Yuba City Feather River Fish Screen Draft Environmental Assessment/ Initial Study Report

U.S. Department of the Interior
Bureau of Reclamation

City of Yuba City

November 2009

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Draft

Yuba City Feather River Fish Screen Environmental Assessment/ Initial Study Report

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U.S. Department of the Interior
Bureau of Reclamation

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Acronyms and Abbreviations

AFSP	Anadromous Fish Screen Program
ASIP	Action-Specific Implementation Plan
Basin Plan	Water Quality Control Plan
BMPs	best management practices
Board	Central Valley Flood Protection Board
CAAA	Clean Air Act Amendments of 1990
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBDA	California Bay-Delta Authority
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CISS	cast-in-steel-shell
City	City of Yuba City
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CRHR	California Register of Historical Resources
CVPIA	Central Valley Project Improvement Act
CWA	federal Clean Water Act
dB	Decibels
dBA	A-weighted decibels
Delta	Sacramento–San Joaquin River Delta
DFG	California Department of Fish and Game
DNL, symbol L_{dn}	Day-Night Average Level
DOI	U.S. Department of the Interior
DPS	distinct population segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EA/IS	environmental assessment/initial study
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
ESU	Evolutionarily Significant Unit

FGC	Fish and Game Code
FHWA	Federal Highway Administration
FMMP	Farmland Mitigation and Monitoring Program
fps	feet per second
FRAQMD	Feather River Air Quality Management District
GHG	greenhouse gas
Guidelines	Guidelines for Developing Post-Construction Evaluation and Assessment Plans and Operations and Maintenance Plans
HCPs	Habitat Conservation Plans
HFC	high-flow channel
hp	horsepower
IPCC	Intergovernmental Panel on Climate Change
ITAs	Indian Trust Assets
kWh/year	kilowatt hours per year
kW-hrs	kilowatt-hours
LFC	low-flow channel
LLPS	Low-Lift Pump Station
LOS	levels of service
LUST	Leaking Underground Storage Tank
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
mgd	million gallons per day
mm	millimeter
mph	miles per hour
msl	above mean sea level
NAAQS	National Ambient Air Quality Standards
NCCP/HCP	Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NCCP	Natural Community Conservation Plan
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NOAA Fisheries	National Marine Fisheries Service
NOI	notice of intent
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
OHWM	ordinary high-water mark

PG&E	The Pacific Gas and Electric Company
PM10	particulate matter 10 microns in diameter or less
PM2.5	particulate matter 2.5 microns in diameter or less
PPMP	pollution prevention and monitoring program
proposed project	Yuba City Feather River Intake Screen Project
psi	pounds per square inch
Reclamation	Bureau of Reclamation
RM	River Mile
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SIP	State Implementation Plan
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SR	State Route
SRA	shaded riverine aquatic
State Water Board	State Water Resources Control Board
SWP	State Water Project
SWPPP	stormwater pollution and prevention plan
UGB	Urban Growth Boundary
USFWS	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
WTP	Water Treatment Plant
YCWD	Yuba County Water District

Chapter 1

Purpose and Need for Project

Introduction

The City of Yuba City (City) owns and operates the Yuba City (Tierra Buena) Water Treatment Plant (WTP), serving a population of approximately 60,000. Surface water is delivered to the WTP through an intake structure on the Feather River and a Low-Lift Pump Station (LLPS). Water is drawn through the intake structure by the LLPS, both of which are located on the Feather River approximately one mile east of the WTP.

To address the conversion of domestic water supplies in the Tierra Buena water service area from groundwater to surface water and planned population growth, the City needs to ensure that its surface water supply infrastructure can deliver 48 million gallons per day (mgd). In 2005, the City began to upgrade and expand its WTP capacity to meet this need. The completed WTP expansion project resulted in a continuous capacity of 36 mgd and a peak capacity of 42 mgd.

As a condition of the State Water Resources Control Board (State Water Board) approval of the completed WTP expansion project, the City agreed to replace its unscreened intake structure with a screened intake structure. The City is proposing the Yuba City Feather River Fish Screen Project (proposed project) to satisfy this agreement. Under the proposed project, the existing unscreened intake on the Feather River would be replaced with a new screened intake, and the associated LLPS would be modified to include a new manifold and façade. Piping between the new intake structure and existing LLPS would be modified to accommodate the new intake structure design. In addition, the road that runs east/west from the project site through the orchard would be improved to enable access during winter months and storm events. Additional information on these project components is included in Chapter 2.

Activities to Be Authorized, Funded, or Carried Out by the Federal Action Agency

The U.S. Department of the Interior (DOI), Bureau of Reclamation (Reclamation), is funding a portion of this project through its Anadromous Fish Screen Program. As a result, Reclamation is the federal lead agency under the

National Environmental Policy Act (NEPA). This Environmental Assessment/Initial Study (EA/IS) meets the requirements of NEPA.

The Department of Interior's (as represented by Reclamation and FWS for this project) involvement is limited to contributing up to 50% of the cost of the fish screen based on the total cost of screening associated with the historical peak diversions at the existing Yuba City intake. This funding will be provided by Reclamation under Section 3406(b)(21) of the Central Valley Project Improvement Act (CVPIA), which authorizes DOI to develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened diversions on the Sacramento and San Joaquin Rivers and their tributaries. This applies to the Feather River, which is tributary to the Sacramento River.

Purpose of this Environmental Assessment/ Initial Study

This EA/IS has been prepared to assess the impacts of the construction and operation of the proposed project, as required by NEPA and the California Environmental Quality Act (CEQA). The proposed project is being administered by the City, with funds for the project coming from a variety of sources, including federal agencies. The CEQA lead agency for the proposed project is the City. Although this document was prepared to comply with both CEQA and NEPA, the CEQA terms *proposed project* and *impact* are used throughout the report.

This EA/IS is a public document that analyzes the environmental impacts of the proposed project, presents feasible measures to reduce or avoid potential environmental impacts, and evaluates alternatives to the project. It complies with environmental requirements established by both CEQA and NEPA. This EA/IS serves as an informational document to be used in the decision-making process and does not recommend either approval or denial of the proposed project.

Objectives/Purpose and Need for the Project

The City currently provides water to a population of approximately 60,000. The primary source of water is from the Feather River where the City currently operates an unscreened intake structure. The diverted water is conveyed through the intake structure and the associated LLPS to the Yuba City WTP system for treatment prior to distribution to customers.

Yuba City's need for surface water has increased recently and will continue to increase in the future as groundwater use decreases due to groundwater quality issues. Some portions of the City's service area that historically relied on groundwater supplies have already been connected to the City's surface water system. The City intends to make high-quality treated surface water available throughout its service area. Additionally, the City is growing according to its

general plan and forecasting an annual growth in demand for its surface water supply from 3% to 10% (0.7 to 2.4 mgd) (Dyett & Bhatia2004). As a result of these factors, the City needs a surface water supply of 48 mgd. The current intake structure can accommodate 48 mgd; however, the current pumping capacity of the LLPS is 40 mgd.

The proposed project has two primary purposes/objectives:

1. Replace the City's existing unscreened intake structure on the Feather River with a new intake structure facility that meets the California Department of Fish and Game (DFG) and National Marine Fisheries Service (NOAA Fisheries) anadromous fish screen criteria, per the State Water Board conditions of approval for the expanding WTP; and
2. Construct a new intake structure facility, including upgrades to the LLPS, with 48 mgd capacity to accommodate the ongoing conversion from groundwater supplies to surface water supplies and planned growth consistent with the general plan.

Responsible, Trustee, and Cooperating Agencies

This EA/IS will be used by responsible and trustee agencies to determine the effects of the proposed project. Responsible agencies are those that have a legal responsibility to approve the project and are subject to CEQA compliance. These agencies are required to rely on the lead agency's environmental document in acting on whatever aspect of the project requires its approval but must prepare and issue its own findings regarding the project (CEQA Guidelines Section 15096). Trustee agencies are those that have jurisdiction over certain resources held in trust for the people of California but do not have legal authority over approving or carrying out the project. Responsible and trustee agencies for the proposed project are presented in Table 1-1.

Table 1-1. Responsible and Trustee Agencies

Agency	Jurisdiction
Trustee	
Department of Fish and Game	Fish and wildlife Native plants designated as rare or endangered Game refuges Ecological reserves
State Lands Commission	State-owned "sovereign" lands
Responsible	
Department of Fish and Game	Fish and wildlife Native plants designated as rare or endangered Game refuges Ecological reserves
Office of Historic Preservation	Historic and cultural resources
Central Valley Flood Protection Board	Levee and floodway modifications
Air Resources Board	Air quality
Regional Water Quality Control Board (#5)	Discharges to water bodies

A cooperating agency is any agency other than the lead agency that has discretionary authority over the proposed project, jurisdiction by law, or special expertise with respect to the environmental impacts expected to result from an action. For the proposed project, no official cooperating agencies have been identified. However, the City and Reclamation have been coordinating with U.S. Fish and Wildlife Service (USFWS), NMFS, and DFG throughout development of the Action-Specific Implementation Plan (ASIP), as described in Chapter 4 of this EA/IS.

Relationship to the Yuba City General Plan and General Plan Environmental Impact Report

The current *Yuba City General Plan* was completed in October 2003 (Dyett & Bhatia 2004), replacing the existing General Plan, which was last updated in 1989. A Draft Environmental Impact Report (EIR) evaluating the effects of the General Plan was issued in October 2003 (Dyett & Bhatia 2003); the Final EIR was issued in February, 2004 (City of Yuba City 2004). The new General Plan was adopted by the City Council on April 8, 2004.

Scope and Organization of this EA/IS

This EA/IS describes the affected environment, identifies and discloses potential environmental impacts of the proposed project and alternatives, and describes mitigation measures to avoid, minimize, or compensate for significant impacts. Chapter 2 describes the proposed project and alternatives, including those not carried forward for detailed analysis. Chapter 3 of the EA/IS focuses on the resources that would be affected by implementation of the proposed project, including the environmental setting, impacts, and mitigation measures to reduce these impacts. Chapter 4 describes the consultation that has taken place to date with the responsible, cooperating, and other agencies and any applicable regulations.

The CEQA Initial Study Checklist for the proposed project is provided as Appendix A. The checklist summarizes the level of significance of potential impacts associated with the proposed project as required by CEQA.

Chapter 2

Description of the Proposed Project and Alternatives

Introduction

The proposed project would construct a new intake structure for the City that includes a fish screen and increased diversion capacity. Details of the proposed project and alternatives are provided below.

Description of the Proposed Project

Location

The proposed project would be located on the Feather River in Sutter County (Figure 2-1), just upstream of the City's current intake location (Figures 2-2 and 2-3). The project area would extend along the west bank of the river near River Mile (RM) 28, east of Yuba City, and extend west along the access road through the orchard (Figure 2-2). The overall construction area at the intake site would cover approximately 100 feet of riverbank and extend about 35 feet into the Feather River channel.

Description of Project Activities

The proposed project would consist of the following components:

- A 48-mgd-capacity intake structure (screened intake structure) on the Feather River just upstream of the current unscreened intake;
- A 54-inch diameter underground pipeline from the new intake structure to the LLPS;
- Removal of the existing traveling screen inside the existing LLPS structure;
- Improvements to the existing LLPS to support auxiliary equipment (i.e., air receivers and control panels for the air-burst cleaning system, manifold piping, etc.) for the new fish screen and an updated façade to protect equipment from the elements and vandalism;

- Removal of the existing unscreened intake; and
- Improvements to the existing road to enable access during winter months and storm events.

The construction staging area would be located immediately northwest of the LLPS and would occupy approximately 0.07 acre. As described in Chapter 1, the federal action is limited to funding 50% of the cost of the fish screen and is not related to the expansion of the diversion facility. The expansion is considered a betterment that is specifically proposed and funded by the City.

Intake Structure

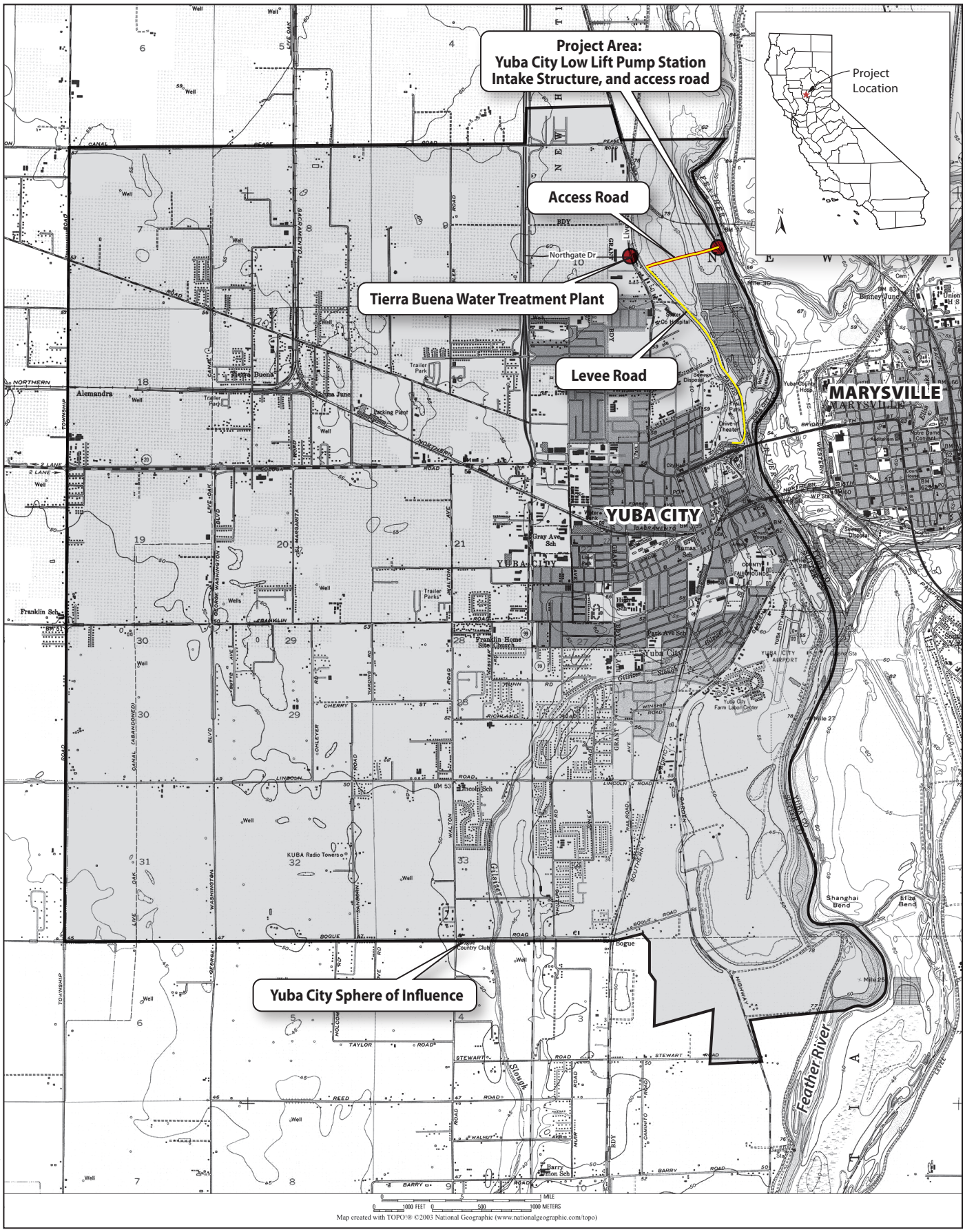
The intake structure would be located on the west bank of the Feather River, approximately 60 feet upstream from the current intake (Figure 2-3), on property owned by the City. Approximately 0.05 acre of the intake structure would be constructed on pilings and foundation material placed in the Feather River. An additional 0.12 acre of riprap erosion protection would be placed on the river bottom around the intake facility to protect against scour and erosion. The riprap would be 2.5 feet thick and would extend approximately 35 feet into the river from the ordinary high water mark (OHWM). Riprap would also extend approximately 25 feet upstream and 20 feet downstream beyond the intake facility. The intake structure/fish screen will contain four submersible pumps (three, 15-horsepower [hp] pumps, and one, 30-hp pump). The intake structure is designed to accommodate the pumping of up to 48 mgd of water from the Feather River. Figure 2-4 shows the project site plan.

