife within the project area are evaluated based on data collected from tree surveys conducted in 2011, site visits, Google Earth, and the American River Parkway Plan (Parkway Plan). The goals and objectives of the Parkway Plan and how construction of the project would impact those goals and objectives were considered in the impact analysis. Table 3 summarizes the impacts to vegetation by basin and reach.

Alternative 1: Fix Levees in Place

American River

The construction of rock trenches along the American River would result in the removal of about 65 acres of riparian habitat within the Parkway. This acreage was determined by overlaying the largest possible footprint onto an aerial photograph and calculating the riparian habitat within the footprint. Much of this riparian habitat contains trees that have been in the Parkway for 50 to 100 years or more. The Parkway is the largest remaining riparian corridor in the city of Sacramento. In addition, construction would also impact 135 acres of grassland, which include the levees, patrol

roads, and open lands. Project construction along the American River would be intermittent and would occur over a 7 year period. Trees would not be removed all at one time, they would be removed at each trench site as the trench is constructed.

Table 3. Potential Impacts by Flood Basin and Reach

Waterway	Impacts
American River	65 acres of riparian habitat
	135 acres of grassland habitat
East Side Tributaries	2 acres oak woodland
	4 acres of grassland
	10.5 acres riparian
Sacramento River	70 acres of riparian
Sacramento Bypass	300 acres of agricultural fields and drainage canals
	8 acres of riparian vegetation

Most of the 65 acres of riparian habitat is located on land designated by the Parkway Plan as Protected Areas or Nature Study Area. However, the Parkway Plan also allows for flood control activities to be conducted in order to pass 160,000 cfs through the system. Section 4.10 of the Parkway Plan states:

> *Flood control project, including levee protection projects and vegetation removal for flood control purposes, shall be designed to avoid or minimize adverse impacts on the Parkway, including impacts to wildlife and wildlife corridors. To the extent that adverse impacts are unavoidable, appropriate feasible compensatory mitigation shall be part of the project. Such mitigation should be close to the site of the adverse impact, unless such mitigation creates other undesirable impacts.*

Any trees planted would take many years to mature to the level where they provide the same value as those removed. Because there would be many years between when the trees are planted and when they mature to a value of those removed, this impact is considered significant. Construction would likely occur from May through October when birds are nesting. Once the project is authorized and funded, surveys of the project areas would occur to determine if migratory birds are nesting in areas which may be impacted during construction.

East Side Tributaries

Riparain and oak woodland along Arcade Creek and the NEMDC would need to be removed to construct the project. These trees are suitable nesting habitat for many avian species in the area. Surveys would be conducted to determine if any nesting birds are present prior to construction. If nesting birds are located adjacent to the project area, coordination with the resource agencies would occur. Any trees where nesting birds are located would not be removed while they are actively nesting. However, once the young have fledged, the trees may be removed to construct the project. The loss of trees in this area would be considered significant because new plantings would take many years to grow to the value of those removed.

This alternative would result in temporary impacts to about 4 acres of grasses along the creek channels and levee slopes. Once construction is complete, the areas would be planted with a native

grass seed mix to prevent erosion and replace the grasses removed for construction. The grasslands are likely to grow back in a single season.

Sacramento River

Under this alternative the existing levee structure would be degraded by one half to create a working platform for slurry wall installation. As the levee is degraded, all vegetation on the top one half would be removed. Levee degradation will result in the loss of 70 acres of riparian habitat. These trees are located on the top half of the levee, so they provide a small amount of SRA cover and habitat for many avian species. They also contribute to the width of the riparian corridor. On average the current width of the riparian corridor along the Sacramento River is 100 feet. Riparian loss will remove about 60 feet of those 100 feet. The construction and planting of the berm as part of the erosion repair will create an additional 25 feet to the width of the riparian corridor. There will still be a net loss of 35 feet from the riparian corridor. The loss of this 35 feet from the width of the riparian habitat can cause increased predation because the narrower corridor will increase edge effects. Additionally, smaller widths of habitat make it more likely that stochastic events will affect the habitat and loss of the vegetation could result in complete removal of the riparian corridor diminishing connectivity. It will be important for the Corps and the non-federal and local sponsors to ensure that the remaining riparian habitat remains, regeneration occurs (it may need to be helped through active planting), and non-native vegetation does not become established within the corridor.

On the waterside of the levee, 930 large trees would be left in place on the lower one-third and rock would be placed around the base of the trees. The trees that would remain in place are scattered over 31,130 linear feet (50 acres). The rock protection around the trees would reduce the potential for erosion and anchor the trees in place to lower the risk of uprooting in high water events. The understory vegetation would be removed to provide a clean surface to place the rock. Excluding the large trees, vegetation in this area is primarily small shrubs, low growing plants of various species, and grasses. Once the rock protection is in place and a planting berm is constructed, the area would be planted with small shrubs. Appropriate plants would be selected to maximize wildlife habitat.

On the landside of the levee all trees would be removed on the levee slope and within 15 feet of the levee toe to comply with the Corps vegetation policy. Within this 15 feet compliance area, a 10-foot wide landside operations, maintenance, and emergency access corridor would be established. There are 670 trees of various species and size within this landside area that would be removed and not be replaced on-site. The removal of these trees is considered significant because it would take many years for the replacement trees to establish to the value of those removed.

The landside slopes are primarily covered with ornamental groundcovers installed by adjacent private property owners. In some places landscaping has been extended beyond the fence or property lines and up the levee slopes. Degrading of the levee would include removal of all vegetation on the upper half of the landside slope. All disturbed areas, including the levee slopes, would be planted with native grasses to prevent erosion. The 15 foot landside vegetation free zone would be maintained vegetation free, except for the native grasses.

The loss of woody vegetation would affect avian species. Surveys would be conducted to determine if any nesting birds are present prior to construction. If nesting birds are located adjacent to the project area, coordination with the resource agencies would occur. Trees where nesting birds are located would not be removed while they are actively nesting.

Alternative 2 – Fix Levees and Widen the Sacramento Weir and Bypass

The footprints of all features in this alternative are the same as Alternative 1 with the added feature of widening the Sacramento Weir and Bypass. Areas that no longer require a raise would still maintain the same footprint since the purpose of the raise would instead be accomplished via the installation of a retaining wall at the toe of the levee. Therefore, the effects to vegetation and wildlife are the same as those for Alternative 1, with the addition of those associated with the Sacramento Weir and Bypass.

Sacramento Weir and Bypass

Habitat within the existing Bypass would remain the same as the existing conditions. The Bypass would be expanded by about 300 acres, which would become open space and would likely become similar habitat for wildlife as the existing Bypass. Operations of the new weir and bypass would be determined after construction is complete. No grading or altering of the lands within the existing bypass would occur as part of this alternative. Since the southern side of the bypass is lowest in elevation, water would naturally flow to the existing area and continue to support existing vegetation and wildlife. Due to the natural flow of water in the Bypass, existing wetlands are not expected to be impacted by construction of the project. There is a potential for additional wetlands to actually develop in the added 300 acres of bypass since the land would no longer be farmed. Conversion of this land back to its natural state would have benefits to other wildlife and could become an expansion of the Sacramento Bypass Wildlife Area.

There are 8 acres of riparian vegetation that would be removed to construct the weir structure. The 8 acre area contains both the Old River Road and Union Pacific Railroad train tracks. Avian species are the primary wildlife in this area with some small animals like fox and coyotes, which pass through the area to access the river. Included within the 8 acres are 1,500 linear feet of vegetation along the Sacramento River which may be removed to allow the river to flow freely into the weir. Both native and non-native fish species use this area of the river. During construction there would be direct effects to wildlife as the human activities associated with the construction would likely cause any wildlife to relocate to other open space lands to avoid the disturbance; however, the expansion of the Sacramento Weir and Bypass would have a positive effect on vegetation and wildlife once construction is complete and lands are converted from farming activities to open space.

DISCUSSION

Service Mitigation Policy

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register 46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure

protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. However, the Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several criteria, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value" (i.e., Resource Category 4). The planning goal of Resource Category 2 is "no net loss of in-kind habitat value." To achieve this goal, any unavoidable losses would need to be replaced in-kind. "In-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost. The planning goal of Resource Category 3 is "no net loss of habitat while minimizing loss of in-kind value." To achieve this goal any unavoidable losses will be replaced in-kind or if it is not desirable or possible out-of-kind mitigation would be allowed. The planning goal of Resource Category 4 is "minimize loss of habitat value." To achieve this goal the Service will recommend ways to rectify, reduce, or minimize loss of habitat value.

In addition to mitigation planning goals based on habitat values, Region 8 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage and value for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectifying, reducing or eliminating impacts over time, and compensation.

Ten fish and/or wildlife habitats were identified in the project area which had potential for impacts from the project: oak woodland, riparian forest, riparian scrub-shrub, SRA cover, shallow open water, emergent wetland, annual grassland, agriculture (non-rice cultivation), ornamental landscape,

and other. The resource categories, evaluation species, and mitigation planning goal for the habitats impacted by the project are summarized in Table 4.

The evaluation species selected for the oak woodland that would be impacted are acorn woodpecker, turkey, and mule deer. Acorn woodpeckers utilize oak woodlands for nearly all their life requisites; 50-60 percent of the acorn woodpecker's annual diet consists of acorns. Acorn woodpeckers can also represent impacts to other canopy-dwelling species. Turkeys forage and breed in oak woodlands and are abundant in the project area. Mule deer also heavily depend on acorns as a dietary item in the fall and spring; the abundance of acorns and other browse influence the seasonal pattern of habitat use by deer. These latter species represent species which utilize the ground component of the habitat and both have important non-consumptive human uses (i.e., wildlife viewing and bird watching). Based on the high value of oak woodlands to the evaluation species, and their declining abundance, the Service has determined oak woodlands which would be affected by the project should be placed in Resource Category 2, with an associated mitigation planning goal of "no net loss of in-kind habitat value or acreage."