Access to the intake structure would be via concrete steps installed from the top of the riverbank (elevation 60 feet above mean sea level [msl]) to the intake structure (elevation 41 feet msl).

Fish Screen

The intake structure would include a fish exclusionary system designed to meet the applicable screening requirements of DFG and NOAA Fisheries. The species of concern in this reach of the Feather River include anadromous salmonids and green sturgeon. Protection of these species was included in the design of the fish screen.

A 1.75-millimeter (mm) fish screen with a maximum approach velocity of 0.33 feet per second (fps) is included in the intake structure. The fish screen system includes an automated screen cleaning system. The fish screens are located flush on the face of the structure between approximately elevations 26 and 34 feet above msl. The fish screens are installed from the top of the structure through guide slots for screen bays. Solid panels are installed in the guide slots above the fish screens to the top of the structure.



06813.06 Yuba City Tierra Buena/ EA-IS/ (09-09) SS

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Figure 2-1
Project Area and Regional Vicinity

06813.06 Yuba City Tiera Buena/ EA-IS/ (09-09) SS

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Figure 2-2
Project Access Route

06813.06 Yuba City Tiera Buena/ EA-IS/ (10-09) SS

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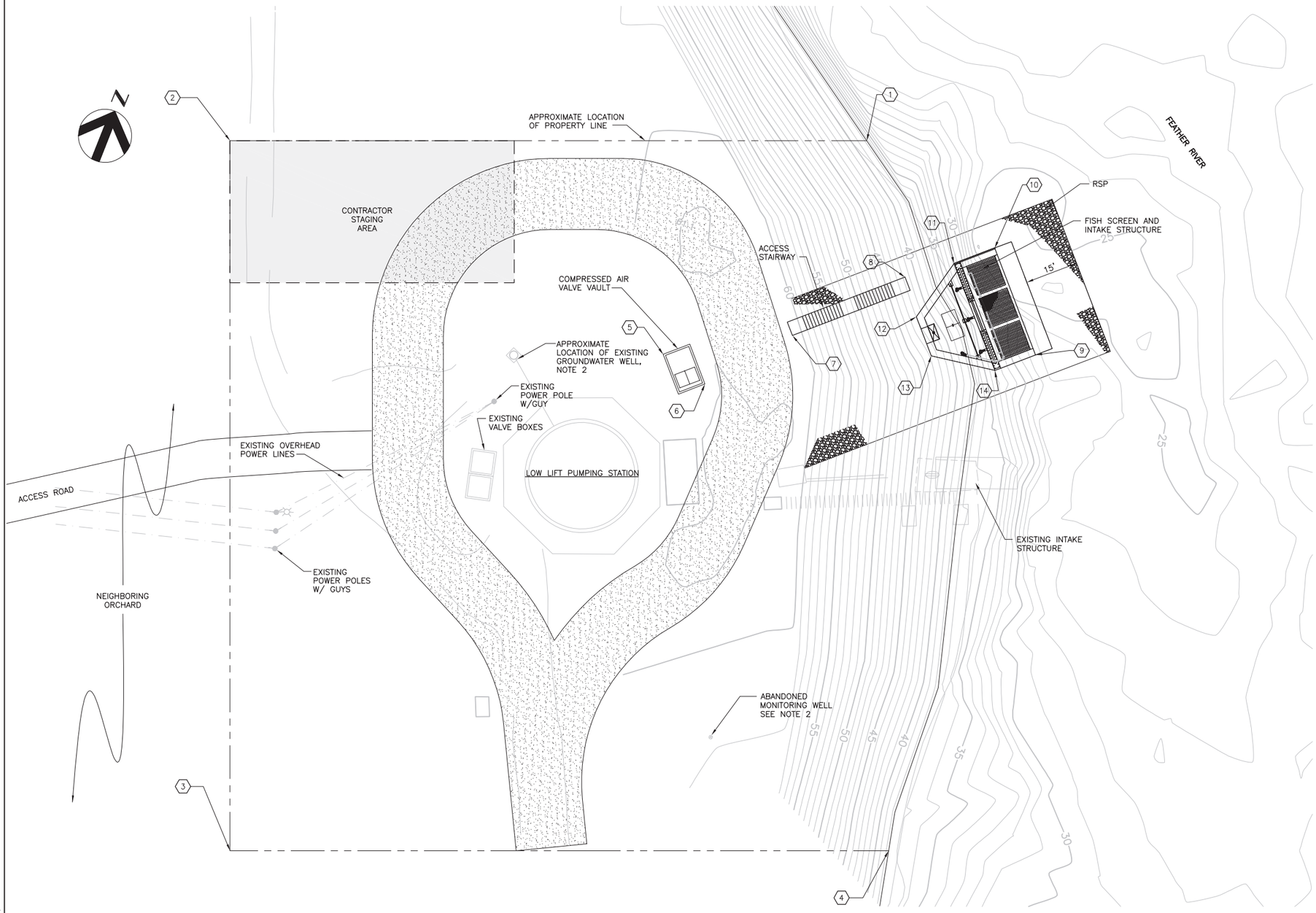
Figure 2-3
Limit of Construction Activity



OVERALL SITE PLAN

NOT TO SCALE

Source: HDR.

NOTES:

1. BENCHMARK:
   N: 2184786.5
   E: 6670264.1
   THE BENCH MARK USED FOR THIS PROJECT IS THE CLOSEST CONTROL POINT FROM THE MARCH 2005 KSN AERIAL SURVEY. IT IS BETWEEN THE RIVER AND THE LEVEE APPROXIMATELY 1230 FEET EAST OF THE PROJECT SITE.
2. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF MONITORING WELL AND GROUNDWATER WELL.
3. CITY WILL SURVEY AND STAKE PROPERTY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ON SITE SECURITY.
4. CONTRACTOR IS RESPONSIBLE FOR SEPARATING STAGING AREA AND CONSTRUCTION AREA. THE ACCESS ROADWAY WILL BE THE FINAL PART OF CONSTRUCTION AT WHICH POINT THE STAGING AREA CAN BE REDUCED.
5. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL PER SPECIFICATIONS.
6. ACCESS TO SITE WILL BE VIA 10TH STREET BRIDGE, SUTTER STREET, VON GELDERN WAY, SUMNER STREET SOUTH OF THE SITE, AND JUST NORTH OF HIGHWAY 20. SUMNER STREET LEADS TO A DIRT LEVEE ROAD WHICH PROVIDES DIRECT ACCESS TO THE SITE LOCATION. ACCESS ROUTE WILL BE SHOWN AT MANDATORY PRE–BID MEETING PER SPECS.

Pt.	NORTHING	EASTING
1	2185183.3	6671598.5
2	2185117.2	6671431.8
3	2184931.3	6671505.4
4	2184999.6	6671677.8
5	2185106.3	6671567.4
6	2185102.8	6671581.4
7	2185124.6	6671599.2
8	2185151.5	6671622.6
9	2185144.7	6671664.9
10	2185168.5	6671643.1
11	2185160.2	6671634.1
12	2185142.4	6671629.8
13	2185133.7	6671637.7
14	2185136.4	6671655.9

06813.06.15 EA (5-21-09)

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Figure 2-4
Overall Site Plan

A screen cleaning mechanism will be installed to allow continuous cleaning of the fish screens for regulatory and operational needs. An air-burst cleaning system is proposed. This system includes air compressors, air receivers, and control panels. The air compressors would be located at the WTP site. The air receivers and control panels would be located in the existing LLPS pump room. The air compressor proposed is a 28-hp rotary screw compressor that is rated for 53 standard cubic feet per minute at 125 pounds per square inch (psi). A 1,500-gallon, 200 psi rated air receiver is recommended.

Intake Structure Construction Methods

Cofferdam

The first step of constructing the intake structure would involve installation of a sheet pile cofferdam on the waterside of the riverbank along the outermost edge of the intake structure footprint. It is estimated that construction of the cofferdam would take up to 2 weeks. Thirty-seven sheet piles would be installed with both a vibratory and an impact hammer. Based on conservative estimates, it is expected that the majority (70%) of the sheet pile installation would be done with a vibratory hammer, but approximately 30% of the installation would require an impact hammer. Once completed, the cofferdam would be dewatered prior to the installation of the intake structure foundation. It is estimated that 21 of the 37 sheet piles would be installed in the wetted river channel; the remainder would be driven on dry land. The sheet piling would extend to the top of the sloped soil bank.

A dewatering plan for the cofferdam area is being developed by the project engineers and may include pumping the water into the City's treatment system, discharging it to upland areas, or treating it on site to remove sediments and then discharging it back into the river. The dewatering plan would comply with federal Clean Water Act (CWA) Section 401 and other applicable permit conditions. Fish salvage would occur during the cofferdam dewatering, as discussed in Appendix B.

The sheet pile training and support walls would support the fill on the riverbank that would allow traffic to access the new structure. The front (river side) of the sheet pile would be installed both upstream and downstream of the intake structure and extend the overall length where the sand layer is hydraulically cut off from the river along the levee. Secondary rows of sheet piles would be included behind the front wall to serve as support walls for the deadman anchor rods from the front wall. The excavations required to install this system would occur at the secondary support wall to allow the anchor rods to be attached to the support wall at the correct elevation. Excavation may also be required behind the lower secondary wall to accommodate the excavations in front of that wall. Granular backfill would be brought up to the lower anchor elevation, the deadman anchor rods would be installed, and the backfill would progress upward.

Foundation

The proposed foundation for the intake structure is a pile foundation. Piers would be constructed by driving a total of sixteen 24-inch-diameter cast-in-steel-shell (CISS) piles. Ten piles would be driven within the dewatered in-channel section of the cofferdam, and the remaining six piles would be driven within the bank section of the cofferdam. These piers would extend beneath the structure and down into a hard clay layer. A tremie seal would be placed within the cofferdam, beneath the structure, and at the top of the piers. The bottom of this seal would be founded on the sand layer beneath the structure but above the stiff to hard clays. After the piers are installed, the contractor would improve the sand layer inside the cofferdam to reduce liquefaction potential by jet grouting the entire area within the cofferdam above the clays and under the structure.

During design, a soil boring was taken from the riverbank adjacent to the proposed fish screen structure site. Based on the soil that was found, it is anticipated that each pile installation should take less than 1 hour (from the time the pile is placed at the specific location). Each CISS pile would be driven 30 feet below grade with an impact hammer. Approximately 50 to 75 blows per pile would be required for installation, and two piles would be installed per day. It would require approximately 2 weeks to drive all piles.

A 54-inch diameter, 112-foot long pipeline would be constructed from the intake structure to the LLPS. The pipe would be constructed of fabricated steel pipe (cement lined and cement mortar coated) and buried no more than 25 feet underground, beginning at the intake structure, at an elevation of approximately 26 feet msl, and ending at the LLPS, at an elevation of approximately 55 feet msl. The alignment for the pipeline would be excavated from the bank of the river using an extended-arm excavator.

With the new fish screen, the existing traveling screen located inside the LLPS structure would no longer be needed. To make room for the new fish screen's air receiver, the existing traveling screen would be removed. The opening in the LLPS pump room, where the screen penetrated, would be sealed.

Once the intake is nearly complete, portions of the sheet piling would be removed to allow water to pass into the LLPS's wet well sump.

After the new intake is connected to the LLPS, the existing unscreened intake piping would be removed from service. To minimize disruption to the river, the existing piping extending from the LLPS's wet well sump to the Feather River would be abandoned in place. At the river end, the existing bar racks would be removed, wooden planks would be installed to cover the pipe opening, and the entire pipe would be tremied (filled with concrete underwater via pipe) full of concrete (starting from the wet well end) to plug the pipe. The wooden planks would be removed after the concrete fill has set.

Construction equipment for the entire project would include an excavator, backhoe, dump trucks, concrete mixer truck, crane, roller, compactor, and impact and vibratory pile drivers. Flat bed trucks would be used to deliver sheet piling, CISS piles, fish screens, LLPS siding and equipment to the project site.

Access Road

The proposed improvements to the access road west of the intake structure include narrowing the road in certain sections from approximately 30 feet to 20 feet, and adding compacted aggregate base, geotextile filter fabric and additional culverts to facilitate drainage during high flow periods.

Construction equipment would include an excavator, a grader, a roller, a water truck, and a minimum of two double-belly dump trucks. Pick-up trucks would be used to deliver 12-inch and 36-inch culverts, geotextile fabric and other supplies to the project site.

Access to the Project Site

During construction and operation/maintenance, access to the project site would be via 10th Street Bridge (State Route 20 [SR 20]), south of the project site. Construction vehicles would exit SR 20 onto Sumner Street and then proceed on the levee road to the existing access road west of the intake and LLPS (Figure 2-2).

Construction Schedule

Construction is currently anticipated to begin in 2010 and would require approximately 12 to 15 months to complete, depending on river flow, weather conditions, and the time of year when the project is initiated. The in-river work would take place between July 1 and October 31. Depending on weather conditions and time of year, construction would run 5 days per week (Monday through Friday), approximately 6 to 10 hours per day. For example, anticipated hours during the summer could be from 6 a.m. to 4 p.m.