The evaluation species selected for the riparian forest that would be impacted by the project are Swainson's hawks, wood ducks, and Bullock's orioles. Riparian forest vegetation provides important cover, and roosting, foraging, and nesting habitat for these species. Large diameter trees also provide nesting sites for species such as wood ducks and Swainson's hawks. Riparian woodland cover-types are of generally high value to the evaluation species, and are overall, extremely scare (less than 2% remaining from pre-development conditions). Therefore, the Service finds that any riparian forest cover-type that would be impacted by the project should be placed in Resource Category 2, with an associated mitigation planning goal of "no net loss of in-kind habitat value or acreage." In addition, the Service's regional goal of no net loss of wetland acreage or habitat values, whichever is greater, would apply to this habitat type.
The evaluation species selected for the riparian scrub-shrub vegetation that would be impacted by the project is the yellow warbler. Riparian scrub-shrub vegetation provides important cover, and roosting, foraging, and nesting habitat for this species. Riparian cover-types are generally of high value to the evaluation species, and are overall extremely scarce (less than 2% remaining from pre-development conditions). Therefore, the Service finds that any riparian scrub-shrub cover-type that would be impacted by the project should be placed in Resource Category 2, with an associated mitigation planning goal of "no net loss of in-kind habitat value or acreage." In addition, the Service's regional goal of no net loss of wetland acreage or habitat values, whichever is greater, would apply to this habitat type.

The evaluation species selected for SRA cover that would be affected by the project are juvenile salmonids (salmon and steelhead) and the heron and egret family (family Ardeidae). Salmonids were selected because large declines in their numbers are among the most important resource issues in the region, and because of their very high commercial and sport fishing values. Herons and egrets were selected because of the Service's responsibilities for their management under the Migratory Bird Treaty Act, their relatively high value for non-consumptive human uses, such as bird watching, and their value as indicator species for the many birds which use SRA cover.

Table 4. Resource categories, evaluation species, and mitigation planning goal for the habitats possibly impacted by the proposed American River Common Features General Re-evaluation Report, Sacramento County, California.

COVER-TYPE	EVALUATION SPECIES	RESOURCE CATEGORY	MITIGATION GOAL
Oak Woodland	Acorn woodpecker Turkey Deer	2	No net loss of in-kind habitat value or acreage.
Riparian Forest	Swainson's hawk Wood duck Bullock's oriole	2	No net loss of in-kind habitat value or acreage.
Riparian Scrub-Shrub	Yellow warbler	2	No net loss of in-kind habitat value or acreage.
SRA Cover	Juvenile salmonids Herons and Egrets	1	No loss of existing habitat value.
Emergent Wetland	Marsh Wren	2	No net loss of in-kind habitat value or acreage.
Shallow Open Water	Egret Sunfish	2	No net loss of in-kind habitat value or acreage.
Annual Grassland	Red-tailed hawk	3	No net loss of habitat value while minimizing loss of in-kind habitat value.
Agriculture (non-rice cultivation)	White-tailed kite California vole	4	Minimize loss of habitat value.
Ornamental Landscape	None	4	Minimize loss of habitat value.
Other	None	4	Minimize loss of habitat value.

In 1992, the Service designated SRA cover that is impacted by bank protection activities within the Sacramento Bank Protection Project action area as Resource Category 1 (USFWS 1992). Under Resource Category 1, habitat to be impacted is high value, unique, and irreplaceable on a national basis or in the eco-region, and the Service's mitigation planning goal is for no loss of existing habitat value.

The evaluation species selected for the emergent wetland cover-type is the marsh wren. Drainage wetland habitat provides important cover, foraging, nesting, and roosting habitat for such water associated birds as well as some amphibians and aquatic mammals. Insects and spiders are taken from vegetation, the wetland floor, and while in flight (Gutzwiller and Anderson 1987). For protection from predators, the marsh wren usually constructs nests in reedy vegetation about 15

inches above water that is 2 to 3 feet deep (Gutzwiller and Anderson 1987). Because of the medium to high value of this habitat to the evaluation species, and its relative scarcity, the Service designates any emergent wetland habitat within the project area as Resource Category 2, with its associated mitigation planning goal of "no net loss of in-kind habitat value or acreage."

The evaluation species selected for the shallow open water cover-type is the egret and sunfish. Shallow, open water is important to a number of regionally important fish and wildlife. For example, wading birds (e.g., herons and egrets) use it for feeding, as do a number of gamefish, including sunfish, catfish and striped bass. It is also part of the critical habitat designated for federally listed delta smelt and Sacramento River winter-run Chinook salmon. Such shallow water is generally removed when typical bank protection is done, especially when the bank is reshaped. The result is likely to be higher velocities and deeper water along the new shoreline. Compounding the problem is the large amount of riprap that has already been placed in the vicinity of the proposed action, thus effectively removing many miles of shallow, open water. In concert with past Sacramento River Bank Protection Project planning, the Service is designating such habitat that would be impacted as Resource Category 2, with an associated planning goal of "no net loss of in-kind habitat value or acreage."

The evaluation species selected for the annual grassland cover-type is the red-tailed hawk, which utilizes these areas for foraging. This species was selected because of the Service's responsibility for their protection and management under the Migratory Bird Treaty Act, and their overall high non-consumptive values to humans. Annual grassland areas potentially impacted by the project vary in their relative values to the evaluation species, depending on the degree of human disturbance, plant species composition, and juxtaposition to other foraging and nesting areas. Therefore, the Service designates the annual grassland cover-type in the project area as Resource Category 3. Our associated mitigation planning goal for these areas is "no net loss of habitat value while minimizing loss of in-kind habitat value."

The evaluation species selected for the agriculture, non-rice cultivation, cover-type is the white-tailed kite (formerly black-shouldered kite) and the California vole. The white-tailed kite in California is a common species of open and cultivated bottomland and is an obligate predator on diurnal small mammals (Faanes and Howard 1987). Movements and nesting of the white-tailed kite is largely governed by concentrations of mice and voles (Faanes and Howard 1987). The California vole is a widespread and common herbivore in California (Brylski 1990), and its abundance and distribution, along with daytime activity, make it an important prey species. Because this habitat is not native, and is managed for crop production unless fallowed, the Service designates the agriculture cover-type in the project area as Resource Category 4. Our associated mitigation planning goal for these areas is "minimize loss of habitat value."

No evaluation species were identified for the ornamental landscape or "other" cover-types. The ornamental landscape is typically vegetation which occurs along the fence line of adjacent private properties and is maintained by individual landowners. The "other" cover-type encompasses those areas which do not fall within the other cover-types such as gravel and paved roads, parking areas, buildings, bare ground, riprap, etc. Generally these cover-types would not provide any significant habitat value for wildlife species. Therefore, the Service designates the ornamental landscape and "other" cover-types in the project area as Resource Category 4. Our associated mitigation planning goal for these areas is "minimize loss of habitat value."

The recommendations below are based on preliminary construction designs provided by the Corps for the Common Features GRR. Once the specific project designs are developed, the Service's recommendations will be refined.

RECOMMENDATIONS

The Service recommends:

1. Avoid the loss of SRA cover by planting native woody vegetation within the bank protection areas. Work with the Service, NMFS, and California Department of Fish and Wildlife (CDFW) to develop planting and monitoring plans, and with DWR and SAFCA to develop a variance to allow vegetation within the Corps' vegetation free zone to remain in place, especially in areas designed for rock slope protection.

2. Woody vegetation that needs to be removed within the construction footprint should be removed during the non-nesting season to avoid affecting active bird nests.

3. Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the proposed repair sites by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. This would especially apply if construction begins in spring or early summer. Work activity around active nests should be avoided until the young have fledged. The following protocol from the CDFW for Swainson's hawk would suffice for the pre-construction survey for raptors.

   A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 mile of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 mile of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Wildlife. If work is begun and completed between September 1 and February 28, a survey is not required.

4. Avoid future impacts to the site by ensuring all fill material is free of contaminants.

5. Minimize project impacts by reseeding all disturbed areas, including staging areas, at the completion of construction with native forbs and grasses. Reseeding should be conducted just prior to the rainy season to enhance germination and plant establishment. The reseeding mix should include species used by and beneficial for native pollinators. The Service can work with you in developing this seed mix.

6. Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.

7. Compensate the loss of oak woodland, riparian forest, riparian scrub-scrub, and emergent wetland at a ratio of at least 2:1. The Corps should work with the Service and other resource agencies on the development of a riparian plan that will evaluate locations for riparian vegetation planting based on land use in the lower American River Parkway, effects from known future projects, such as the reoperation of Folsom Dam, where existing riparian and

valley elderberry longhorn beetle habitat exists, creating and maintaining connectivity between large riparian patches, and coordination with Sacramento County Parks. For the loss of other cover-types, the Corps should work with the Service and other resource agencies on the development of compensation success benchmarks to ensure that goals are achieved.

8. All bank protection areas should be planted with a diverse mix of woody and herbaceous riparian vegetation. Sites should be diverse (a mix of riparian forest and scrub-shrub) and fit into the surrounding landscape. The planting plan should take into account what is missing from the surrounding vegetation and attempt to create heterogeneous habitats. The Corps should develop a baseline map of existing vegetation communities. Given the amount of rock already placed and the amount proposed for placement, this can serve to create diverse and heterogeneous habitats.

9. Include within the planting contract a provision for the contractor to plant understory species after some of the woody canopy has established. Studies have shown that planting late successional understory species after woody species canopy cover has been established provides better success for establishing these understory plants. Incorporating these species within the planting mix provides more diverse habitat for wildlife species (Johnston 2009).

10. Contact the California Department of Fish and Wildlife regarding possible effects of the project on State listed species.

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Appendix B

Geosyntec Memo

Geosyntec consultants

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Memorandum

Date:

7/7/17

To:

Ric Reinhardt

Pete Ghelfi

Copies to:

file

From:

Joe Niland,

Subject: DTSC Decision Regarding Land Use Covenant Requirements
1920 Front Street
SAFCA Sacramento River East Levee Improvements
Sacramento, California

This memorandum has been prepared to document a California Department of Toxic Substance Control (DTSC) decision regarding Land Use Covenant (LUC) requirements it manages due to historical environmental issues on the property at 1920 Front Street in Sacramento, California (site). The property is currently owned by the City of Sacramento Housing and Redevelopment Agency (SHRA). The Sacramento Area Flood Control Agency (SAFCA) plans to build a stability berm on the property as shown in the attached figures and, as part of the construction process soil on the site will be disturbed. SAFCA asked Geosyntec to review the site history and environmental data collected from the area of the planned stability berm and present and discuss the issue with DTSC to evaluate the need for special management of the soils per the LUC. The DTSC determined, based on the data collected, that the soils proposed to be disturbed are not contaminated and, therefore a Soil Management Plan (SMP) is not required for the SAFCA project (see attached email from the DTSC dated June 1, 2017). Attached to this memorandum are:

Exhibit 1 – SAFCA 90 Percent Design Plans for the Stability Berm on the Site

Exhibit 2 – A 2002 Site Plan Showing Impact Areas and Samples Collected on 1920 Front Street

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Exhibit 3 – A 2002 Site Plan Showing Excavation Confirmation Sample Locations

Exhibit 4 – A 2002 Site Plan Showing Confirmation Soil Samples

Exhibit 5 – 2015 Map and Data Tables Showing the Location and Results from SAFCA Soil Sampling on 1920 Front Street

Exhibit 6 – The June 1, 2017 email from Bud Duke at DTSC

At SAFCA's request, Geosyntec contacted Harold (Bud) Duke at the DTSC via email on May 17, 2017 to set up a meeting to discuss the site and the LUC requirements. The email described the property, the issue and the purpose of the requested meeting. Jose Salcedo, Bud's supervisor was also invited. Bud and Jose are in the school unit at DTSC and have responsibility for this SHRA site.

A meeting to discuss the project was held on May 24, 2017. Bud Duke with DTSC, Karl Kurka with the City of Sacramento and Joe Niland of Geosyntec representing SAFCA attended the meeting. Jose Salcedo was present for the first few minutes to indicate his support. At the meeting, we reviewed SAFCA's 90 percent design plans for the project, information collected regarding historical soil impacts and cleanup activities, and soil characterization data collected by SAFCA in 2015. Bud Duke with DTSC had reviewed the LUC requirements and the historical data prior to the meeting.

At the meeting, we determined that the LUC only applies to part of the SAFCA project area, parcel APN# 0009-0012-002 (see Exhibit 1). The SAFCA project will also disturb soil on parcels #0009-0012-058, and 048 though these parcels are not covered by the LUC.

Based on the documents reviewed from the DTSC on-line database Envirostor (envirostor@dtsc.ca.gov), the SHRA property was sampled in 1997 and again in 1999 to delineate the lateral and vertical distribution of polycyclic aromatic hydrocarbons (PAHs) from past town gas use. The distribution of geoprobe and test pit samples collected are shown on Exhibit 2. Based on the soil characterization, the cross-hatched area was identified for excavation based on the analytical results and observation of lampblack (Geomatrix 2002). The western-most 25 feet of the cross-hatched area likely overlaps with the SAFCA project surface soil disturbance. Other test pits in the footprint of the SAFCA project shown on Exhibit 2 (TP25, 14 and 13) did not note the presence of lampblack. The data from this early sample collection is not on Envirostor though the map seems clear with respect to distribution and we assume that the delineation was acceptable to DTSC as it formed the basis for the soil excavation conducted in 2002.

Soil removal actions occurred on the parcel twice in 2002. In the first excavation effort, soils were removed from the larger cross hatched area shown on Exhibit 3. Confirmation soil samples E-1 at 4.5-feet below ground surface (bgs) and E-2 at 2.5-feet bgs were reported as low or non-detect for PAHs. In the second excavation event that occurred in the smaller cross-hatched area on Exhibit 4, the three soil samples collected E11 at 5-feet bgs, E12 at 4.5-feet bgs, and E13 at 3-feet bgs were also reported as non-detect for PAHs. The data tables are attached to the exhibits referenced. The excavation reports show that clean material was placed and compacted after the excavations occurred.

In 2015, SAFCA collected three samples from the potential soil disturbance area on the parcel covered by the LUC shown on Exhibit 5, samples TP03 at 2.5 and 5-feet bgs and SS-6 at 6-inches bgs. The samples analyzed from TP03 were both reported as non-detect for total volatile organic compounds (VOCs), Total Petroleum Hydrocarbons (TPH) as GRO and PAHs. There was one relatively low detection reported of Diesel Range Hydrocarbons in TP3. Sample SS6, only analyzed for metals, had arsenic and lead reported below risk-based standards [USEPA Regional Screening Levels (RSLs)]. The sample locations and the data tables for this more recent sampling are attached as Exhibit 5.

SAFCA's 90 percent design plans (Exhibit 1) show the removal of up to two feet of surficial soils from the berm construction area on the 1920 Front Street parcel. Based on historical characterization, excavation and confirmation data, the soils being disturbed are either clean fill that was placed back into the excavation area or soil that was determined to be clean and not require remediation. SAFCA's more recent sample collection confirms that soil in this area does not contain constituents above USEPA RSLs and it can be reused consistent with DTSC's 2001 Clean Imported Fill Advisory.

Section 4.01(d) of the LUC indicates that "Activities that may disturb contaminated soils at the Property (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) unless conducted in accordance with a project-specific Soil Management Plan as approved by the Department" are prohibited without prior approval from DTSC. Based on the data collected and the property history, Geosyntec concluded that the soils being disturbed are not contaminated and therefore, a Soil Management Plan should not be required for the SAFCA project.

We agreed at the meeting that to make it easier for DTSC, Geosyntec would document the site condition based on the analysis above and submit the information via email to Bud for his concurrence. The email summary was provided to DTSC on May 25, 2017 and DTSC responded with its concurrence on June 1, 2017 (Exhibit 6). As indicated above, Bud concurred that "After review of the attached email request, DTSC agrees that the soils proposed to be disturbed are not

contaminated and, therefore, and concurs that a Soil Management Plan should not be required for the SAFCA project as proposed." Based on the data and this concurrence, Geosyntec recommended that SAFCA manage the soil disturbed as part of its project at 1920 Front Street as it would any other clean fill.

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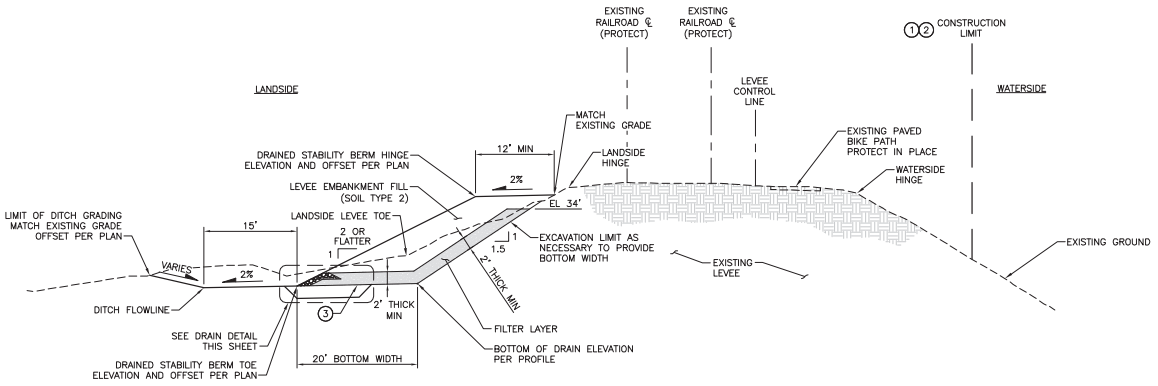
SRELIP - PROPOSED STAGING AREA LOCATIONS AND IMPACTED PARCELS (2/9/2017)

No.	Approximate Location	Description	Expected Usage	Expected Duration of Usage	Alternatives If Not Available	Isolation Options (visual, pollution, etc.)	Image
1	Landside STA 1081+50 to 1090+25	Landside of levee along Front St. including area of City-owned storage for Old Town Sacramento. APN #'s: • 006-0241-007 (portion) 1 • 009-0012-050 (portion) 2 • 009-0012-067 (all) 3 • 009-0012-066 (portion) 4 • 009-0012-048 (portion) 5 • 009-0012-058 (portion) 6 • 009-0012-059 (all) 7 • 009-0012-019 (all) 8 • 009-0012-002 (all) 9	Storage of Reach 4 relief well and collector pipe equipment and material. Storage of berm construction materials and equipment. Possible location of contractor's office.	Two construction seasons – approx. 6 months each	Staging area #2 can be used for storage of berm materials and equipment.	Visual barrier along Front St. Silt fencing around material staging areas. Exclusionary fencing for environmental protection as needed.	