Following are the key steps and their estimated duration:

- Complete proposed improvements to the access road—2 weeks (June 17–June 30);
- Prepare the site and install sheet piles to form cofferdam—2 weeks (July 1–July 15);
- Excavate cofferdam, install dewatering system, and cast sacrificial concrete slab inside cofferdam—2 weeks (July 15–July 30);
- Construct fish screen structure, install riprap, and construct pipeline to LLPS—to be completed by October 31;
- Cut and remove sheet piling from front of structure—to be completed by October 1;
- Install air compressor, air receiver, and controls for fish screen cleaning system. Test system and make functional—to be completed by November 15;

- Install and start up temporary pumping system—March 1;
- Shut down existing LLPS and make modifications to pipes—March 1–April 15; and
- Remove remaining sheet piling—July 1–July 30.

Operation and Maintenance Activities

Operations

The City would continue to deliver its Feather River water via the LLPS. The City would continue to divert water from the Feather River as allowed for by right and provided for in permits issued by the State Water Board.

Yuba City's base summer water supply is provided through a contract with the Yuba County Water District (YCWD). Under this contract, YCWD provides up to 4,500 acre-feet of water to Yuba City. Additionally, the City has a water supply contract for State Water Project (SWP) water with the California Department of Water Resources (DWR). This contract entitles the City to divert up to 9,600 acre-feet per year. Diversions would occur year-round, subject to the provisions of permits issued by the State Water Board. This EA/IS discloses the potential effects of diverting up to 48 mgd at the new screened intake facility.

Intake Facility

The new intake structure facility and pipeline would allow the delivery of up to 48 mgd of water and be capable of diverting water under all river hydraulic conditions. The screen face would be oriented parallel to the river flow and extend into the river section to allow adequate water depth at the screen (2.4-foot minimum). The orientation would also allow suitable sweeping flows across the screens, reduce the overall screen length needs, and reduce maintenance requirements.

Project Start-Up

Following construction, the intake structure and other project facilities would be operated in a start-up mode to facilitate testing of the equipment (e.g., air compressor and pipelines) and confirmation that the project is operational. During initial operation, the grit removal pumps will operate 30 minutes for every hours of operation (three pumps at 10 minutes per hour each). The jet mixing pump will initially be operated in 10-minute intervals, approximately 30 minutes per hour.

The fish screen cleaning mechanism will be set to clean once every 6 hours of operation initially. Based on time of year and debris in the river, this setting can be changed by the City staff.

Sediment Management

Because the intake facility would be used under a wide range of river-flow conditions, there is potential for grit and sediment to enter the intake facility and pipelines. A sediment management system is necessary to minimize the deposition of suspended sediments in the system. Collecting sediment as it settles and immediately returning it to the river is considered the most practical and effective method of managing sediment deposition within the intake structure.

Sediment may be deposited in the forebay of the intake. Such deposits would need to be removed to keep the forebay clear and keep approach velocities at the fish screen relatively uniform along all parts of the screen.

At most times, the diversion would be less than 2% of the total river flow. At times, the diverted water would contain an appreciable amount of suspended sediment, reflecting the background turbidity in the river. To prevent sediment from entering the transmission pipeline where it could settle out and create an operation and maintenance problem, the intake would include a forebay structure designed to allow some sediment to settle out prior to the water entering the transmission system. The forebay settling structure would be expected to capture relatively coarse sediments (sand totaling about one-third of the sediment passing through the fish screens).

The sediment that settles out in the forebay would be continuously removed by a gravity collection system. That system would move the settled sediment to sediment pumps that would return the sediment to the Feather River just downstream of the fish screens. The return flow depth would be at the same depth range as the fish screens, the depth at which the material was originally diverted.

No additional material would be introduced, and thus, all returned sediment would be material suspended in the Feather River flow that would otherwise be part of the prevailing sediment load. The suspended sediment would be retained within the intake structure only temporarily. The project would be expected to create a suspended plume of sediment below the diversion structure that would quickly dissipate as material is diluted by river flow.

Environmental Commitments

The following environmental commitments would be implemented as part of the project to ensure minimization of impacts on sensitive environmental resources.

Air Quality

Environmental Commitment AQ-1: Minimize Impacts on Air Quality

In accordance with the City's General Plan (Dyett & Bhatia 2004) and consistent with the Feather River Air Quality Management Basin, the following measures will be implemented during construction to minimize PM10 impacts on air quality:

- During clearing, grading, earthmoving, or excavation operations, fugitive dust emissions shall be controlled by regular watering, paving of construction roads, or other dust-preventative measures;
- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day;
- All clearing, grading, earthmoving, or excavation activities shall cease when winds exceed 20 miles per hour (mph) averaged over 1 hour;
- All material transported off site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust;
- The area disturbed by demolition, clearing, grading, earthmoving, or excavation operations shall be minimized at all times;
- Portions of the construction site to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown; and
- All on-site roads shall be paved as soon as feasible, watered periodically, or chemically stabilized.

In accordance with the Feather River Air Quality Management District's (FRAQMD's) Best Available Mitigation Measures for Construction Activity (Feather River Air Quality Management District 2004), the following measure is to be implemented during construction to minimize ozone precursor impacts on air quality:

- Implement the FRAQMD Fugitive Dust Control Plan.

The proponent shall assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 hp and greater) that would be used an aggregate of 40 or more hours for the construction project and apply the following mitigation measures:

- Reduce oxides of nitrogen (NO_X) emissions from off-road diesel-powered equipment. The project shall provide a plan for approval by FRAQMD demonstrating that the heavy-duty (equal to or greater than 50 hp) off-road equipment to be used for the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet-average 20%

NO_X reduction and 45% particulate reduction[1] compared to the most recent California Air Resources Board (CARB) fleet average at time of construction;

- Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions Limitations (40% opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a Notice of Violation;
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained prior to and for the duration of on-site operation;
- Idling time shall be minimized to 10 minutes—saves fuel and reduces emissions; and
- Existing power sources (e.g., power poles) or clean-fuel generators shall be used rather than temporary power generators.

Portable engines and portable engine-driven equipment used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with CARB or FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.

Environmental Commitment Air Quality-2: Coordinate with PG&E to Maximize Energy Efficiency

The City will work with PG&E to include construction practices and design elements in the LLPS and other project facilities that maximize energy efficiency.

[1] Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary off-site mitigation projects, providing funds for air district off-site mitigation projects, and/or other options as they become available.

Biology

Terrestrial Resources

Environmental Commitment BIO-1: Preconstruction Surveying and Avoidance of Sensitive Species and Habitat

Valley Elderberry Longhorn Beetle
To reduce potential impacts on elderberry shrubs and valley elderberry longhorn beetle (VELB), all elderberry shrub clusters within the riparian corridor in the vicinity of the proposed project will be surveyed by a qualified biologist and flagged to provide protection from construction activities. The City will also require that the construction contractor educate all contractors and workers at the site regarding the significance of the elderberry shrubs, the need to avoid damaging shrubs, and the possible penalties involved should the shrubs be affected.

VELB mitigation also includes daily monitoring and weekly reporting during construction activities along the Feather River. As discussed under Environmental Commitment AQ-1, the City will also develop and implement a fugitive dust control plan and implement other best management practices (BMPs) and techniques to minimize dust in the construction area.

Bald Eagle, Swainson's Hawk, White-Tailed Kite, Loggerhead Shrike, and Tricolored Blackbird
Surveys for bald eagle, Swainson's hawk, and white-tailed kite nests will be conducted in all suitable nesting habitat within a 0.5-mile radius of the project area. Surveys for loggerhead shrike nests and tricolored blackbird colonies will be conducted in all suitable nesting habitat within 200 feet of the project area. These surveys will take place 1 week prior to the start of construction activities. Should any nesting sites for bald eagle, Swainson's hawk, and white-tailed kite be found within a 0.5-mile radius or loggerhead shrike or tricolored blackbird nests/colonies be found within a 200-foot radius of the project area during the survey, DFG will be contacted regarding the appropriate actions to be taken (in accordance with DFG standards). Trees containing active nests (i.e., a nest currently in use) will be marked for avoidance until after the young birds have fully fledged. Open agricultural fields, grasslands, and alfalfa fields in adjacent areas identified as potential Swainson's hawk foraging habitat should be avoided.

Aquatic Resources

Environmental Commitment BIO-2: Minimize Entrainment of Juvenile Fish

The City's plans for the proposed project include a fish screen that would be designed to meet DFG (2000) and NOAA Fisheries (1996; 1997) requirements (e.g., 1.75 mm slot size and 0.33 fps approach velocity) to conform to salmonid fry criteria.

Environmental Commitment BIO-3: Implement Construction-Period Limits

In-channel construction, including riverbank and channel-bed construction below the OHWM, will be limited to the summer low-precipitation period (July 1–October 31) to reduce the likelihood of adverse effects on fish spawning, rearing, and migration. Project construction in the channel will also be subject to the following constraints:

- Construction requiring stream dewatering, stream crossings, or work in the channel bed will not start before July 1. Upstream passage for fish will be provided through or around the construction site at all times. A cofferdam will be installed in the river to divert streamflow around the construction area of the new fish screen. Limiting in-channel construction to the June 1 to October 31 period will avoid the primary juvenile salmonid rearing and emigration period and the spawning and early rearing periods of other special-status species.

Although restricting the construction period will not preclude effects, potential adverse effects will be minimized by implementing the proposed erosion-control measures and conducting all in-water work during periods of lowest juvenile salmonid migration.

Environmental Commitment BIO-4: Employ Noise-Reduction Measures to Minimize Noise Impacts on Special-Status Fish Species

Potential injury and mortality associated with pile driving will be avoided or minimized by implementing the following noise-reduction measures:

- In-channel construction, including riverbank and channel-bed construction below the OHWM, will be limited to the summer low-flow period (July 1–October 31) to reduce the likelihood of adverse effects on juvenile salmonids;
- A cofferdam will be installed around the in-channel construction area, which will be dewatered before additional pile driving and/or construction activities. Once the outer sheet piling is completed, fish will not have access to the construction site, and underwater sounds produced by pile driving will be attenuated. The number and size of piles will be limited to the minimum necessary to meet the engineering and design requirements of the project;
- Vibratory hammers will be used whenever feasible; and
- The smallest pile driver and minimum force necessary will be used to complete the work.

Environmental Commitment BIO-5: Avoid Stranding Impacts on Fish in Dewatered Areas

A qualified fish biologist shall be on site during the installation of cofferdams and during the cofferdam dewatering process to remove any trapped salmonids and other fish from the cofferdam. The fish will be relocated to suitable habitat upstream of the work area. Protocols for the capture, handling, and release of fish will be developed in cooperation with NOAA Fisheries, DFG, and the City.

Fish biologists will contact NOAA Fisheries and DFG immediately if any steelhead, Chinook salmon, or green sturgeon are found dead or injured.

Environmental Commitment BIO-6: Evaluate Performance of New Fish Screen

The City shall evaluate the performance of the newly constructed fish screen to ensure that the fish screen and pumping plant are operated and maintained in accordance with acceptable fish screen performance criteria. The following steps shall be followed prior to full operation of the facility to ensure proper operation:

- A draft hydraulic plan will be submitted to NOAA Fisheries before completion of the project. The plan shall outline in detail a proposed methodology for monitoring the performance of the fish screen to ensure the protection of juvenile salmonids, as outlined in the Guidelines for Developing Post-Construction Evaluation and Assessment Plans and Operations and Maintenance Plans (Guidelines);
- A draft operations and maintenance plan shall be developed and submitted to NOAA Fisheries before operations of the pumping plant are initiated. The plan shall act as a manual for operating and maintaining the pumping plant and fish screen in accordance with the Guidelines;
- An operations and maintenance log shall be maintained by the City on a daily basis. The log shall be made available for inspection by NOAA Fisheries personnel with 24 hours notice given to the City; and
- The City shall curtail diversion to the greatest extent possible when any portion of the fish screen structure is damaged or removed for maintenance or repair, which would allow unscreened fish to pass.

Cultural

Environmental Commitment CUL-1: Precautions for the Protection of Cultural Resources Should Artifacts or Features Be Encountered during Construction

If any previously unknown cultural resources are encountered during construction, necessary discovery measures will include (1) shutting down construction activities in the immediate area of a find; (2) notifying the Yuba City Cultural Resources Manager and the lead federal agency; (3) continuing work cessation for a reasonable period of time to allow professional evaluation of finds, as determined by and in consultation with the State Historic Preservation Officer; and (4) providing time and funding for professional recovery and analysis of significant archaeological and historical finds (36 Code of Federal Regulations [CFR] 800.11).

If any prehistoric sites are discovered during construction or during further inventory efforts, the Native American Heritage Commission will be consulted prior to any archeological testing of such sites. Discoveries of human remains and associated artifacts during construction will be handled according to the

provisions of the California Health and Safety Code, Section 7052, and the California Public Resources Code, Section 5097.99 (i.e., construction activities will cease until the Sutter County coroner is notified, and if remains are Native American, the Native American Heritage Commission will also be notified so that the most likely descendants of the remains might be identified). It should be emphasized that California statutes apply to any human remains, regardless of whether the archaeological site is severely disturbed.

Transportation

Environmental Commitment TRN-1: Traffic Control Plan

The City will develop and implement a traffic control plan to reduce construction-related effects on the local roadway system and avoid hazardous traffic and circulation patterns during the construction period. The traffic control plan will include an emergency access plan. All construction activities will follow the standard construction specifications and procedures of the appropriate jurisdictions.

The traffic control plan will include, but not be limited to, the following actions:

- Coordinating with the affected jurisdictions on construction hours of operation;
- Following guidelines of the local jurisdiction for road closures caused by construction activities;
- As necessary, installing traffic control devices as specified in the California Department of Transportation's (Caltrans') *Manual of Traffic Controls for Construction and Maintenance Works Zones* (California Department of Transportation 1996);
- Notifying the public of road closures in the immediate vicinity of the construction zone and/or temporary closures of bike lanes and recreation trails;
- Providing access to driveways and private roads outside the immediate construction zone;
- Monitoring road and bike lane damage, repairing roads and bike lanes damaged during construction, or providing compensation for damage to roadways and bikeways; and
- Coordinating with emergency service providers before construction to develop an emergency access plan for emergency vehicle access into and adjacent to the construction zone. The emergency access plan will require effective traffic direction, substantially reducing the potential for disruptions to response routes.