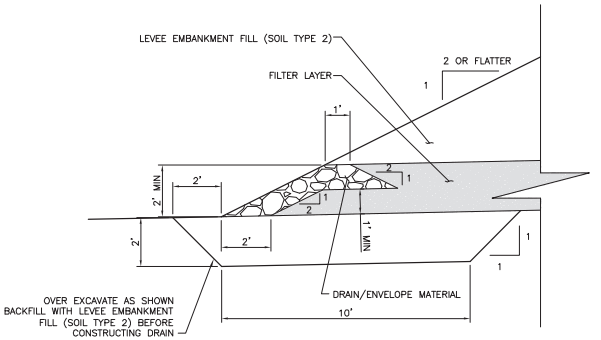
CONSTRUCTION NOTES:

1. CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMIT SHOWN ON THESE PLANS.
2. CONSTRUCTION LIMIT SHOWN IS TYPICAL. VARIATIONS ARE SHOWN ON THE PLANS. SEE SHEETS G-30 TO G-39 FOR CONSTRUCTION LIMIT LAYOUT.
3. ESTABLISH 2% GRADE TO DRAIN AWAY FROM LEVEE BEFORE PLACING FILTER LAYER.
4. CONCRETE WALL IS NOT PERPENDICULAR TO LEVEE. CONTRACTOR SHALL NOT PLACE FILL MORE THAT 2' HIGHER THAN EXISTING FILL ON OPPOSITE SIDE OF WALL.

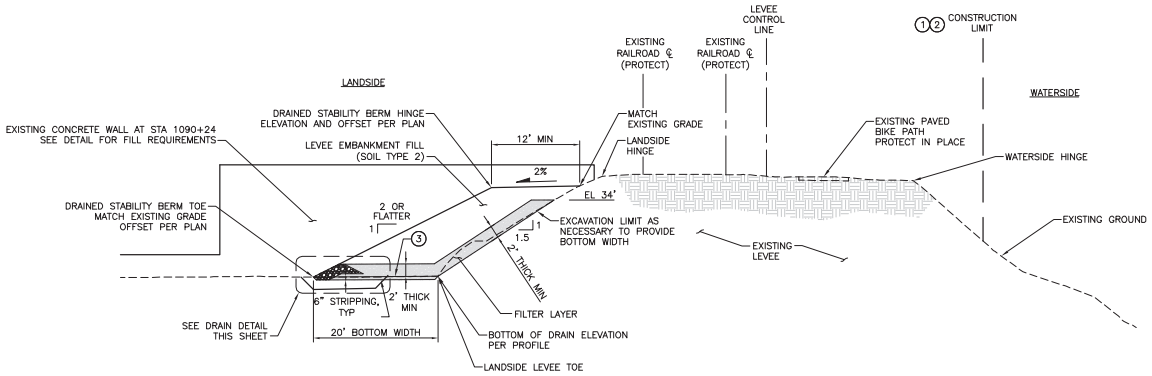


DRAINED STABILITY BERM
(STA 1086+16 TO 1088+30)
NTS

1

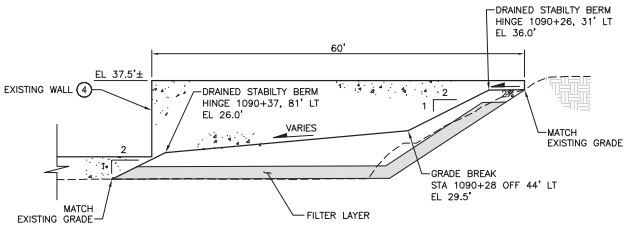


FILTER LAYER AT NEW LEVEE SLOPE DETAIL
NTS



DRAINED STABILITY BERM
(STA 1088+30 TO 1090+28)
NTS

2



FILL ON EXISTING CONCRETE WALL (STA 1090+24)
NTS

90% DESIGN

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: N. GOODING
DRAWN BY: A. COLLINS
IN CHARGE: M. STANLEY, P.E. 49746
PROJECT MANAGER: A. PUJOL
DATE: 04/03/2017

PRELIMINARY

GEI Consultants in association with: HDR

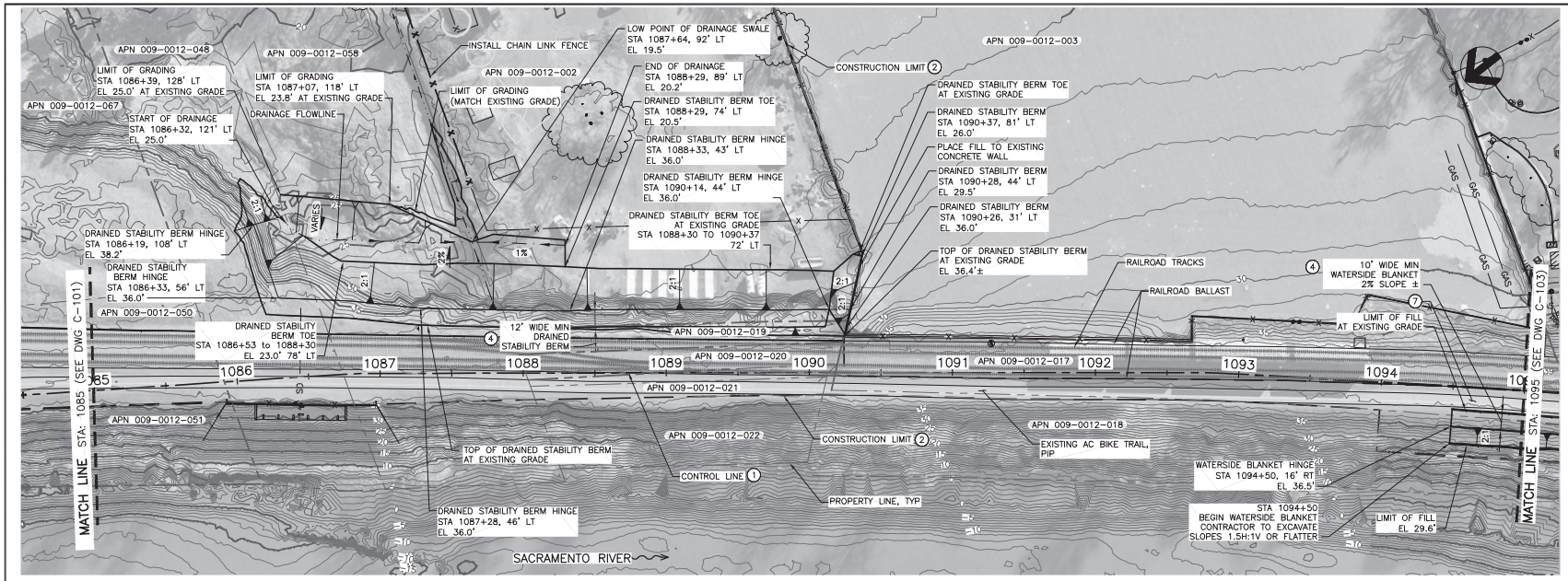
SAFCA

SREL IMPROVEMENT PROJECT

DRAINED STABILITY BERM
TYPICAL SECTIONS

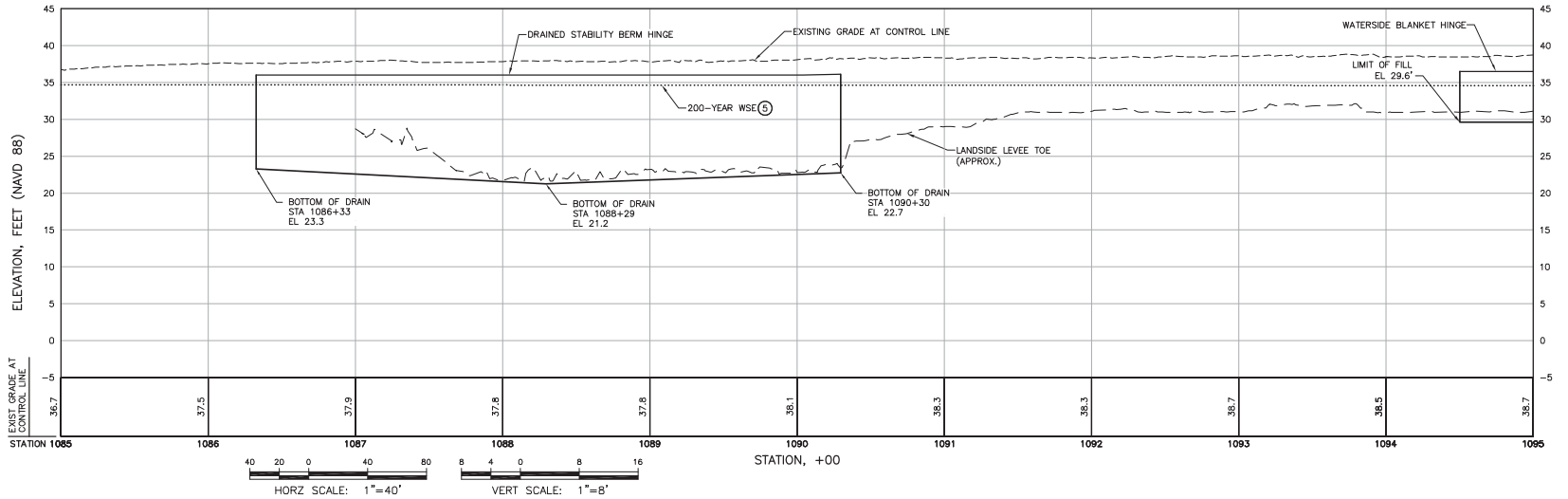
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

DRAWING NO.	SHEET
C-210	XX



CONSTRUCTION NOTES:

1. FOR CONTROL LINE AND CURVE DATA SEE SHEETS G-013 TO G-025.
2. SEE SHEETS G-030 THROUGH G-039 FOR CONSTRUCTION LIMITS.
3. SEE SHEET G-102 FOR UTILITY DETAILS.
4. SEE TYPICAL SECTIONS ON SHEET C-210 AND C-211.
5. 200-YEAR WSE BASED ON 200-YEAR CVHS HYDROLOGY, RELEASE OF 160,000 CFS FROM FOLSOM DAM, AND ULDC.
6. EXTENT OF STAGING AREA NOT SHOWN FOR CLARITY. SEE SHEET G-030 FOR STAGING AREA EXTENTS.
7. RECONSTRUCT PAVED BIKE TRAIL TO MATCH EXISTING LOCATION FROM STA 1094+50 TO 1095+00. SEE SHEET C-206 FOR TYPICAL DETAIL.



90% DESIGN

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY: N. GOODING
DRAWN BY: A. COLLINS
IN CHARGE: M. STANLEY, P.E. 49746
PROJECT MANAGER: A. PUJOL
DATE: 04/03/2017

PRELIMINARY

GEI Consultants in association with: HDR

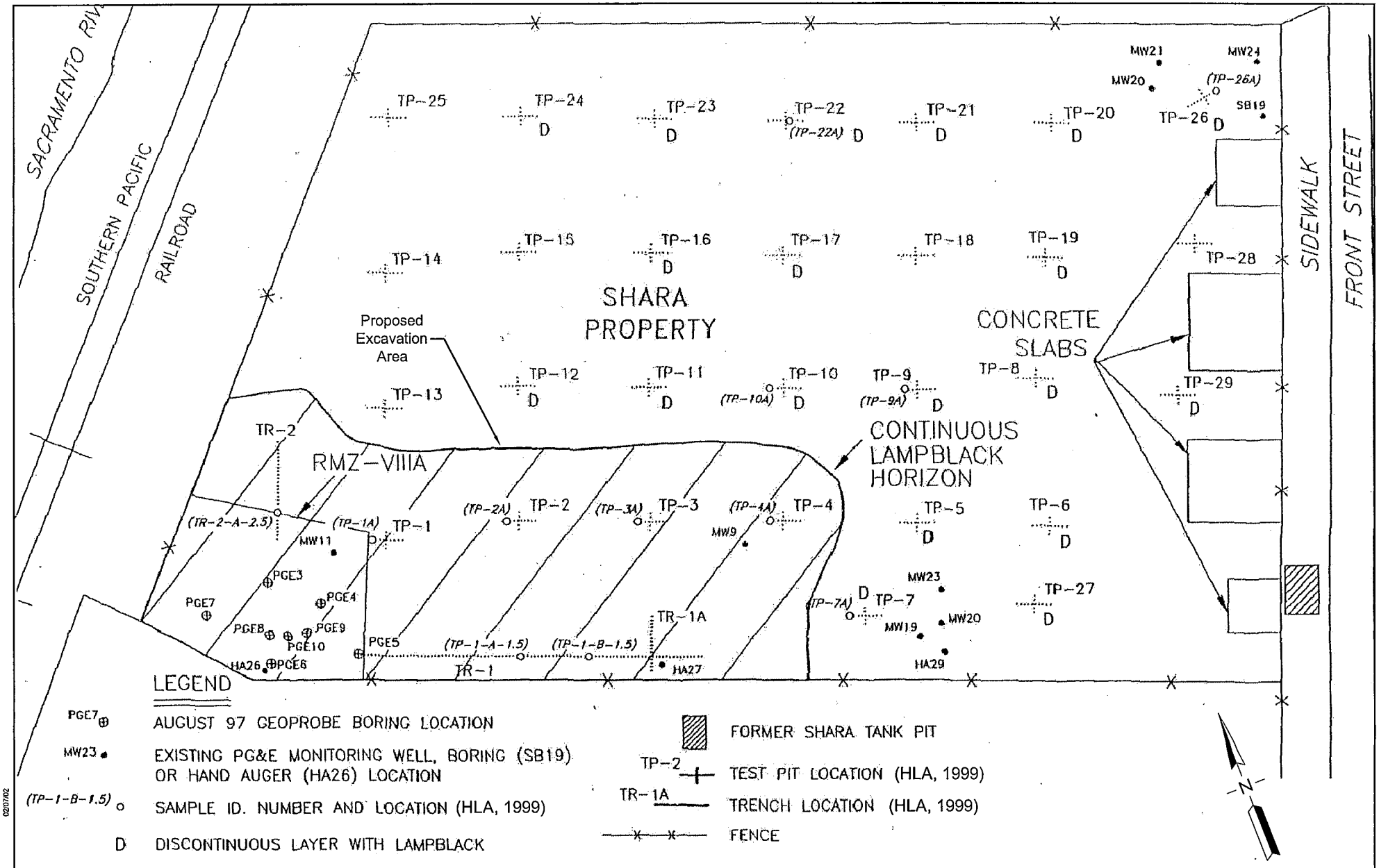
SAFCA

SREL IMPROVEMENT PROJECT

LEVEE PLAN AND PROFILE STA: 1085+00 TO 1095+00

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

DRAWING NO. C-102
SHEET XX



Source: Harding Lawson Associates, July 8, 1999, Summary Report, Limited Phase II Investigation of Lampblack Distribution at 1920 Front Street, Sacramento Housing and Redevelopment Agency Property, Sacramento, California (HLA, 1999).

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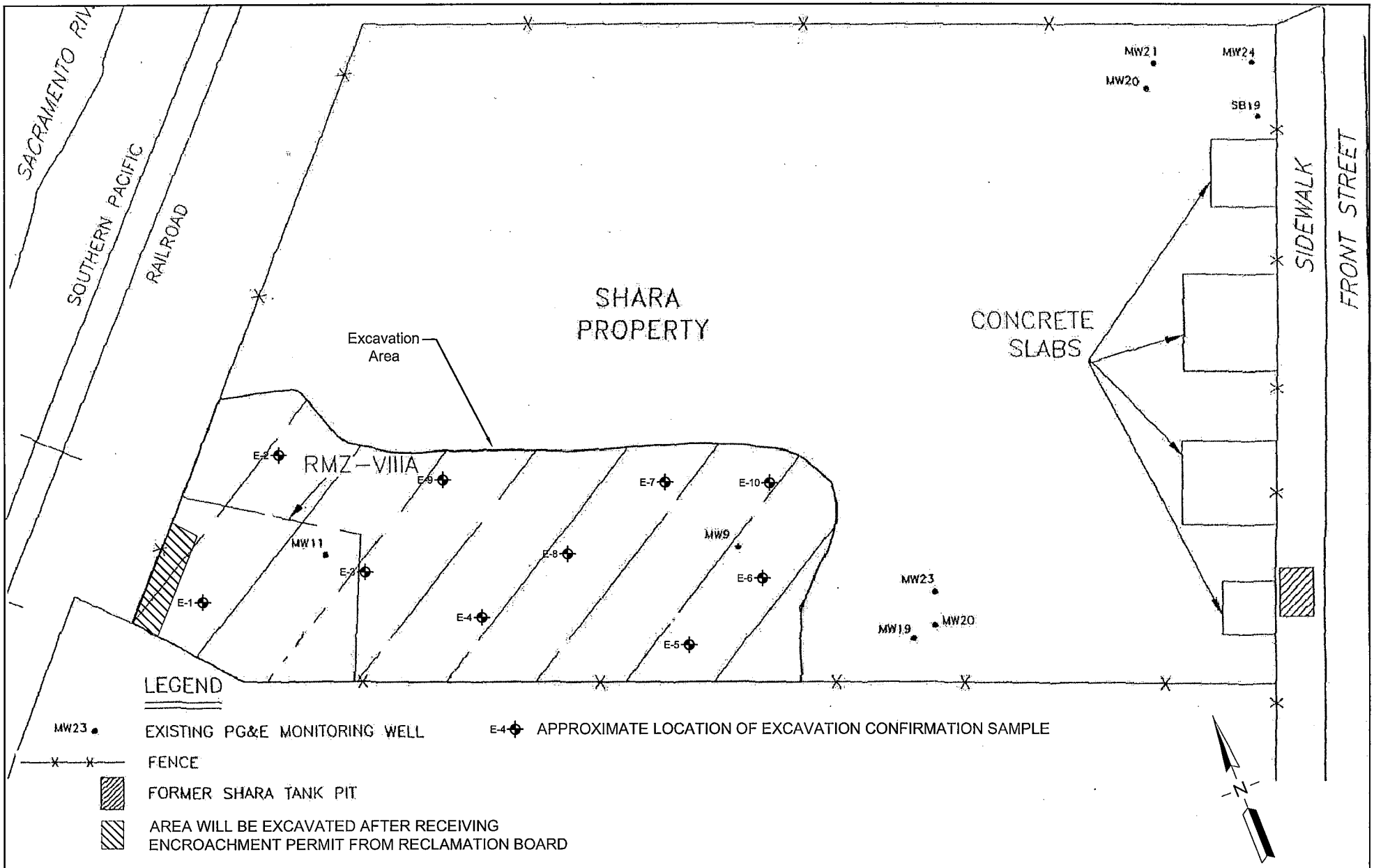
GEOMATRIX

SITE PLAN

1920 Front Street Site

Sacramento, California

Figure By	Project No.
dmm	7404.000
Map No.	Figure
Date 02/07/02	2



Source: Harding Lawson Associates, July 8, 1999, Summary Report, Limited Phase II Investigation of Lampblack Distribution at 1920 Front Street, Sacramento Housing and Redevelopment Agency Property, Sacramento, California (HLA, 1999).