Water Quality

Environmental Commitment HWQ-1: Prepare a Stormwater Pollution Prevention Plan

To address potential water quality impacts during construction, the City or its contractor will prepare a stormwater pollution and prevention plan (SWPPP) acceptable to the Regional Water Quality Control Board (RWQCB). The construction contractor hired by the City will be responsible for implementing the BMPs identified in the plan as well as daily monitoring and weekly reporting on the effectiveness of the measures. To minimize the mobilization of sediment to adjacent water bodies, the following BMPs will be included in the SWPPP, which will be included in the construction specifications and the project performance specifications based on standard City measures and standard dust-reduction measures:

- Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas that have been inactive for 10 days or more) that could contribute sediment to waterways;
- Enclose and cover exposed stockpiles of dirt or other loose granular construction materials that could contribute sediment to waterways;
- Control and contain soil, and filter runoff from disturbed areas. This will be done by using berms, silt fencing, straw bales or wattles, plastic sheeting or geofabric, silt/sediment traps and catch basins, silt fencing, sand bag dikes, temporary vegetation or other groundcover, or other means necessary to prevent the escape of sediment from the disturbed area, and
- Ensure that no earth or organic material shall be deposited or placed where it may be carried directly into a stream, marsh, slough, lagoon, or body of standing water.

Final selection of BMPs will be subject to review by the City. The City will verify that a notice of intent (NOI) and a SWPPP have been filed before allowing construction to begin. The City or its agent shall perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

Environmental Commitment HWQ-2: Obtain General Dewatering Permit and Follow Dewatering Provisions

Dewatering of the project area in the Feather River will likely require a General Dewatering Permit issued by the RWQCB. The RWQCB has also adopted a General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (General Dewatering Permit). To obtain coverage, the City will submit an NOI and a pollution prevention and monitoring program (PPMP). The PPMP must include a description of the discharge location, discharge characteristics, primary pollutants, receiving water, treatment systems, spill prevention plans,

and other measures necessary to comply with discharge limits. A representative sampling and analysis program will be prepared as part of the PPMP and implemented by the applicant, along with record keeping and quarterly reporting requirements during dewatering activities.

Hazardous Materials

Environmental Commitment HAZ-1: Prepare a Spill Prevention, Control, and Countermeasure Plan

The City will minimize the potential for a hazardous materials release into the proposed project area by preparing or requiring the construction contractor to prepare a Spill Prevention, Control, and Countermeasures Plan (SPCCP) prior to the start of construction. The SPCCP will require approval from the State Water Board prior to implementation of the proposed project and require trained staff who are familiar with implementation of the plan requirements in case of a spill. With the implementation of the plan, the City will anticipate a less-than-significant impact from the accidental release of hazardous materials. Additionally, the SPCCP will require gas-powered generators a minimum of 100 feet from water sources to minimize the potential for spills into the Feather River. The SPCCP will be completed before any construction activities begin, and the City will review and approve the SPCCP before the onset of construction activities. The City will routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. The City will notify its contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that

- violates applicable water quality standards;
- causes a film or sheen on, or discoloration of, the water surface or adjoining shoreline; or
- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor's superintendent will notify the City, and the City will take action to contact the appropriate safety and cleanup crews to ensure that the SPCCP is followed.

A written description of reportable releases must be submitted to the Central Valley RWQCB. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled; the date of the release; an explanation of why the spill occurred; and a description of the steps taken to prevent and control future releases. The releases shall be documented on a spill report form.

If an appreciable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis

shall be performed to identify the likely cause of contamination, and recommendations shall be made for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the City and its contractors will select and implement measures to control contamination, with a performance standard that surface water and/or groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City.

Implementation of measures to avoid or minimize the effects of increased sediment input will also avoid and minimize increased input of pollutants associated with sediments (e.g., mercury) and the potential for subsequent effects on biological and human resources.

Environmental Training

Environmental Commitment ENV-1: Conduct an Environmental Training Program for Project Personnel

The City will inform field management and construction personnel of the need to avoid and protect resources. Communication efforts will occur at preconstruction meetings so that construction personnel are aware of their responsibilities and the importance of compliance.

Construction personnel will be educated on the types of sensitive resources located in the project area and the measures required to avoid impacts on these resources. They will attend an environmental training program before groundbreaking activities associated with the proposed project are initiated. Materials covered in the training program will include environmental rules and regulations for the proposed project and requirements for limiting activities to the construction right-of-way/footprint and avoiding demarcated sensitive resources areas.

Training seminars will be held to educate construction supervisors and managers on

- the need for resource avoidance and protection,
- construction drawing format and interpretation,
- staking methods to protect resources,
- the construction process,
- roles and responsibilities,
- project management structure and contacts,
- environmental commitments, and
- emergency procedures.

Monitoring

The proposed project would require several types of monitoring related to ASIP conservation measures. The City and Reclamation are responsible for implementing the project's ASIP monitoring plan, described below. The primary purposes of this monitoring are to

- identify the occurrences of ASIP-covered species and ASIP-covered species habitat under pre-project conditions,
- ensure that ASIP-covered species are not affected by construction,
- document the implementation and effectiveness of ASIP conservation measures, and
- collect data needed to support development and implementation of more effective ASIP conservation measures.

Monitoring the implementation and effectiveness of conservation measures will be required as part of the environmental commitments. Monitoring assesses consistency with the terms and conditions of the project's permits. The types of compliance monitoring are described in the following sections.

Preconstruction Surveys

Preconstruction surveys would be conducted before implementation of ASIP-covered activities and project conservation measures that have footprint impacts. The City and Reclamation would be responsible for implementing conservation measures related to performing preconstruction surveys in and adjacent to the footprint of covered activities and project conservation measures to determine whether covered species are, or could be, present and affected. The purpose of preconstruction surveys is to avoid or minimize construction-related impacts on covered species. All preconstruction monitoring would be conducted by qualified biologists.

Survey results would be used to determine site-specific project conservation measures that would need to be implemented to avoid, minimize, and mitigate impacts on ASIP-covered species and natural communities. For example, preconstruction surveys for Swainson's hawk (i.e., Mitigation Measure SWHA1—Conduct Preconstruction Surveys to Locate Swainson's Hawk Nest Sites) would be used to determine whether nesting or roosting Swainson's hawks occur in or adjacent to the project footprint. If they are present, the other mitigation measures relate to Swainson's hawk (i.e., Mitigation Measure SWHA2—Minimize Construction-Related Disturbances within 0.5 Mile of Active Nest Sites; Mitigation Measure SWHA3–Avoid Removal of Occupied Nest Sites; Mitigation Measure SWHA4–Replace Lost Foraging and Nesting Habitat) would be implemented. If Swainson's hawk nests are not observed during preconstruction surveys, the additional conservation measures listed above would not need to be implemented.

Preconstruction survey methods, including survey timing, for each covered species are described in Chapter 3. Additional detailed preconstruction survey protocol would be developed, as appropriate, through coordination with the USFWS, NOAA Fisheries, and DFG.

Construction Monitoring

Construction monitoring would be conducted to monitor implementation of ASIP-covered activities and project conservation measures that have footprint impacts and ensure that the applicable avoidance and minimization conservation measures identified in this ASIP, and during preconstruction surveys, are implemented. Construction monitoring would be required if results of preconstruction surveys indicate that covered species could be affected by covered activities or implementation of project conservation measures.

The implementation of ASIP-covered activities and project environmental commitments would be monitored to ensure that measures required to avoid and minimize impacts on covered species are appropriately implemented. Construction monitoring of natural communities is not proposed under this ASIP.

All construction monitoring would be conducted by qualified biologists. These construction monitors would document and ensure that the responsible entity implements the required avoidance and minimization measures (e.g., protection fencing is installed around sensitive habitats to be protected).

Performance Monitoring

Performance monitoring would be conducted for habitat created specifically for ASIP-covered species (e.g., riparian habitat) to confirm development of intended ecological functions and values. Information collected through performance monitoring would be used to determine whether changed circumstances exist and the need for implementing remedial measures. In addition, performance monitoring would provide information that may help improve enhancement, creation, and restoration techniques.

Performance indicators are the variables that would be quantitatively measured over time to determine whether enhanced, created, or restored habitats have successfully met the project's biological goals and objectives. Success criteria established for each performance indicator would be the minimum requirements needed to achieve biological goals and objectives. Achieving the success criteria would indicate that the mitigation measures have successfully replaced the functions and values of the natural communities affected by covered activities. Remedial measures must be implemented if the success criteria are not achieved within the performance period indicated for each applicable conservation measure.

Performance monitoring would be conducted by qualified biologists and ecologists. Detailed monitoring protocol would be developed through coordination with USFWS, NOAA Fisheries, and DFG.

Reporting

The City and Reclamation would prepare quarterly monitoring reports. The quarterly monitoring reports would summarize the previous quarter's monitoring results and be completed 4 weeks following the end of the quarter. Reports would be submitted to the California Bay-Delta Authority (CBDA) and the resource agencies.

Monitoring reports will include the following:

- A description of ASIP-covered activities implemented during the reporting period;
- A description of habitat protection, enhancement, and restoration conservation measures implemented during the reporting period;
- A year-to-date summary of impacts of ASIP-covered activities and conservation measures on covered species and natural communities;
- A description of avoidance, minimization, and mitigation conservation measures implemented to address impacts of ASIP-covered activities and conservation measures;
- A description of performance monitoring undertaken during the reporting period, an analysis of monitoring results, and a description of remedial actions undertaken during the reporting period;
- An assessment of the efficacy of the monitoring program and recommended changes to the program, based on interpretation of monitoring results and research findings;
- An assessment of the efficacy of habitat enhancement and restoration methods in achieving performance objectives and recommended changes to improve the efficacy of enhancement and restoration methods;
- An assessment of the appropriateness of performance indicators and objectives, based on results of performance monitoring, and recommended changes to performance indicators and objectives; and
- Recommendations for modifying and improving the efficacy of conservation measures.

Integrating Monitoring Results into the CALFED Monitoring Program

Monitoring of project conservation measures would be developed through coordination with the City, Reclamation, USFWS, NOAA Fisheries, and DFG. Monitoring results would be reported back to CBDA for tracking compliance of CALFED projects with ESA, the California ESA, and the Natural Community Conservation Planning Act (NCCPA). Monitoring results would also provide information to improve habitat restoration and protection methods for other CALFED projects.

No-Project Alternative

The No-Project Alternative includes leaving the existing unscreened intake structure in place on the Feather River and continuing existing operations. The capacities of both the intake structure and the LLPS would continue to be 30 mgd. The No-Project Alternative also represents a baseline condition for purposes of determining the impacts of the proposed project.

Alternatives Eliminated from Detailed Analysis

Alternative Locations

Alternative locations were considered but determined to not reduce the level of impacts when compared to the proposed project, and were eliminated from further analysis. The proposed location, which is the location of the existing intake, has several advantages when compared to alternative locations. It is highly disturbed (rip rapped streambank with very little riparian vegetation) and construction at alternative locations would have greater impacts on sensitive resources. Additionally, the existing location is served by the LLPS and the pipeline to the WTP. Constructing an intake at an alternative location would require demolition of the existing LLPS, construction of a new LLPS, and construction of a new pipeline to connect a new LLPS with the WTP.

Additionally, the north/south access road, which runs parallel to Feather River just south of the existing intake, was considered as an alternative access route to the proposed location. However, after a survey of the area, it was determined that using that road to access the intake site would have impacts on VELB habitat.

Alternative Capacity

Alternative capacities, both smaller and larger, were considered but determined to be infeasible and were eliminated from further analysis. A smaller capacity

would not meet one of the project's two primary purposes: 48 mgd capacity to provide needed water supply (as described in Chapter 1). As a result, a smaller capacity intake was eliminated from detailed analysis. A larger capacity intake would likely have slightly greater environmental impacts and the added capacity would not be needed for the foreseeable future. As a result, a larger capacity intake was eliminated from detailed analysis.

Chapter 3

Environmental Setting, Impacts, and Mitigation Measures

Introduction

This chapter describes the environmental consequences of implementing the alternatives and identifies applicable mitigation measures. For each resource, construction and operational activities that could cause adverse environmental impacts directly or indirectly are identified. The CEQA Initial Study Checklist is included as Appendix A.

Land Use and Agriculture

Affected Environment

Much of Yuba City's land use pattern can be traced to its evolution as a primary service center within a large agricultural area focused on downtown Yuba City and the intersection of State Route (SR) 20 (Colusa Avenue) and SR 99 as employment cores. Much of the residential development in Yuba City is low-density single-family housing and much of the commercial development is retail-related. Of the 13,000 acres within the current urban growth boundary, approximately 42% is currently used for agriculture and 31% is residential (Dyett & Bhatia 2004).

Regulatory Setting

This section discusses the state and local policies and regulations relevant to the analysis of land use and agriculture issues in the project area. No federal regulations pertaining to land use and agriculture are applicable to the proposed project.

State Regulations

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act) helps preserve agricultural and open space lands by discouraging conversion to urban uses. The act creates an arrangement whereby private landowners enter into a 10-year contract with counties and cities to maintain their land in agricultural and compatible open-space uses in exchange for a reduction in property taxes. The contract is renewed automatically unless the owner files a notice of non-renewal.

Local Regulations

Yuba City General Plan

The Land Use Element of the Yuba City General Plan (Dyett & Bhatia 2004) constitutes the framework for land use planning in the City to the year 2025. The Environmental Conservation Element addresses issues relating specifically to agricultural conservation in Yuba City. Guiding and implementing policies that may be applicable to the proposed project include the following:

> **Guiding Policy**
>
> **8.2-G-1** Promote preservation of agriculture outside of the urban growth area.
>
> **Implementing Policies**
>
> **3.4-I-4** Support the County's efforts to maintain viable agricultural uses surrounding the City in areas outside the proposed Urban Growth Boundary.
>
> **8.2-I-1** Work with the County to preserve agricultural uses in areas outside the Urban Growth Boundary and within greenbelts established around the exterior of the UGB.

The Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan

The Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), currently under development, is a cooperative planning effort initiated by Yuba and Sutter counties to address the impacts of regional proposed transportation projects (Highways 99 and 70) and any resulting development in the surrounding area. The purpose of the Yuba-Sutter NCCP/HCP is to provide a way to continue economic growth and community development; retain the economic vitality of the area's agricultural community; maintain public uses of open space; simplify and expedite land use and conservation planning in the plan area; protect threatened and endangered species; and preserve plant and wildlife communities.

Environmental Setting

The project area is adjacent to the Feather River on the eastern edge of the City, and the surrounding upland supports a walnut orchard. The Yuba City General Plan (Dyett & Bhatia 2004) designates land use in the immediate project area as Parks, Recreation, and Open Space, and adjacent land uses are designated as Agricultural/Rural, and are in the Feather River floodplain. The Yuba City General Plan Land Use Element describes the land use designations as follows:

- **Parks, Recreation, and Open Space.** This classification is for improved and unimproved park facilities, including neighborhood, community, and regional parks; golf courses; and private recreational facilities.
- **Agricultural/Rural.** This classification refers to a range of agricultural, rural and open space uses, including field and row crops, orchards, and agricultural support services. Residential units do exist, typically as a secondary use.

The immediate project area is currently used for the LLPS and the intake structure. Land uses to the west of the project area are agriculture and open space. The Feather River borders the project site on the east. No Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) have jurisdiction over the project area, although the Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan(NCCP/HCP) is being developed and the most recent Science Advisors Report for that effort has recommended that the plan include the Yuba City area (Dyett & Bhatia 2004). The nearest residences are 0.5 mile away to the west of the project site on the landside of the levee.

No land in the project area is under Williamson Act contracts. However, the project area is classified as Unique Farmland according to the California Department of Conservation's Farmland Mitigation and Monitoring Program (FMMP) (City of Yuba City 2005).

Thresholds of Significance

The criteria used for determining significance of a land use or agricultural impact are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. These criteria are described below.

An alternative is considered to have a significant impact on land use if it would:

- physically divide an established community or
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or conflict with applicable HCPs or NCCPs.

An alternative is considered to have a significant impact on agriculture if it would:

- convert prime farmland, unique farmland, or farmland of statewide importance to nonagricultural use;
- conflict with existing Williamson Act contracts or zoning for agricultural use; or
- involve other changes in the existing environment that, because of their location or nature, could individually or cumulatively result in loss of farmland to nonagricultural use.

Environmental Consequences

No Project Alternative

The No Project Alternative would not result in impacts on land use or agriculture because there would be no change from the existing condition.

Proposed Project

The proposed project would not result in changes in agriculture or conflict with zoning for agricultural use or existing Williamson Act contract. Additionally, the proposed project would not conflict with an established HCP, NCCP, or other habitat conservation plan, or the Yuba-Sutter NCCP/HCP under development. There are no established communities in the project area, but as described above, Yuba City is directly west. Although the project area is on land classified as Unique Farmland according to the FMMP, implementation of the proposed project would not result in the conversion of farmland because the project area is not cropped. Additionally, there would be no net change in farmland because the current intake structure would be removed and the area there would be restored; therefore, there would be no impact on farmland in the project area.

Impact LU-1: Conflict with Land Use Designation at Intake Location (Less than Significant)

Implementation of the proposed project would not conflict with land use designations in and around the intake site. The small footprint of the intake would convert some open space area to industrial use, but would not affect the general land use designation in the vicinity and would be compatible with the existing use in the immediate area. Additionally, the current intake structure would be removed and there would be no net change in land use. As such, this impact would be less than significant.

Impact LU-2: Indirect Impacts on Land Use as a Result of Increased Diversions

The proposed project would remove an obstacle to growth (discussed in more detail below) and therefore could result in indirect impacts related to changes in land use. The potential changes in land use have been described in the Yuba City General Plan (Dyett & Bhatia 2004), adopted April 2004, and evaluated in the Yuba City General Plan EIR (Dyett & Bhatia 2003). These land use changes are primarily a conversion from agricultural uses to residential and commercial uses. The Urban Growth Boundary (UGB) identified in the General Plan is the boundary of potential changes in land use related to the proposed project because water would not be delivered outside this area.

> CEQA mandates that projects which are consistent with the development density established for existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site. (Section 15183 CEQA Guidelines)

The indirect land use changes associated with the proposed project, including the conversion of agricultural land, would be consistent with the General Plan and were disclosed in the General Plan EIR. Because the project proposed would have no additional indirect impacts on land use, no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

Cumulative Impacts

For purposes of evaluating cumulative impacts as required by CEQA, the proposed project combined with other projects could result in indirect effects on land use as a result of potential growth as a result of increased water supply and other utilities and infrastructure within the City's planning area. Such changes can also result in the conversion of agricultural land to developed areas. These changes in land use have been incorporated into the City's General Plan and have been evaluated in the General Plan EIR. As described above, the proposed project would have no additional impacts on land use, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, the only land use impact relate to the federal action is the change in land use at the intake location. As described above, this impact is less than significant, and no other projects are expected to occur in the same area that would affect the land use. There would be no cumulative impact for purposes of NEPA evaluation.

Utilities and Public Services

Affected Environment

Regulatory Setting

This section discusses the local policies and regulations relevant to the analysis of utilities and public services issues in the project area. No federal or state regulations pertaining to utilities and public services are applicable to the proposed project.

Local Regulations

Yuba City General Plan

The Yuba City General Plan presents its policies regarding utilities and public services in the Public Utilities and Noise and Safety elements (Dyett & Bhatia 2004). Goals and policies that may influence the proposed project include the following:

Guiding Policies

7.1-G-1 Ensure that an adequate supply of water is available to serve existing and future needs of the City.

7.1-G-2 Ensure that necessary water supply infrastructure and storage facilities are in place prior to construction of new development.

7.1-G-3 Maintain existing levels of water service by preserving and improving infrastructure, replacing water mains as necessary, and improving water transmission facilities.

Implementing Policies

7.1-I-1 Evaluate the adequacy of water infrastructure in areas where intensification of land use is anticipated to occur, and develop a strategy to implement projects in the Water Supply Master Plan to offset deficiencies in capacity.

7.1-I-2 Coordinate capital improvements planning for all municipal water service infrastructure with the direction, extent, and timing of growth.

9.4-I-4 Require adequate access for emergency vehicles, including adequate street width and vertical clearance on new streets.

Environmental Setting

Power

Power in the project area is supplied by The Pacific Gas and Electric Company (PG&E). The LLPS is the primary consumer of power for diversion of water.

Current average monthly power use is 133,493 kilowatt-hours (kW-hrs). The LLPS supplies raw water supply to the City's Tierra Buena WTP, which is also powered by PG&E.

Water Treatment

The Yuba City Wastewater Treatment Facility currently treats an average of 6 mgd with most households contributing, on average, 330 gallons per day to the wastewater system. The City is permitted to treat 30 mgd of water.

Emergency Services

Police

Law enforcement in the project area is provided by the Yuba City Police Department. The Yuba City Police Department offers a service ratio of 1.06 officers per 1,000 residents. The Department has a Chief of Police, two division commanders, three lieutenants, eight police sergeants, and 31 police officers. The Department has Field Operations and Investigations divisions.

Fire and Emergency Medical Service

The Yuba City Fire Department provides fire protection and emergency medical services for the City and has five stations (Stations 1,2,3,4, and 7) within the city limits. The Yuba City Fire Department responds to structural and wildland fires, pre-hospital emergency medical service, and hazardous/toxic material spills in the Yuba City planning area. Stations 1 and 4 are staffed with three full-time firefighters and Stations 2, 3, and 7 are staffed with two full time firefighters 24 hours a day. The closest station to the proposed project area is Station 2.

Thresholds of Significance

The criteria used for determining significance of an impact on utilities and public services are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. For the purposes of this analysis, an alternative is considered to have a significant impact on utilities and public services if it would:

- exceed wastewater treatment requirements of the RWQCB;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require new or expanded water entitlements to serve the project;

- result in determination by the wastewater treatment provider that serves the project or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- comply with federal, state, and local statutes and regulations related to solid waste;
- be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs;
- result in new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police protection, schools, parks, or other public facilities; or
- result in increased demand for existing emergency services beyond their current capacity.

Environmental Consequences

No Project Alternative

Under the No Project Alternative, parts of the city would continue to rely on groundwater supplies, and the amount of surface water supplies would not change. As such, water supply and reliability may not meet current and future demands. Other utilities such as power and services such as police and fire would not change.

Proposed Project

The water rights and entitlements already held by the City are sufficient for the additional demand proposed by the project. Wastewater and solid waste generation would be minimal and would not exceed the capacity of local resources.

Impact UTL-1: Increase in Power Consumption

As described above, the primary consumer of power related to diversion operations is the LLPS. The increased diversion amount would result in an average increase in power consumption of 150,000 kW-hrs annually. This increase could be supported by existing supply generated by PG&E and existing transmission lines currently serving the LLPS. As such, this impact is less than significant.

Impact UTL-2: Increase in Water Treatment Demand

The proposed project is being pursued in part to address the conditions in the permit to expand the WTP to treat 30 mgd. However, the increased diversion capacity would be 48 mgd, and the City intends to expand the treatment plant to meet the 48-mgd demand. Although the WTP expansion to treat 48 mgd is not currently planned and will be pursued only based on demand, without the proposed project, it would not be implemented. However, any change in water treatment demand beyond current capacity is not likely to occur in the near term. Over the long term, water treatment demand may exceed the current capacity. The impacts of expanding the WTP to meet that demand would be analyzed in the project-specific CEQA documentation if and when it occurs. The proposed project would have a less-than-significant impact on water treatment demand.

Impact UTL-3: Increased Demand on Emergency Services

Implementation of the proposed project would not have any direct impacts on emergency services. However, the increased water supply may contribute to decisions to develop consistent with the Yuba City General Plan, which could increase the demand for emergency services. Any new development that would occur would be within the urban growth boundary and would need to account for any increase in emergency services demand. As such, this impact is less than significant.

Cumulative Impacts

The proposed project combined with past, present, and future projects would result in a cumulative impact on utilities and public services in Yuba City. The overall increase in the demand for public services is included in the Yuba City General Plan, and its EIR evaluates and mitigates the potential cumulative impact. As described above, the proposed project would have no additional impacts on utilities and services, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. The screen would not require a substantial increase in energy use or result in changes in utilities or services. This cumulative impact would be less than significant for purposes of NEPA evaluation.

Traffic and Circulation

Affected Environment

Regulatory Setting

This section discusses the state and local policies and regulations relevant to the analysis of traffic and circulation issues in the project area. No federal regulations pertaining to traffic and circulation are applicable to the proposed project.

State Regulations

California Department of Transportation (Caltrans) is responsible for planning, designing, building, operating and maintaining the state's highway system. SR 20 is part of the state highway system maintained by Caltrans. The project site is located in Caltrans District 3, headquartered in Marysville. Any construction work that may affect Caltrans' facilities would require an encroachment permit from Caltrans.

Local Regulations

Yuba City General Plan

The Yuba City General Plan presents its policies regarding transportation in the Transportation Element (Dyett & Bhatia 2004). Goals and policies that may influence the proposed project include the following:

Guiding Policies

Circulation and Street System

5.2-G-1 Promote safe and efficient vehicle circulation.

Traffic Level of Service

5.2-G-5 Maintain acceptable levels of service and ensure that future development and the circulation system are in balance.

Implementing Policies

Circulation and Street System

5.2-I-11 Maintain the street network through a regular maintenance program, repave streets on a regular basis, and require that any pavement that has been damaged or dug up be returned to its original condition, with no bumps or ruts.

Traffic Level of Service

5.2-I-12 Develop and manage the roadway system to obtain LOS D or better for all major roadways and intersections in the City. This policy does

not extend to residential streets (i.e., streets with direct driveway access to homes) or bridges across the Feather River nor does the policy apply to state highways and their intersections, where Caltrans policies apply. Exceptions to LOS D policy may be allowed by the City Council in areas, such as downtown, where allowing a lower LOS would result in clear public benefits. Specific exceptions granted by the Council shall be added to the list of exceptions below:

- SR 20 (SR 99 to Feather River Bridge) – LOS F is acceptable;
- SR 20 (Feather River Bridge) – LOS F is acceptable;
- Bridge Street (Twin Cities Bridge) – LOS F is acceptable; and
- Lincoln Road (New Bridge across the Feather River) – LOS F is acceptable.

No new development will be approved unless it can be shown that required level of service can be maintained on the affected roadways.

Environmental Setting

During construction, access to the project site would be via 10th Street Bridge (SR 20), south of the project site. Construction vehicles would exit SR 20 onto Sumner Street and then proceed northwest on the levee road to the existing access road (Figure 2-2). Roads in the project area are not commonly used for emergency access as no residences are in the immediate area; however, an industrial area is located next to the intersection of Sumner Street and the levee road. There is no commercial boat traffic on the reach of the Feather River associated with the proposed project.

As described in the City's General Plan EIR (Dyett & Bhatia 2003), roadways near the project area that would be used for construction transportation are operating at acceptable levels of service (LOS), with A being the best service and F being the worst service. Typically LOS in the area of Live Oak Boulevard and North Gate Drive were LOS B, which the General Plan EIR identified as potentially being degraded at full General Plan buildout to LOS C, which were still deemed acceptable according to General Plan policies. Roadways in the project area are largely for low-volume vehicle use.

The closest airport is the Sutter County Airport, located approximately 2 miles south of the proposed project area. It is a very small facility serving the public with one runway.

Thresholds of Significance

The criteria used for determining significance of an impact on traffic and circulation are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. For the purposes of this analysis,

an alternative is considered to have a significant impact on traffic and circulation services if it would:

- cause a substantial increase in traffic relative to the existing traffic load and capacity of the street system;
- substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate parking capacity;
- result in inadequate emergency access; or
- conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Environmental Consequences

No Project Alternative

Implementation of the No Project Alternative would not result in any changes in traffic. As such, there would be no impact.

Proposed Project

There would be no impacts on the airport. As such, the impact analysis focuses on changes in traffic.

Occasional maintenance and patrolling of the proposed intake structure and existing LLPS would be the same as that currently conducted for the existing intake. As such, there would be no operation-related change in traffic and no impact.

Impact TRF-1: Construction-Related Increase in Traffic

During construction periods, the proposed project would generate up to 10 truck trips per day to the project site. Construction vehicles and equipment include an excavator, backhoe, dump trucks, concrete mixer truck, crane, roller, compactor, and impact and vibratory pile drivers. These materials likely would be transported to the project construction area from urban parts of Yuba City, immediately west of the proposed project.

The construction staging area would be located immediately northwest of the LLPS and would occupy approximately 0.07 acre. Construction equipment staging associated with the project would be temporary and would not affect parking. LOS on local roadways are not expected to be degraded substantially by the small number of construction vehicles using these roadways.

Large vehicles (e.g., dump trucks) would be accessing the project area during construction, creating potential safety hazards on surrounding roadways and potentially interfering with emergency vehicle access. These safety hazards likely would occur only when construction vehicles are accessing or leaving the project site. However, as part of the environmental commitments described in Chapter 2, a Traffic Control Plan would be implemented to minimize the potential for road hazards and maintain access for emergency services. Incorporation of this environmental commitment would ensure that there would be no substantial adverse effects on roadway capacity.

The City would ensure that all workers are properly trained to operate equipment, and safety precautions would be followed at all times. Proper signage and detours would be provided while vehicles are accessing and leaving the site. Additionally, large construction equipment would be left on site to reduce trips to and from the construction site. This impact would be temporary, and measures implemented as part of the Traffic Control Plan would ensure that this impact would be less than significant.

Cumulative Impacts

Existing and future projects that could occur at the same time as construction of the proposed project could result in a cumulative impact on traffic. The roads that would be used to access the new diversion location currently are operating at acceptable levels and could be temporarily affected by the proposed project and other projects. The proposed project also includes implementation of a Traffic Control Plan. As described above, the proposed project would have no additional impacts on traffic, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, the only traffic impact related to the federal action is the temporary and minor change in traffic during construction of the screen. Cumulative impacts would be less than significant for purposes of NEPA evaluation.