LOCATIONS OF EXCAVATION CONFIRMATION SAMPLES

1920 Front Street Site

Sacramento, California

GEOMATRIX

Figure By	Project No.
dmm	7404.000
Map No.	Figure
	3
Date	
02/07/02	

02/07/02

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GEOMATRIX

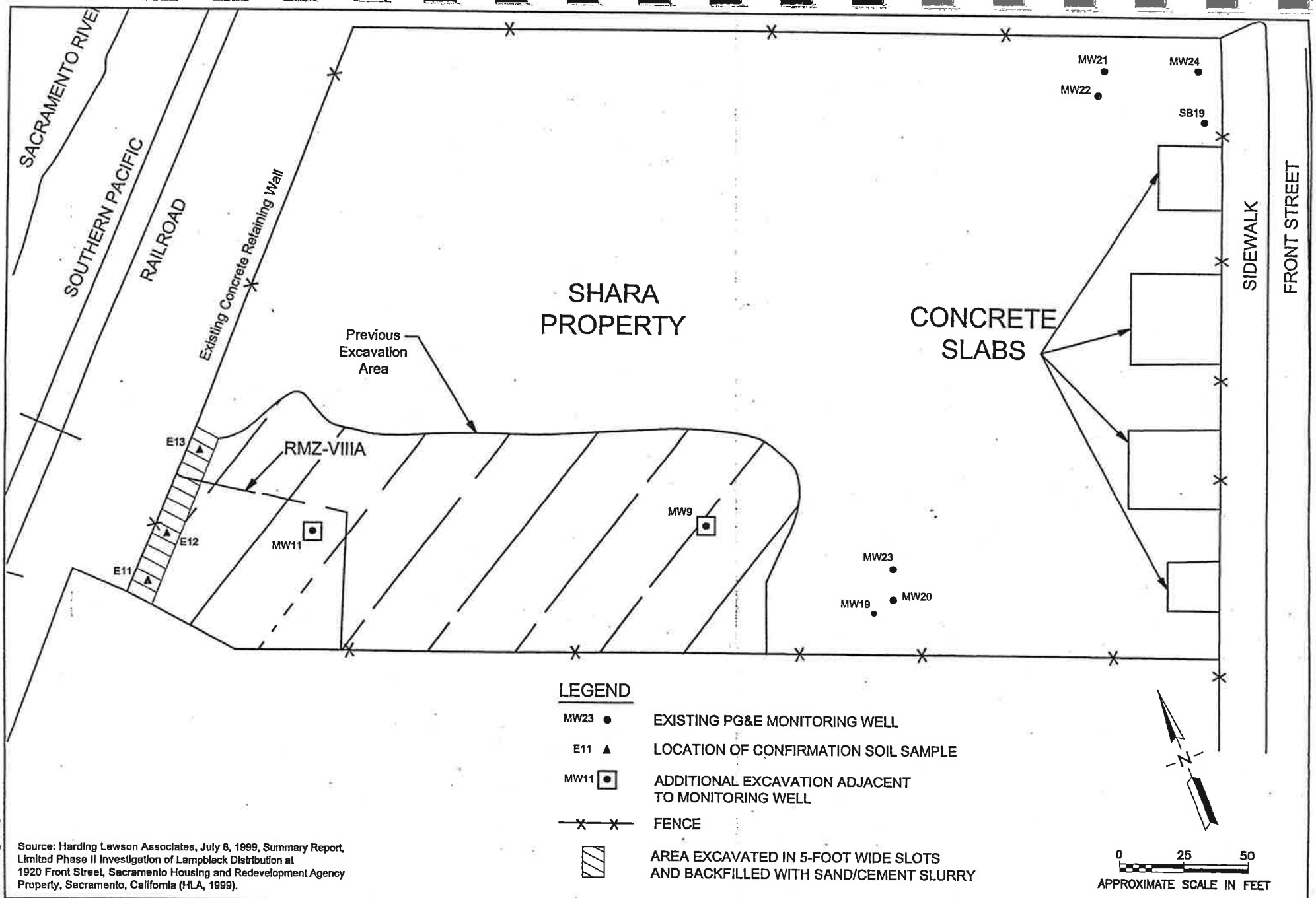
TABLE 1

EXCAVATION CONFIRMATION SOIL DATA

1920 Front Street
Sacramento, California

Constituent[a]	Soil Cleanup Goals[b]	Soil Sample Locations[c]											
		E1-4.5' 11/13/01	E2-2.5' 11/13/01	E3-3.5' 11/13/01	E4-2.5' 11/13/01	E5-2.5' 11/13/01	E5B-2.5' 11/19/01[d]	E6-2.5' 11/14/01	E7-2.5' 11/14/01	E7B-2.5' 11/19/01[d]	E8-2.5' 11/14/01	E9-2.5' 11/14/01	E10-2.5' 11/14/01
Carcinogenic PAHs (CPAHs)													
Benzo(a)anthracene	--[e]	< 0.0050[f]	< 0.0050	< 0.0050	< 0.0050	0.64	< 0.0050	< 0.0050	0..029	0.039	< 0.0050	< 0.0050	< 0.0050
Benzo(a)pyrene	22	< 0.0050	< 0.0050	< 0.0050	< 0.0050	3.2	0.0053	< 0.0050	0.055	0.080	< 0.0050	< 0.0050	< 0.0050
Benzo(b)fluoranthene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	2.1	0.0061	< 0.0050	0.044	0.050	< 0.0050	< 0.0050	< 0.0050
Benzo(k)fluoranthene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	1.1	< 0.0050	< 0.0050	0.022	0.026	< 0.0050	< 0.0050	< 0.0050
Chrysene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.64	< 0.0050	< 0.0050	0.027	0.037	< 0.0050	< 0.0050	< 0.0050
Indeno(1,2,3-cd)pyrene	--	< 0.010	< 0.010	< 0.010	< 0.010	4.6	0.021	< 0.010	0.073	0.097	< 0.010	< 0.010	0.020
Total CPAHs:	140	***0***	***0***	***0***	***0***	***12.28***	***0.0324***	***0***	***0.221***	***0.329***	***0***	***0***	***0.020***
Noncarcinogenic PAHs (NCPAHs)													
Acenaphthene	--	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	--	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.092	< 0.0050	< 0.0050	< 0.0050	0.0054	< 0.0050	< 0.0050	< 0.0050
Benzo(g,h,i)perylene	--	< 0.010	< 0.010	< 0.010	< 0.010	3.8	0.015	< 0.010	0.068	0.076	< 0.010	< 0.010	0.013
Dibenzo(a,h)anthracene	--	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.90	0.014	< 0.0050	0.065	0.10	< 0.0050	< 0.0050	0.012
Fluorene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Naphthalene	280	< 0.015	< 0.015	< 0.015	< 0.015	< 0.15	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015
Phenanthrene	--	< 0.0050	0.0053	< 0.0050	< 0.0050	0.28	0.0061	< 0.0050	0.021	0.027	< 0.0050	< 0.0050	0.0061
Pyrene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.82	0.011	< 0.0050	0.082	0.13	< 0.0050	< 0.0050	0.0093
Total NCPAHs:	620	***0***	***0.0053***	***0***	***0***	***5.892***	***0.0461***	***0***	***0.236***	***0.3384***	***0***	***0***	***0.0404***
Benzene	3.9	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	na[g]	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	< 0.0050
Ethyl benzene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	< 0.0050
Toluene	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	< 0.0050
Xylenes	--	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	na	< 0.0050	< 0.0050	< 0.0050

a. Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8310. Benzene, toluene, ethyl benzene, and xylenes analyzed using EPA Method 8021B. Results in milligrams per kilogram (mg/kg). Samples were analyzed by STL Chromalab of Pleasanton, California.
b. Soil cleanup goals based on 15 feet above mean sea level (from Table 2-1 of Tetra Tech, Inc., June 28,1991, *Soil Remedial Action Design Plan for the PG&E Sacramento Former Manufactureed Gas Plant Site*).
c. Soil sampling locations are shown on Figure 3 and approximate depths are in feet below grade.
d. Location was resampled after additional soil was excavated.
e. -- = no soil cleanup goal established.
f. < = less than the practical quantitation limit as shown on the analytical data sheets in Appendix C.
g. na = not analyzed for this constituent.



Source: Harding Lawson Associates, July 8, 1999, Summary Report, Limited Phase II Investigation of Lampblack Distribution at 1920 Front Street, Sacramento Housing and Redevelopment Agency Property, Sacramento, California (HLA, 1999).