Air Quality and Climate Change

Affected Environment

Regulatory Setting

This section discusses the federal, state, and local policies and regulations relevant to the analysis of air quality issues in the project area.

Federal Regulations

Federal Clean Air Act

The federal Clean Air Act (CAA), promulgated in 1970 and amended twice thereafter (including the 1990 amendment), establishes the framework for modern air pollution control. The act directs the Environmental Protection Agency (EPA) to establish ambient air standards for six pollutants: ozone, carbon monoxide (CO), lead, nitrogen dioxide (NO_2), particulate matter, and sulfur dioxide (SO_2). The standards are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety and the latter to protect environmental values, such as plant and animal life.

The primary legislation that governs federal air quality regulations is the Clean Air Act Amendments of 1990 (CAAA). The CAAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality, as well as delegating specific responsibilities to state and local agencies.

Federal Conformity Requirements

The CAAA requires that all federally funded projects come from a plan or program that conforms to the appropriate State Implementation Plan (SIP). Federal actions are subject to either the transportation conformity rule (40 CFR 51[T]), which applies to federal highway or transit projects, or the general conformity rule.

The purpose of the general conformity rule is to ensure that federal projects conform to applicable SIPs, so that they do not interfere with strategies employed to attain the National Ambient Air Quality Standards (NAAQS). The rule applies to federal projects in areas designated as nonattainment areas for any of the six criteria pollutants and in some areas designated as maintenance areas. The rule applies to all federal projects except:

- programs specifically included in a transportation plan or program that is found to conform under the federal transportation conformity rule,
- projects with associated emissions below specified *de minimis* threshold levels, and
- certain other projects that are exempt or presumed to conform.

A general conformity determination would be required if a proposed action's total direct and indirect emissions fail to meet the following two conditions:

- emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards are below the *de minimis* levels indicated in Tables 3-1 and 3-2, and
- emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards are regionally insignificant (total emissions are less than 10% of the area's total emissions inventory for that pollutant). Emissions inventory data were obtained from

the California Air Resources Board's (ARB's) Emissions Inventory database (California Air Resources Board 2009)

If the two conditions above are not met, a general conformity determination must be performed to demonstrate that total direct and indirect emissions for each affected pollutant for which the region is classified as a maintenance or nonattainment area for the national standards would conform to the applicable SIP.

If the above two conditions are met, the requirements for general conformity do not apply, as the proposed action is presumed to conform to the applicable SIP for each affected pollutant, and no further analysis or determination is required.

Table 3-1. Federal *de Minimis* Threshold Levels for Criteria Pollutants in Nonattainment Areas

Pollutant	Emission Rate (Tons per Year)
Ozone (ROG/VOC or NO_X)	
Serious nonattainment areas	**50**
Severe nonattainment areas	25
Extreme nonattainment areas	10
Other ozone nonattainment areas outside an ozone transport region[1]	100
Other ozone nonattainment areas inside an ozone transport region[1]	
ROG/VOC	50
NO_X	100
CO: All nonattainment areas	100
SO_2 or NO_2: All nonattainment areas	100
PM10	
Moderate nonattainment areas	**100**
Serious nonattainment areas	70
PM2.5	
Direct emissions	100
SO_2	100
NO_X (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All nonattainment areas	25

Source: 40 CFR 51.853.

Notes: *de minimis* threshold levels for conformity analysis.

Bolded text indicates pollutants for which the region is in non-attainment, and a conformity determination must be made.

[1] Ozone Transport Region is comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

ROG	=	reactive organic gas	CO	=	carbon monoxide
VOC	=	volatile organic carbon	PM2.5	=	particulate matter 2.5 microns in diameter or smaller
NO_x	=	oxides of nitrogen	PM10	=	particulate matter 10 microns in diameter or smaller
SO_2	=	sulfur dioxide	Pb	=	lead

Table 3-2. Federal *de Minimis* Threshold Levels for Criteria Pollutants in Maintenance Areas

Pollutant	Emission Rate (Tons per Year)
Ozone (NO_X, SO_2 or NO_2)	
All maintenance areas	100
Ozone (ROG/VOC)	
Maintenance areas inside an ozone transport region[1]	50
Maintenance areas outside an ozone transport region[1]	100
CO: All maintenance areas	**100**
PM10: All maintenance areas	100
PM2.5	
Direct emissions	100
SO_2	100
NO_X (unless determined not to be a significant precursor)	100
ROG/VOC or ammonia (if determined to be significant precursors)	100
Pb: All maintenance areas	25

Source: 40 CFR 51.853.

Notes: *de minimis* threshold levels for conformity analysis.

Bolded text indicates pollutants for which the region is in non-attainment, and a conformity determination must be made.

[1] Ozone Transport Region is comprised of the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, the Consolidated Metropolitan Statistical Area that includes the District of Columbia and northern Virginia (Section 184 of the Clean Air Act).

ROG	=	reactive organic gas	CO	=	carbon monoxide
VOC	=	volatile organic carbon	PM2.5	=	particulate matter 2.5 microns in diameter or smaller
NOx	=	oxides of nitrogen	PM10	=	particulate matter 10 microns in diameter or smaller
SO2	=	sulfur dioxide	Pb	=	lead

State Regulations

Responsibility for achieving California's standards, which are more stringent than federal standards, is placed on the ARB and local air districts and is to be achieved through district-level air quality management plans that will be incorporated into the SIP. In California, the EPA has delegated authority for preparing SIPs to the ARB, which, in turn, has delegated that authority to air districts.

The ARB establishes state air quality standards, maintains oversight authority in air quality planning, develops programs for reducing emissions from motor vehicles, develops air emission inventories, collects air quality and meteorological data, and approves SIPs.

Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality

stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA.

California Clean Air Act

The California Clean Air Act (CCAA) of 1988 substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA focuses on attainment of the California Ambient Air Quality Standards (CAAQA), which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards.

The CCAA requires designation of attainment and nonattainment areas with respect to CAAQS. The CCAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates state air quality standards for CO, SO_2, NO_2, or ozone. These clean air plans are designed specifically to attain these standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards.

The CCAA requires that the CAAQS be met as expeditiously as practical but, unlike the federal CAA, does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards.

Local Regulations

Feather River Air Quality Management District

The project area is located within the jurisdiction of the Feather River Air Quality Management District (FRAQMD). The FRAQMD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The FRAQMD, along with other air districts in the Northern Sacramento Valley Air Basin (NSVAB), prepared the NSVAB Air Quality Attainment Plan (AQAP) for the purpose of achieving and maintaining healthful air quality throughout the air basin. The AQAP was initially adopted in 1994 and is updated on a triennial basis. The triennial updates address the progress made in implementing the AQAP and propose modifications to the strategies necessary to attain the CAAQS for the 1-hour ozone standard at the earliest practicable date. The AQAP was last updated in 2006. Like previous updates, the 2006 AQAP focuses on adoption and implementation of control measures for stationary sources, areawide sources, and indirect sources and addresses public education and information programs (Feather River Air Quality Management District 2006).

Yuba City General Plan

The implementing policies of the Yuba City General Plan pertaining to air quality and applicable to the proposed project are as follows:

8.6-I-6 Require applicants whose development would result in construction-related fugitive dust emissions to control such emissions as follows:

- During clearing, grading, earth-moving, or excavation operations, fugitive dust emissions shall be controlled by regular watering, paving of construction roads, or other dust-preventive measures;
- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day;
- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 20 mph averaged over 1 hour;
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust;
- The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times;
- Portions of the construction site to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown; and
- All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized;

8.6-I-7 Require applicants whose development would result in construction-related exhaust emissions to minimize such emissions by maintaining equipment engines in good condition and in proper tune according to manufacturer's specifications and during smog season (May through October) by not allowing construction equipment to be left idling for long periods.

8.6-I-8 Require applicants whose development would result in potential carbon monoxide (CO) "hot spot" impacts to consult with the City to ensure that schools, hospitals, or day care facilities are not located near such "hot spots".

Environmental Setting

Air quality monitoring in the NSVAB, in which Yuba City is located, has been conducted for the last 15 years. The monitoring results have shown that the principal pollutants are ozone and particulate matter (Dyett & Bhatia 2004).

The northern portion of Sutter County, where Yuba City is located, is designated a moderate nonattainment area for the 1-hour ozone standard by the ARB as well as a transitional nonattainment area for the federal 1-hour ozone standard. The northern portion of Sutter County is in attainment for the federal 8-hour ozone standard and for CO. Sutter County is in nonattainment for the state-mandated particulate matter 10 microns in diameter or less (PM10) standards.

Most operations at the WTP and LLPS use electricity. An existing emergency-standby, diesel fueled generator used at both the WTP and LLPS would provide back-up power during outages. No other point air emission sources are present. All chemical storage tanks and processes are contained.

Because the Proposed Action is not a federal highway or transit project, it is subject to the General Conformity Rule. As indicated above, the proposed project area is classified as an extreme nonattainment area with regard to the federal 1-hour ozone standard and a nonattainment area with regard to the federal PM10 and particulate matter 2.5 microns in diameter or less (PM2.5) standards. Consequently, to fulfill general conformity requirements, an analysis must be undertaken to identify whether the proposed action's total emissions of ozone, PM10, and PM2.5:

- are below the appropriate *de minimis* levels indicated in Tables 3-1 and 3-2, and
- are regionally insignificant (total emissions are less than 10% of the area's total emissions inventory for that pollutant).

Thresholds of Significance

The criteria used for determining CEQA significance of an impact on air quality are based on the CEQA Guidelines, which require impacts be evaluated based on thresholds of significance. For the purposes of this analysis, an alternative is considered to have a significant impact on air quality services if it would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate air quality standards or contribute substantially to an existing or projected air quality violation; expose sensitive receptors to substantial pollutant concentrations;
- result in a net increase of a criteria pollutant for which the project region is in nonattainment under applicable federal or state ambient air quality standards; or
- create objectionable odors affecting a substantial number of people.

Because the proposed action is subject to NEPA, preparation of a General Conformity Analysis is required. As such, a quantitative evaluation of construction and operational emissions was conducted and evaluated against the federal *de minimis* thresholds (Table 3-1 and 3-2) to determine whether implementation of the proposed project would result in an adverse effect.

Environmental Consequences

No Project Alternative

Implementation of the No Project Alternative would not result in any changes in emissions. As such, there would be no air quality effects.

Proposed Project

Impact AQ-1: Construction-Related Increase in Emissions

Construction activities associated with the proposed project would generate short-term emissions of reactive organic gases (ROG), NO_X, CO, PM10, and PM2.5. Emissions would originate from mobile and stationary construction equipment exhaust, employee vehicle exhaust, and dust from excavation and minor trenching to remove the existing pipeline. Construction-related emissions would vary substantially depending on the level of activity, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Prior to construction of the intake structure, a new access road along the potable water supply pipeline easement will be constructed. Construction of the roadway would require the use of graders, excavators, dump-trucks, and rollers. It is anticipated that construction will begin on March 15, 2010 and last approximately two weeks (10 days), with work occurring over 5 days per week, 6 hours per day.

Emissions from construction of the roadway were modeled with the URBEMIS2007, Version 9.2.4 model. The following assumptions were made:

- Total acres disturbed—1.53 (roadway length [2,376 feet] X roadway width [20 feet] with 4 feet added to each side for sloping and preparation).
- Maximum daily acreage disturbed—0.38 (reflects 25% of total acres disturbed as a worst case scenario).
- Fugitive Dust—20 pounds per acre-day.

The following pieces of equipment were assumed in the emissions modeling. Equipment horsepower and load factors were based on URBEMIS defaults.

- 1 Grader (174 hp) operating at a 0.610 load factor for 6 hours per day.
- 1 Excavator (168 hp) operating at a 0.570 load factor for 6 hours per day.
- 1 Off-Highway Dump Truck (479 hp) operating at a 0.570 load factor for 6 hours per day.
- 1 Roller (95 hp) operating at a 0.560 load factor for 6 hours per day.

Construction of the intake structure would involve dump trucks, backhoes, cranes, compactors and other similar equipment as well as material delivery trucks on a transitory basis. Construction is scheduled to begin in 2010 and would require 12 to 15 months to complete.

For the purposes of this analysis, the project construction is expected to occur in five phases, and none would occur concurrently. Each phase has the following estimated duration:

- Phase 1—Pile driving (7 days)
- Phase 2—Excavation (14 days)
- Phase 3—Intake concrete work (21 days)
- Phase 4—Pipeline (28 days)
- Phase 5—Pile removal (2 days)

Construction emissions were modeled with the URBEMIS2007, Version 9.2.4 model, and the following assumptions were used by the model:

- For all five phases, the following assumptions were made:
  - Total acres disturbed—0.5
  - Maximum daily acreage disturbed—0.5
  - Fugitive dust—20 pounds per acre-day
- For each of the five phases, the following equipment assumptions were made:
  - Phase 1:
    - 1 Crane (190 hp) operating at a 0.43 load factor for 8 hours per day
    - 1 Tractor/loader/backhoe (79 hp) operating at a 0.465 load factor for 8 hours per day
  - Phase 2:
    - 1 Excavator (138 hp) operating at a 0.58 load factor for 8 hours per day
    - 1 Rubber-tired loader (196 hp) operating at a 0.465 load factor for 8 hours per day
    - 1 Tractor/loader/backhoe (79 hp) operating at a 0.465 load factor for 8 hours per day
  - Phase 3:
    - 1 Tractor/loader/backhoe (79 hp) operating at a 0.465 load factor for 8 hours per day

- Phase 4:
  - 1 Excavator (138 hp) operating at a 0.58 load factor for 8 hours per day
  - 1 Rough terrain forklift (94 hp) operating at a 0.475 load factor for 8 hours per day
  - 1 Rubber-tired loader (196 hp) operating at a 0.465 load factor for 8 hours per day
  - 1 Tractor/loader/backhoe (79 hp) operating at a 0.465 load factor for 8 hours per day

To estimate construction emissions, URBEMIS2007, Version 9.2.4 analyzes the type of construction equipment used and the duration of the construction period, using average emissions factors over all horsepower classes. These emissions are estimated and summarized in pounds per day in Table 3-3.