GEOMATRIX

LOCATIONS OF CONFIRMATION SOIL SAMPLES

1920 Front Street Site

Sacramento, California

Figure By	Project No.
dmm	7404.000
Map No.	Figure
	2
Date	
10/15/02	

TABLE 1

GEOMATRIX

EXCAVATION CONFIRMATION SOIL DATA

1920 Front Street
Sacramento, California

Constituent[a]	Soil Cleanup Goals[b]	Soil Sample Locations[c]			
		E11-5' 08/19/02	E12-4.5' 08/20/02	E13-3' 08/21/02	E4-2.5' 11/13/01
Carcinogenic PAHs (CPAHs)					
Benzo(a)anthracene	--[d]	ND[e]	ND	ND	< 0.0050
Benzo(a)pyrene	22	ND	ND	ND	< 0.0050
Benzo(b)fluoranthene	--	ND	ND	ND	< 0.0050
Benzo(k)fluoranthene	--	ND	ND	ND	< 0.0050
Chrysene	--	ND	ND	ND	< 0.0050
Indeno(1,2,3-cd)pyrene	--	ND	ND	ND	< 0.010
Total CPAHs:	140	***0***	***0***	***0***	***0***
Noncarcinogenic PAHs (NCPAHs)					
Acenaphthene	--	ND	ND	ND	< 0.010
Acenaphthylene	--	ND	ND	ND	< 0.010
Anthracene	--	ND	ND	ND	< 0.0050
Benzo(g,h,i)perylene	--	ND	ND	ND	< 0.010
Dibenzo(a,h)anthracene	--	ND	ND	ND	< 0.010
Fluoranthene	--	ND	ND	ND	< 0.0050
Fluorene	--	ND	ND	ND	< 0.0050
Naphthalene	280	ND	ND	ND	< 0.015
Phenanthrene	--	ND	ND	ND	< 0.0050
Pyrene	--	ND	ND	ND	< 0.0050
Total NCPAHs:	620	***0***	***0***	***0***	***0***
Benzene	3.9	ND	ND	ND	< 0.0050
Ethyl benzene	--	ND	ND	ND	< 0.0050
Toluene	--	ND	ND	ND	< 0.0050
Xylenes	--	ND	ND	ND	< 0.0050

a. Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8310. Benzene, toluene, ethyl benzene, and xylenes analyzed using EPA Method 8021B. Results in milligrams per kilogram (mg/kg). Samples were analyzed by STL Chromalab of Pleasanton, California.

b. Soil cleanup goals based on 15 feet above mean sea level (from Table 2-1 of Tetra Tech, Inc., June 28,1991, Soil Remedial Action Design Plan for the PG&E Sacramento Former Manufactureed Gas Plant Site).

c. Soil sampling locations are shown on Figure 2 and approximate depths are in feet below grade.

d. -- = no soil cleanup goal established.

e. ND = none detected.

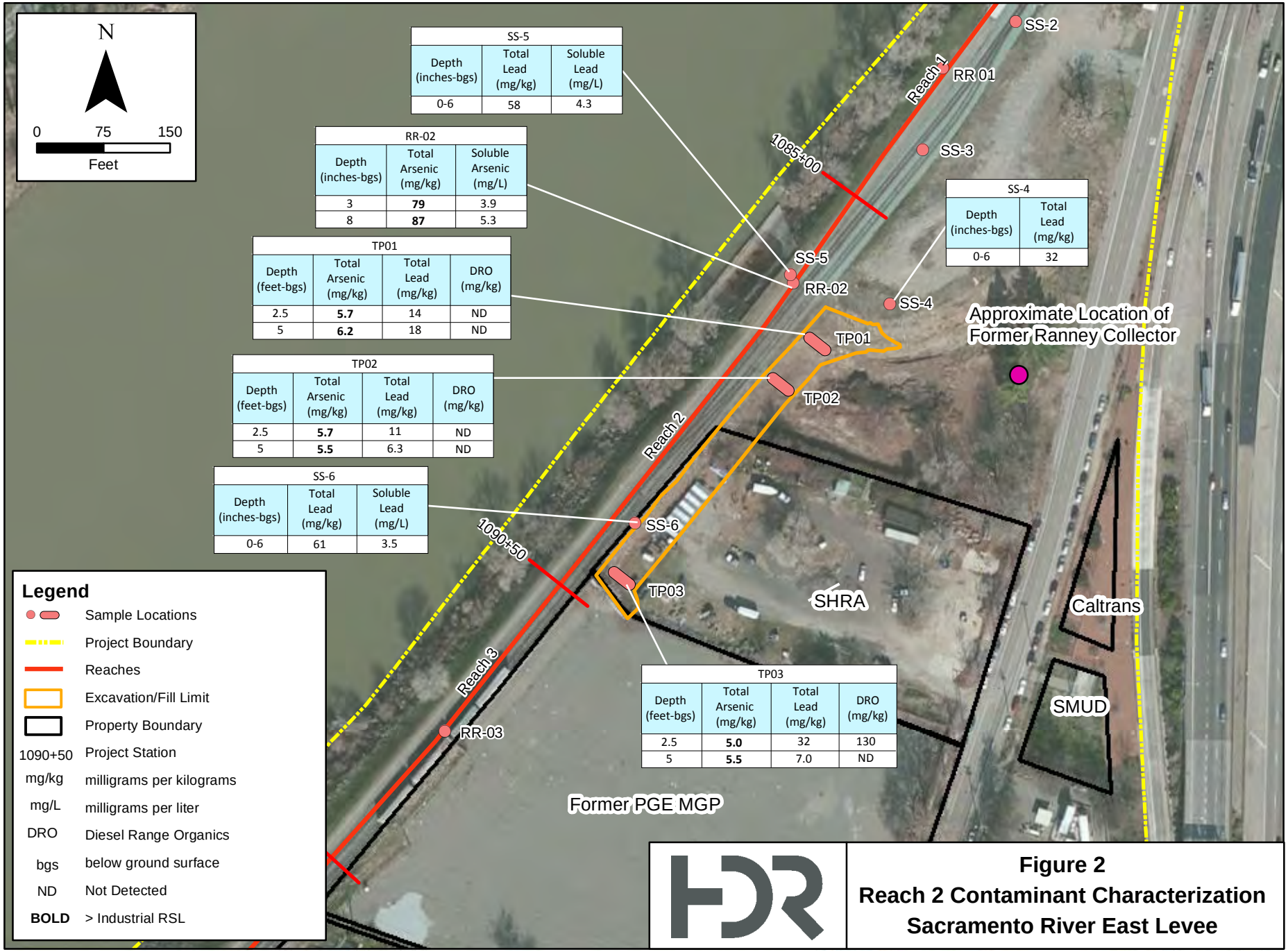


Figure 2
Reach 2 Contaminant Characterization
Sacramento River East Levee

Table 5
Levee Composite Soil Analytical Results - VOCs, DRO, GRO, PAHs

		Constituent	Total VOCs	DRO	GRO	PAH
		Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg
		Analytical Method	SW8260B	SW8015B		625/8270
Sample ID	Sample Depth	Sample Date				
TP01-2.5	2.5'	3/12/2015	ND	ND	ND	ND
TP01-5	5'	3/12/2015	ND	ND	ND	ND
TP02-2.5	2.5'	3/12/2015	ND	ND	ND	ND
TP02-5	5'	3/12/2015	ND	ND	ND	ND
TP03-2.5	2.5'	3/12/2015	ND	130	ND	ND
TP03-5	5'	3/12/2015	ND	ND	ND	ND
TP04 -2.5	2.5'	3/9/2015	ND	ND	ND	ND
TP04 -5	5'	3/9/2015	ND	ND	ND	ND
TP05-2.5	2.5'	3/9/2015	ND	ND	ND	ND
TP05-5	5'	3/9/2015	ND	ND	ND	ND
TP06-2.5	2.5'	3/9/2015	ND	ND	ND	ND
TP06-5	5'	3/9/2015	ND	ND	ND	ND
TP07-2.5	2.5'	3/10/2015	ND	ND	ND	ND
TP07-5	5'	3/10/2015	ND	ND	ND	ND
TP08-2.5	2.5'	3/10/2015	ND	ND	ND	ND
TP08-5	5'	3/10/2015	ND	ND	ND	ND
TP09-2.5	2.5'	3/10/2015	ND	ND	ND	ND
TP09-5	5'	3/10/2015	ND	ND	ND	ND
		U.S. EPA RSL	varies	440	420	varies

Bold values indicate concentration was greater than U.S. EPA RSL.

DRO: Diesel Range Organics
GRO: Gasoline Range Organics
mg/Kg: milligrams per kilogram
ND: not detected above reporting limit
PAH: Polyaromatic Hydrocarbons
VOCs: Volatile Organic Compounds
U.S. EPA RSL: U. S. Environmental Protection Agency Regional Screening Level for industrial land use, May 2016

Table 6
Levee Soil Analytical Results - Metals

			Total Concentrations																Soluble Concentrations
		Constituent	Be	V	Cr	Co	Ni	Cu	Zn	As	Se	Mo	Ag	Cd	Sb	Ba	Hg	Ti	Pb	Pb
		Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L
		Analytical Method	SW6020																	SW6020/SW6020A
Sample ID	Sample Depth	Sample Date																		
TP01-2.5	2.5'	3/12/2015	ND	50	44	11	41	30	51	**5.7**	ND	ND	ND	ND	ND	130	ND	ND	14	--
TP01-5	5'	3/12/2015	ND	49	47	12	49	35	60	**6.2**	ND	ND	ND	ND	ND	140	ND	ND	18	--
TP02-2.5	2.5'	3/12/2015	ND	28	24	7.4	26	12	35	**5.7**	ND	ND	ND	ND	ND	51	ND	ND	11	--
TP02-5	5'	3/12/2015	ND	66	26	8.0	35	13	52	**5.5**	ND	ND	ND	1.6	ND	46	ND	ND	6.3	--
TP03-2.5	2.5'	3/12/2015	ND	41	35	7.0	28	30	130	**5.0**	ND	ND	ND	ND	ND	74	ND	ND	32	--
TP03-5	5'	3/12/2015	ND	52	61	14	70	35	65	**5.5**	ND	ND	ND	ND	ND	130	ND	ND	7.0	--
TP04 -2.5	2.5'	3/9/2015	ND	28	39	8.6[1]	42	10	27	**3.1**	ND	ND	ND	ND	ND	41	ND	ND	3.8	--
TP04 -5	5'	3/9/2015	ND	29	35	10[1]	49	12	32	2.8	ND	ND	ND	ND	ND	51	ND	ND	4.1	--
TP05-2.5	2.5'	3/9/2015	ND	51	48	11[1]	49	27	42	**7.9**	ND	ND	ND	ND	ND	92	ND	ND	6.4	--
TP05-5	5'	3/9/2015	ND	34	35	9.7[1]	37	18	32	**7.9**	ND	ND	ND	ND	ND	61	ND	ND	6.7	--
TP06-2.5	2.5'	3/9/2015	ND	41	52	10[1]	46	230	1,500	**19**	ND	2.3	4	1.6	13	750	ND	ND	**5,300**	120
TP06-5	5'	3/9/2015	ND	41	50	11[1]	44	190	1,200	**17**	ND	1.2	2.5	1.2	15	670	ND	ND	**2,000**	88
TP07-2.5	2.5'	3/10/2015	ND	48	60	10	47	130	670	**7.2**	ND	ND	ND	ND	19	340	ND	ND	790	83
TPO7-5	5'	3/10/2015	ND	61	70	14	67	55	110	**6.9**	ND	ND	ND	ND	2.9	170	ND	ND	74	130
TP08-2.5	2.5'	3/10/2015	ND	49	73	11	54	26	81	**14**	ND	ND	ND	ND	1.2	70	ND	ND	27	--
TP08-5	5'	3/10/2015	ND	38	55	9.4	42	16	40	**6.4**	ND	ND	ND	ND	ND	67	ND	ND	6	--
TP09-2.5	2.5'	3/10/2015	ND	35	44	8.9	36	14	30	**5.8**	ND	ND	ND	ND	ND	52	ND	ND	6	--
TP09-5	5'	3/10/2015	ND	51	73	12	55	160	910	**12**	ND	ND	2.1	1	32	450	ND	ND	**5,500**	0.32
		U.S. EPA RSL	2,300	5,800	--	350	--	47,000	350,000	3	5,800	5,800	5,800	980	470	220,000	46	12	800	--
		TTLC limit	75	2,400	2,500	8,000	2,000	2,500	5,000	500	100	3,500	500	100	500	10,000	20	700	1,000	--
		STLC limit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5

Notes:

Be: Beryllium
V: Vanadium
Cr: Chromium
Co: Cobalt
Ni: Nickel
Cu: Copper
Zn: Zinc
As: Arsenic
Se: Selenium
Mo: Molybdenum
Ag: Silver
Cd: Cadmium
Sb: Antimony
Ba: Barium
Hg: Mercury
Ti: Thallium
Pb: Lead

mg/Kg: milligrams per kilogram
mg/L: milligrams per liter
ND: not detected above reporting limit
--: not analyzed / not applicable

Bold values indicate concentration was greater than U.S. EPA RSL or greater than STLC limit.

5,300 Sample is California Hazardous Waste (greater than TTLC or STLC limit)

U.S. EPA RSL: U. S. Environmental Protection Agency Regional Screening Level for industrial land use, May 2016

1. Matrix Spike / Matrix Spike Duplicate relative percent difference exceeded the laboratory control limit.

From:	Duke, Bud@DTSC
To:	Joe Niland; kkurka@cityofsacramento.org
Cc:	Salcedo, Jose@DTSC; Sullivan, Patricia (PES2@pge.com)
Subject:	RE: SAFCA SREL Improvements 1920 Front Street APN 009-0012-002
Date:	Thursday, June 1, 2017 10:09:49 AM
Attachments:	image001.png image002.jpg image003.jpg image004.jpg

Good morning.

After review of the attached email request, DTSC agrees that the soils proposed to be disturbed are not contaminated and, therefore, and concurs that a Soil Management Plan should not be required for the SAFCA project as proposed.

Please contact me if you have any questions regarding this email.

Bud

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From: Joe Niland [mailto:JNiland@Geosyntec.com]
Sent: Thursday, May 25, 2017 9:58 AM
To: Duke, Bud@DTSC <Bud.Duke@dtsc.ca.gov>
Cc: kkurka@cityofsacramento.org
Subject: SAFCA SREL Improvements 1920 Front Street APN 009-0012-002

Bud: Thank you for meeting with us yesterday regarding the levee improvements the Sacramento Area Flood Control Agency (SAFCA) plans to conduct on the Sacramento Housing and Redevelopment Agency (SHRA) property at 1920 Front Street in Sacramento, APN# 0009-0012-002-000 (property or parcel) as shown on Exhibit 1. As discussed, as part of SAFCA planned levee stability berm construction on the property, some surface soils will be disturbed. The purpose of

this email is to present additional information and to request Department of Toxic Substances Control (DTSC) concurrence that the project does not require a project-specific Site Management Plan for the soil disturbance related to the SAFCA levee project, consistent with the October 2006 Covenant to Restrict Use of Property (LUC) Section 4.01(d) overseen by DTSC, because the surface soils being disturbed are not contaminated.

To confirm part of our discussion, the LUC only applies to part of the SAFCA project area, parcel APN# 0009-0012-002. The SAFCA project will also disturb soils on parcels #0009-0012-058, and 048 though these parcels are not covered by the LUC.

Based on the documents reviewed from Envirostor, the SHRA property was sampled in 1997 and 1999 to delineate the lateral and vertical distribution of polycyclic aromatic hydrocarbons (PAHs) from past town gas use. The distribution of geoprobe and test pit samples collected are shown on Exhibit 2. Based on the sample collection, the cross hatched area was identified for excavation based on the analytical results and observation of lampblack (Geomatrix 2002). The western-most 25 feet of the cross hatched area likely overlaps with the SAFCA project surface soil disturbance. Other test pits in the footprint of the SAFCA project shown on Exhibit 2 (TP25, 14 and 13) did not note the presence of lampblack. The data from this early sample collection is not on Envirostor though the map seems clear with respect to distribution and we assume that the delineation was acceptable to DTSC as it formed the basis for the soil excavation conducted in 2002.

Soil removal actions occurred on the parcel twice in 2002. In the first excavation effort, soils were removed from the larger cross hatched area shown on Exhibit 3. Confirmation soil samples E-1 at 4.5-feet below ground surface (bgs) and E-2 at 2.5-feet bgs were reported as low or non-detect for PAHs. In the second excavation event that occurred in the smaller cross-hatched area on Exhibit 4, the three soil samples collected E11 at 5-feet bgs, E12 at 4.5-feet bgs, and E13 at 3-feet bgs were also reported as non-detect for PAHs. The data tables are attached to the exhibits referenced. The excavation reports show that clean material was placed and compacted after the excavations occurred.

In 2015, SAFCA collected three samples from the potential soil disturbance area on the parcel covered by the LUC shown on Exhibit 5, samples TP03 at 2.5 and 5-feet bgs and SS-6 at 6-inches bgs. The samples analyzed from TP03 were both reported as non-detect for total volatile organic compounds (VOCs), Total Petroleum Hydrocarbons (TPH) as GRO and PAHs. There was one relatively low detection reported of Diesel Range Hydrocarbons in TP3. Sample SS6, only analyzed for metals, had arsenic and lead reported below risk-based standards [USEPA Regional Screening Levels (RSLs)]. The sample locations and the data tables for this more recent sampling are attached as Exhibit 5.

SAFCA's 90 percent design plans (Exhibit 1) show the removal of up to two feet of surficial soils from the berm construction area on the 1920 Front Street parcel. Based on historical characterization, excavation and confirmation data, the soils being disturbed are either clean fill that was placed back into the excavation area or soil that was determined to be clean and not require remediation. SAFCA's more recent sample collection confirms soil in this area does not contain constituents above USEPA RSLs and that it can be reused consistent with DTSC's 2001 Clean Imported Fill Advisory.

Section 4.01(d) of the LUC indicates that "Activities that may disturb contaminated soils at the Property (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) unless conducted in accordance with a project-specific Soil Management Plan as approved by the Department" are prohibited without prior approval from DTSC. Based on the data collected and the property history, Geosyntec concludes that the soils being disturbed are not contaminated and therefore, a Soil Management Plan should not be required for the SAFCA project. We request DTSC's concurrence on this conclusion.

Again, thanks very much for your response on this issue. If you need more information or want to discuss this issue further, please contact me.

Joe

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Appendix C

Air Quality Emissions Modeling Results

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> SREL Seepage Berm				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	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
Grading/Excavation	0.79	11.40	6.76	2.97	0.47	2.50	0.74	0.22	0.52	0.07	7,542.17	0.47	0.21	7,616.13
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (pounds/day)	0.79	11.40	6.76	2.97	0.47	2.50	0.74	0.22	0.52	0.07	7,542.17	0.47	0.21	7,616.13
Total (tons/construction project)	0.02	0.25	0.15	0.07	0.01	0.06	0.02	0.00	0.01	0.00	165.93	0.01	0.00	167.55

Notes:

Project Start Year ->	2019
Project Length (months) ->	2
Total Project Area (acres) ->	4
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	542	0	1,680	0	300	0
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> SREL Seepage Berm				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	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
Grading/Excavation	0.02	0.25	0.15	0.07	0.01	0.06	0.02	0.00	0.01	0.00	165.93	0.01	0.00	152.00
Drainage/Utilities/Sub-Grade	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
Paving	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
Maximum (tons/phase)	0.02	0.25	0.15	0.07	0.01	0.06	0.02	0.00	0.01	0.00	165.93	0.01	0.00	152.00
Total (tons/construction project)	0.02	0.25	0.15	0.07	0.01	0.06	0.02	0.00	0.01	0.00	165.93	0.01	0.00	152.00

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.