Table 3-3. Emissions from Construction Activities (pounds per day)

Phase	ROG	NO_X	CO	PM10	PM2.5	CO_2
Access Road	2.81	22.24	11.66	8.76	2.65	2392.23
Phase 1	0.95	9.20	4.20	10.47	2.51	1043.45
Phase 2	1.58	13.44	7.14	10.73	2.75	1448.48
Phase 3	0.56	5.47	2.78	10.33	2.39	691.87
Phase 4	2.11	16.49	9.39	11.02	3.02	1724.88
Phase 5	0.44	4.55	1.67	10.17	2.24	469.64
FRAQMD Threshold	25	25	n/a	80	n/a	n/a
Significant?	No	No	n/a	No	n/a	n/a

As indicated in Table 3-3, construction activities associated with the proposed project are not anticipated to exceed FRAQMD or the NSVAB Management Plan threshold levels. Consequently, this impact is considered less than significant. Additionally, the City or its contractor will implement the FRAQMD-approved environmental commitments (AQ-1) described in Chapter 2 as part of the project.

Emissions from construction of the proposed project would not exceed local, state, and federal air quality standards. In addition, emissions from the proposed project would occur temporarily during construction and would be minimized by the Air Quality environmental commitments described in Chapter 2. Therefore, impacts on air quality associated with construction of the proposed project would be less than significant.

Impact AQ-2: Generation of Project Emissions in Excess of Federal *de Minimis* Thresholds

Construction emissions associated with project activities, summarized below in Table 3-4 in tons per year, are not anticipated to exceed the federal *de minimis* thresholds. Therefore, this impact is less than significant.

Table 3-4. Emissions from Construction Activities (tons per year)

Phase	ROG	NO_X	CO	PM10	PM2.5	CO_2
Access Road	0.51	4.06	2.13	1.60	0.48	396.06
Phase 1	0.17	1.68	0.77	1.91	0.46	172.75
Phase 2	0.29	2.45	1.30	1.96	0.50	239.81
Phase 3	0.10	1.00	0.51	1.89	0.44	114.55
Phase 4	0.39	3.01	1.71	2.01	0.55	285.57
Phase 5	0.08	0.83	0.30	1.86	0.41	77.75
de minimis threshold	50	50	100	100	n/a	n/a
Significant?	No	No	No	No	n/a	n/a

Impact AQ-3: Generation of Significant Level of Greenhouse Gas

Construction activities associated with the proposed project would generate direct greenhouse gas (GHG) exhaust emissions. In addition, implementation of the proposed project would result in increased electricity usage, which would lead to indirect GHG emissions. Table 3-5 summarizes direct GHG emissions associated with construction activities. In addition, Table 3-6 summarizes existing indirect GHG emissions associated with current electricity usage, and Table 3-7 summarizes anticipated increases in GHG emissions, based on an increase in electricity usage of 150,000 kilowatt hours per year (kWh/year) with implementation of the proposed project.

Table 3-5. GHG Emissions from Construction Activities (tons per year)

	Construction GHG Emissions: Unmitigated (Tons/Year)			
	CO_2	CH_4	N_2O	CO_2e[1]
Access Road	3960.605	0.226	0.101	3995.841
Phase 1	1209.284	0.069	0.031	1220.042
Phase 2	3357.370	0.192	0.086	3387.238
Phase 3	2405.484	0.137	0.062	2426.884
Phase 4	7996.051	0.457	0.205	8067.187
Phase 5	155.508	0.009	0.004	156.892

[1] emissions presented in metric tons per year.

Table 3-6. Current Electricity GHG Emissions

	Operational Greenhouse Gas Emissions (Tons/Year)			
	CO_2	CH_4	N_2O	CO_2e[1]
2008	3,564.098	0.169	0.045	3,581.436
2009 (Current)	496.997	0.024	0.006	499.415

Table 3-7. Anticipated Increase in Electricity GHG Emissions

Increase in Operational Greenhouse Gas Emissions Resulting from the Project (tons/year)[1]			
CO_2	CH_4	N_2O	CO_{2e}[2]
43.250	0.002	0.001	95814.330

[1] An increase of 150,000 kWh/year will result from the project.
[2] CO_2 Global Warming Potential (GWP) = 1.
CH_4 GWP = 23.
N_2O GWP = 296.

Currently, the EPA, ARB, and FRAQMD have not established significance thresholds for the evaluation of impacts associated with GHG emissions. This is because GHGs, especially CO_2, do not pose any health risks at ambient concentrations. The impacts associated with GHGs are long-term climatic changes, which are beyond the regulatory purview of the air district. As previously noted, GHG contaminant emissions tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is mostly independent of the point of emission; GHG contaminant emissions are more appropriately evaluated on a regional, state, or even national scale than on an individual project level. For this reason, project-specific GHG emissions are considered less than significant, as climate change would not occur directly from project emissions.

Cumulative Impacts

Air Quality

The regional air quality impacts were evaluated in the Yuba City GP EIR. The proposed project would have no additional impacts on air quality, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, the only air quality impact related to the federal action is the minor emissions associated with the installation and operation of the screen. Cumulative impacts on air quality would be less than significant for purposes of NEPA evaluation.

Climate Change

As previously noted, GHGs tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is mostly independent of the point of emission; GHG emissions are more appropriately evaluated on a regional, state, or national scale than on an individual project level. The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC predicts substantial increases in temperatures globally of between 1.1°C and 6.4°C, depending on the scenario (Intergovernmental Panel on Climate Change 2007).

With the implementation of the California Global Warming Solutions Act (AB-32), the state is preparing measures to reduce statewide GHG emissions to 1990 levels by the year 2020. The Air Resources Board (ARB) is tasked by AB-32 to provide the regulations necessary to meet the statewide GHG reduction objective. Although draft GHG guidelines suitable for CEQA analysis were considered by the ARB, to date, there are no statewide GHG emissions thresholds suitable for environmental review.

As described above, the proposed project is within the FRAQMD, which has not published official guidance on how to determine the significance of GHG emissions. Sacramento Metropolitan Air Quality Management District (SMAQMD) is the AQMD closest to the project area that provides CEQA/climate change guidance. The Bay Area Air Quality Management District (BAAQMD) is the AQMD closest to the project area that provides CEQA/GHG threshold of significance guidance. In the absence of FRAQMD climate change guidelines, a combination of relevant SMAQMD and BAAQMD guidance was used in this analysis to determine climate change significance. It should be noted, however, that the Sacramento Area Council of Governments, which includes the City, is currently developing a Climate Action Plan.

The proposed project would result in a temporary increase in GHGs of 155 tons for its one year of construction and an increase of 43 tons/year resulting from operation. These GHG emissions are trivial - by way of comparison, a typical vehicle emits 5 tons/year of GHG. The annual operational emissions associated with the project are therefore less than the sum of emissions emanating from 10 vehicles.

Since there are currently no established thresholds applicable to projects in the City, the project emissions were compared to the appropriate BAAQMD GHG draft threshold to determine whether the project GHG emissions are cumulatively significant. Based on the October, 2009 *BAAQMD Revised Draft Options and Justification Report on the California Environmental Quality Act Thresholds of Significance* publication, BAAQMD does not have a threshold recommendation for construction emissions but has 1,000 MT of CO2e/yr as a potential operational significance threshold. Since this project's GHG operational and

construction emissions are significantly less than the 1,000 MT CO2e/yr threshold and because the City would implement Environmental Commitments AQ-1: Minimize Impacts on Air Quality and AQ-2: Coordinate with PG&E to Maximize Energy Efficiency, the project-related GHG emissions are considered less than significant.

Noise

Affected Environment

Regulatory Setting

This section discusses the local policies and regulations relevant to the analysis of noise issues in the project area. No federal or state regulations pertaining to noise are applicable to the proposed project.

Local Regulations

The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses.

Yuba City General Plan

The Yuba City General Plan presents its policies regarding noise in the Noise Element. Implementing policies that may be applicable to the proposed project include the following:

Implementing Policies

9.1-I-2 Require a noise study and mitigation for all projects that have noise exposure greater than “normally acceptable” levels. Noise mitigation measures include, but are not limited to, the following actions:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment;
- Increase setbacks for noise sources from adjacent dwellings;
- Retain fences, walls, and landscaping that serve as noise buffers;
- Use soundproofing materials and double-glazed windows; and
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

9.1-I-3 In making a determination of impact under CEQA, consider an increase of four or more DBA to be "significant" if the resulting noise level would exceed that described as normally acceptable for the affected land use.

9.1-I-6 Require new noise sources to use best available control technology (BACT) to minimize noise from all sources.

9.1-I-7 Minimize vehicular and stationary noise sources and noise emanating from temporary activities, such as construction.

Environmental Setting

According to the City's General Plan (Dyett & Bhatia 2004), the major noise sources in Yuba City are related to vehicular traffic on SR 20 and SR 99. Other noise sources include overflights from the Sutter County Airport, railroad activities, and agricultural operations around the edges of the city. Noise produced by industrial facilities has a negligible effect on the city's noise environment. Although the City does not have a Noise Ordinance, noise issues are handled by the City's Nuisance Ordinance, which regulates the time of day that certain noise-generating activities may take place.

The nearest sensitive noise receptors (e.g., residential units, hotels, motels, schools, churches) are located approximately 0.5 mile from the project area. The project area is rural with generally lower noise levels than in urban areas. The noise in the project area is generated by automobile traffic on local roads and agricultural activities on nearby farmland. The Southern Pacific Railroad bridge located upstream of the LLPS is another source of noise in the project area. The LLPS houses equipment approximately 30 feet aboveground and inside a concrete structure; therefore, exterior noise associated with the LLPS is minimal.

Thresholds of Significance

The criteria used for determining significance of noise impacts are based on the CEQA Guidelines, which require impacts be evaluated based on thresholds of significance, and the Yuba City General Plan. For the purposes of this analysis, an alternative is considered to have a significant noise impact if it would:

- expose the public to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. For the purposes of this analysis, the General Plan has the Day-Night Average Level (L_{dn}), which is a measurement of noise exposure (in A-weighted decibels [dBA]) over an average day with weighting to reflect the increased sensitivity to noise during the evening and night. A change in noise levels would be significant if it were to expose persons to or generate noise levels in excess of normally acceptable standards of:
  - 60 L_{dn} for residential, hotel, motels, schools, libraries, churches, hospitals, and nursing homes;
  - 65 L_{dn} for office buildings, business, commercial, libraries, churches, and hospitals;

  - 70 L_{dn} for playgrounds and neighborhood parks, golf courses, riding stables, water recreation, and cemeteries and industrial, manufacturing, utilities, and agricultural resources.
- expose the public to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above current levels; or
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above current levels.

Environmental Consequences

No Project Alternative

Under the No Project alternative, no construction noise would be generated and operations would result in the same noise levels as under current conditions. As such, there would be no impact.

Proposed Project

Impact NZ-1: Temporary Increase in Noise during Construction

Temporary and intermittent noise associated with the proposed project would be the result of construction activities during installation of the intake structure and fish screen. Construction noise impacts result primarily when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or construction lasts over extended periods of time.

Construction of the proposed project would require between 12 and 15 months. Construction activities would involve installing a sheet-pile cofferdam; constructing an intake structure with a pile foundation; constructing a fish screen structure and installing riprap; installing an air compressor, air receiver, and controls for fish screen cleaning system; installing a 54-inch diameter pipeline from the intake structure to the LLPS; and removing sheet-pile cofferdam.

It is anticipated that the equipment listed in Table 3-8 would be used in the construction process. Typical L_{max} noise levels—the maximum sound level measured during the measurement period—and acoustical use factors for each piece of equipment also are shown in Table 3-8 (Federal Highway Administration 2006). The acoustical use factor—the percentage of time per hour that the equipment typically would be used—is used to develop L_{eq}

(equivalent steady-state sound level that in a stated period of time would contain the same acoustical energy) values from L_{max} values.

Impact pile-driving is anticipated to be the noisiest construction activity associated with the proposed project. Construction noise typically attenuates at a rate of about 6 decibels (dB) per doubling of distance assuming the ground is hard and acoustically reflective (e.g., pavement, water). Where the ground is soft (e.g., snow, grass), the rate of attenuation is about 7.5 dB per doubling of distance. With a source level of 94 dBA-L_{eq} at 50 feet, pile-driving noise would attenuate to about 51 dBA-L_{eq} at the nearest noise-sensitive uses located 0.5 mile away.

With a reasonable worst-case assumption that impact pile-driving could occur over 8 hours during daytime hours, 51 dBA-L_{eq} corresponds to about 49 dB-L_{dn} at the nearest noise-sensitive uses. Because noise from impact pile-driving is anticipated to be well below 60 dB-L_{dn}, noise from other construction activity also will be below 60 dB-L_{dn}. Accordingly, construction noise is not anticipated to exceed applicable noise standards. In addition, because of the large distance between construction activity and the nearest noise-sensitive uses, no effects from construction-induced ground vibration are anticipated. Therefore, this impact is less than significant.

Table 3-8. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA-L_{max}) 50 feet from Source	Acoustical Use Factor	Typical Noise Level (dBA-L_{eq}) 50 feet from Source
Backhoe	80	40	76
Concrete mixer	85	40	81
Crane (mobile)	85	16	77
Dump truck	84	40	81
Excavator	85	40	81
Impact pile driver	101	20	94
Roller	85	20	78
Vibratory compactor	80	20	73
Vibratory pile driver	95	20	88

Source: Federal Highway Administration 2006.

Impact NZ-2: Operations-Related Increased Noise Levels

No new pumps would be installed in the LLPS; however, new exhaust fans would be installed and would operate periodically to control temperature. These new exhaust fans are not expected to emit substantially more noise than the current exhaust fans.

Operation of the intake structure/fish screen would require four submersible pumps—three grit removal pumps (15 hp each) and one jet mixing pump (30 hp). Because these four pumps would be submerged and housed in the concrete intake structure, noise levels would be attenuated. Additionally, the jet mixing pump would operate based on debris settling in the intake structure and would not be operated continuously.

The air compressor used for the fish screen cleaning system would be operated intermittently. Initially the system would be operated every 6 hours, and operations would be adjusted throughout the year based on debris in the river and time of year. Given that this system will be used only occasionally and the distance to the nearest noise sensitive uses is large (0.5 mile), operations-related noise impacts would be less than significant.

Cumulative Impacts

The proposed project combined with other projects in the vicinity of the new intake could result in a cumulative noise impact. However, there are no sensitive receptors within 0.5 mile and construction of the proposed project would be temporary. Additionally, operations-related noise is not expected to result in a noticeable change in noise levels. The proposed project would have no impacts on noise beyond what was described in the GP EIR, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, the only noise impact relate to the federal action is the slight increase in noise as a result if installing and operating the fish screen. As described above, this impact is not significant, and no other projects are expected to occur in the same area that would affect sensitive receptors. The cumulative impact would be less than significant for purposes of NEPA evaluation.

Water Supply, Hydrology, and Water Quality

Affected Environment

Regulatory Setting

This section discusses the federal, state, and local policies and regulations relevant to the analysis of water supply, hydrology, and water quality issues in the project area.

Federal Regulations

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following paragraphs provide additional details on specific sections of the CWA.

Clean Water Act Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the U.S. Army Corps of Engineers (Corps) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may impact surface waters are carried out, a delineation of jurisdictional waters of the United States must completed, following Corps protocols (Environmental Laboratory 1987), in order to determine whether the project area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include any or all of the following:

- Areas within the OHWM of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3, 40 CFR 230.3).

Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences.

Clean Water Act Permits for Stormwater Discharge

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by the U.S. Environmental Protection Agency (EPA). In California, the State Water Board is authorized by the EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). (See related discussion under "Porter-Cologne Water Quality Control Act" below.) The NPDES program provides for both general permits (i.e., those that cover a number of similar or related activities) and individual permits.

National Pollutant Discharge Elimination System General Permits
Most construction projects that disturb 1 acre or more of land are required to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), which requires that the applicant file a public notice of intent to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities, along with demonstration of compliance with relevant local ordinances and regulations, and an overview of BMPs that will be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants. Projects constructed on Caltrans facilities or rights-of-way must comply with the requirements of Caltrans' statewide NPDES permit, which has requirements similar to those of the General Permit.

Individual NPDES Permits
All point source discharges to waters of the United States not covered by a general permit are required to apply for an individual NPDES permit with the RWQCB. The RWQCB then issues waste discharge requirements (WDRs) and monitoring provisions to ensure compliance with CWA standards.

Federal Flood Insurance Program
Congress, alarmed by increasing costs of disaster relief, passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large publicly funded flood-control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development on floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. FIRMs delineate flood hazard zones in the community.

Executive Order 11988
Executive Order 11988 (*Floodplain Management*) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project to:

- avoid incompatible floodplain development,
- be consistent with the standards and criteria of the NFIP, and
- restore and preserve natural and beneficial floodplain values.

State Regulations

Porter-Cologne Water Quality Control Act

Overview
The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), passed in 1969, articulates with the CWA (see "Clean Water Act" above). It established the State Water Board and divided the state into nine regions, each overseen by an RWQCB. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies; however, much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303(d). In general, the State Water Board manages both water rights and statewide regulation of water quality, while the RWQCBs focus exclusively on water quality in their regions. The project area is under the jurisdiction of the Central Valley RWQCB (Region 5).

Basin Plans and Water Quality Objectives
The Porter-Cologne Act provides for the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. (See discussion of the NPDES in the "Clean Water Act" section above). Basin plans are updated on a regular basis, and provide the technical foundation for determining waste discharge requirements and taking enforcement actions.

A basin plan has been adopted for the Sacramento River Basin (Central Valley Regional Water Quality Control Board 1998). Existing beneficial uses of the Feather River comprise municipal and domestic supply, agricultural supply, power generation, contact and non-contact water recreation, warm and cold freshwater habitat, and wildlife habitat (Central Valley Regional Water Quality Control Board 1998).

Water Quality Objectives by Region
The RWQCBs have set water quality objectives for all surface waters in their respective regions (including the Feather River) for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (Central Valley Regional Water Quality Control Board 1998).

Beneficial uses of groundwater in the basin have been designated as follows: municipal and domestic supply, agricultural supply, and industrial service and process supply. Water quality objectives applicable to all groundwaters have been set for bacteria, chemical constituents, radioactivity, tastes and odors, and in Region 5 (Central Valley), for toxicity as well (Central Valley Regional Water Quality Control Board 1998).

Section 1601, California Department of Fish and Game

Under Sections 1601–1607 of the California Fish and Game Code, DFG regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Sections 1601 and 1603 require public agencies and private individuals respectively to notify and enter into a streambed or lakebed alteration agreement with DFG before beginning construction of a project that will:

- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; or
- use materials from a streambed.

Section 1601 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. Sections 1601–1607 typically do not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

Local Regulations

Yuba City General Plan

Guiding Policies

8.5-G-1 Enhance the quality of surface water and groundwater resources and prevent their contamination.

8.5-G-2 Enhance the natural condition of the Feather River waterway.

8.5-G-3 Ensure that the City's drinking water continues to meet or exceed water quality standards.

9.3-G-1 Protect the community from risks to lives and property posed by flooding and stormwater runoff.

9.3-G-2 Collect and dispose of storm water in a safe and efficient manner.

Implementing Policies

8.5-I-2 Comply with the Central Valley Regional Water Quality Control Board's regulations and standards to maintain and improve the quality of both surface water and groundwater resources.

8.5-I-3 Continue to control stormwater pollution and protect the quality of the City's waterways, by preventing oil and sediment from entering the river.

8.5-I-6 Protect waterways by prohibiting the dumping of debris and refuse in and near waterways and storm drains.

8.5-I-7 Require new construction to utilize best management practices such as site preparation, grading, and foundation designs for erosion control to prevent sediment runoff into waterways, specifically the Feather River. Best management practices include:

- Requiring that low berms or other temporary facilities be built between a construction site and drainage area to prevent sheet-flooding stormwater from entering storm drains and waterway;
- Requiring installation of storm drains or other facilities to collect stormwater runoff during construction; and
- Requiring onsite retention where appropriate.

Environmental Setting

The City is currently served by a combination of surface and groundwater supplies. The following sections provide background information pertaining to each of these supplies.

Surface Water

Water Supply

The City currently uses surface water to meet approximately 85% of its total demand. All of its surface water is diverted from the Feather River by the intake structure that would be replaced by the proposed project. The annual pattern for WTP operations and corresponding Feather River diversions varies with customer demands. Typically, peak demands are during the summer months, and the lowest demands are during winter months.

City Water Rights

The City has four surface water rights/contracts for the Feather River, as listed below, and limited supply from back-up water wells:

1. State Water Board Permit 14045
2. State Water Board Permit 18558
3. Yuba County Water District
4. DWR State Water Project (SWP).

Hydrology

The Feather River originates in the Sierra Nevada and flows southward into the Central Valley, where it converges with the Sacramento River. The river forms the boundary between Sutter County and Yuba County as well as the cities of Yuba City (located in Sutter County) and Marysville (located in Yuba County). Historically, the Feather River was susceptible to frequent flooding until Oroville Dam was constructed. However, high flow events still threaten levee stability in some locations.

Oroville Dam is located on the Feather River, approximately 30 miles upstream of Yuba City. The principal features of the project are the Oroville Dam and Reservoir, the Edward Hyatt Powerplant, Thermalito Powerplant, Thermalito Diversion Dam Powerplant, Thermalito Forebay and Afterbay, and associated recreational and fish and wildlife preservation and enhancement facilities. The Oroville Reservoir (also known as Lake Oroville) is the principal water storage facility of the SWP, which conserves and delivers water to more than two-thirds of California's population. Operations of Lake Oroville dictate flows on the Feather River.

Water Quality

The EPA and the Central Valley RWQCB have classified the lower Feather River (from the Oroville Dam to the confluence with the Sacramento River) as 303(d) impaired for diazinon (priority 1), chlorpyrifos, Group A Pesticides (priority 3), mercury (priority 2), and unknown toxicity (priority 3) (State Water Resources Control Board 2006a, 2006b).

Groundwater

Yuba City is located in the Sacramento Valley groundwater basin, specifically in the Sutter subbasin. The subbasin is bounded on the north by the confluence of Butte Creek and the Sacramento River and Sutter Buttes, on the west by the Sacramento River, on the south by the confluence of the Sacramento River and the Sutter Bypass, and on the east by the Feather River.

DWR Bulletin 118-6 indicates stream percolation, deep percolation of rainwater, and percolation of irrigation water as the principal sources of groundwater recharge in the Sacramento Valley (California Department of Water Resources 2006).

In 2001, the City received a notice from the County Department of Health Services for nitrate exceedance of drinking water standards in Yuba City's groundwater, Region 5—Tierra Buena water system. Additionally, not all of the wells meet the arsenic standards approved by the EPA (Dyett & Bhatia 2004).

Thresholds of Significance

The criteria used for determining significance of impacts on water supply, hydrology or water quality are based on the CEQA Guidelines, which require impacts be evaluated based on thresholds of significance. These criteria are described below.

An alternative is considered to have a significant impact on water supply if:

- sufficient water supplies are not available to serve the project from existing entitlements and resources, or the project would require new or expanded entitlements.

An alternative is considered to have a significant impact on hydrology and water quality if it would:

- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation on or off site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems;
- place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year floodplain structures that would impede or redirect floodflows;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;
- violate RWQCB water quality standards or waste discharge requirements; or
- substantially degrade water quality.

Environmental Consequences

No Project Alternative

Under the No Project alternative, there would be no construction and therefore no changes in turbidity, sedimentation, water supply, or hydrology compared to existing conditions. Additionally, there would be no changes in operations that could affect water supply, hydrology, or water quality. As such, there would be no impact.

Proposed Project

Impact WTR-1: Construction-Related Increase in Turbidity and Erosion

Construction-related earth-disturbing activities could cause soil erosion and sedimentation. In particular, earth-moving and trenching during installation of water conveyance piping would provide a direct mechanism for sediment and other contaminants to reach the Feather River. These ground-disturbing activities in and outside the Feather River have the potential to erode soils and increase turbidity. This would have a temporary and localized impact on water quality. Additionally, work in the Feather River would require dewatering of the affected area, which could affect water quality through discharge of water from the dewatering process. It is anticipated that the CWA Section 401 permit will require monitoring of turbidity and other water quality parameters in and around the construction area to ensure it does not exceed levels that affect beneficial uses. As such, this impact is less than significant.

Impact WTR-2: Potential Water Quality Degradation as a Result of Accidental Spill during Construction

Construction equipment would have potential to leak hazardous materials that may include oil and gasoline. Improper use of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, also may pose a threat to surface or groundwater quality. Potential impacts associated with accidental release of hazardous materials could occur during construction but would be localized and temporary in nature. Therefore, the potential for degradation of water quality from accidental hazardous material spills during construction is low and would be minimized further by implementing the provisions of a spill prevention, control, and countermeasure plan (Environmental Commitment HAZ-1) as described in Chapter 2. This plan will include measures for responding to and remediating spills, which will minimize impacts on surrounding areas. Therefore, this impact is less than significant.

Impact WTR-3: Temporary Reduction in Feather River Flow Capacity

Dewatering a portion of the Feather River during installation of the new intake structure temporarily would reduce channel capacity. This could be a significant impact during flood or other high-flow events. However, construction of the new intake structure would occur in the summer when capacity is not a problem because flows are naturally lower and Oroville Dam controls releases to avoid capacity issues. As such, this impact would be less than significant.

Impact WTR-4: Increased Water Supply for Yuba City

The proposed project would increase Feather River diversions by a maximum of 18 mgd (27 cubic feet per second [cfs]), for an overall total of 48 mgd. The additional capacity is needed to meet expected future water demands within the City's supply area. The increase in demands and diversions will depend on summer weather conditions and the number of new customers added to the City's system.

Table 3-9 shows the 2008 projected Yuba City customer demands. Based on the monthly mean streamflow for the period between 1964 and 1984, the 2008 City diversions represent between 0.13% and 0.91% or less of the total Feather River flow (Table 3-9). This increased water supply would be beneficial.

Table 3-9. Mean River Flows and 2008 City Diversions

	Mean Monthly Streamflow (cfs)	2008 Yuba City Diversions		
		mgd	cfs	%
January	11,090	9.36	14.5	0.13
February	8,115	8.22	12.7	0.16
March	8,782	11.38	17.6	0.20
April	7,462	13.76	21.3	0.29
May	5,187	17.42	27.0	0.52
June	3,698	19.72	30.6	0.83
July	3,461	20.38	31.6	0.91
August	3,631	20.53	31.8	0.88
September	3,636	17.97	27.9	0.77
October	2,617	14.84	23.0	0.88
November	4,319	9.11	14.1	0.33
December	8,117	8.09	12.5	0.15

Source: City of Yuba City 2009.

Impact WTR-5: Changes in Hydrology as a Result of Increased Diversions

The increase in the amount of water diverted, i.e., less than 1% of the average monthly minimum flow of the Feather River, would have a negligible effect on hydrology. The increased capacity of the proposed intake (up to 48 mgd or 74 cfs) would remain relatively small compared to the flow of the Feather River. Based on the monthly mean streamflow for the period between 1964 and 1984, the current City diversion capacity represents up to 1.8% of the total Feather River minimum monthly flow (October). The increased capacity of the proposed intake represents an additional 0.8% of mean minimum monthly Feather River flows. The above comparison overestimates the actual proportion of water diverted because, as shown in Table 3-9 above, maximum diversions (July) generally do not coincide with minimum flows (October). As such, this impact is considered less than significant.

Impact WTR-6: Sediment Return to the River

The beneficial uses and water quality objectives for waters in the Sacramento River Basin are established in the Water Quality Control Plan (Basin Plan) for the Central Valley RWQCB. Water quality objectives are designed to protect beneficial uses such as agricultural, municipal, and industrial supply; fish and wildlife; and body contact and noncontact recreation. The Basin Plan contains numerical and narrative water quality objectives for physical and chemical parameters. Returning sediment to the river likely will require approval by the RWQCB.

Water quality objectives for sediment, settleable material, and suspended material are defined by the Basin Plan to "not be altered in such a manner as to cause nuisance or adversely affect beneficial uses."

The reach of the Feather River at the intake facility is not impaired for turbidity, sediment, settleable material, or suspended material, as defined by the 2002 Clean Water Act Section 303(d) List of Water Quality–Limited Segments.

A zone of dilution will be needed for the greater-than-ambient sediment concentrations to meet the criteria set in the Basin Plan. A very small, localized plume is expected that will rapidly reach suspended sediment levels equal to ambient levels or only slightly higher than ambient levels in the river.

The receiving water (Feather River) flow is substantially greater than the proposed return flow, thereby ensuring substantial dilution, as described above. Furthermore, the receiving water is not impaired by sediment or turbidity and therefore has the assimilative capacity to accept the returned sediment while not exceeding applicable water quality objectives at the edge of the mixing zone or adversely affecting the river's beneficial uses. The pH and temperature of the return stream will be indistinguishable from river water.

Once the return flow is well mixed with the river flow, the actual effect of the return flow system on river water quality will be inconsequential because the quantity of sediment returned is very small relative to background. Sediment collected in the intake forebay will have been in suspension in the river prior to settling. Therefore, it should easily go back into suspension once returned to the river. This impact is less than significant.

Cumulative Impacts

The proposed project combined with other past, present, and future projects could have cumulative impacts on water supply, hydrology, and water quality. Combined with other projects, including the City's WTP expansion, water supply and reliability, and water quality for the City's users would be improved as described and evaluated in the GP EIR. As such, the proposed project would have no additional impacts on utilities and services, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

However, increased diversions in the upper watershed areas, such as Yuba City and areas along the Sacramento River, may adversely affect water supply for downstream users. Regulatory and seasonal weather pattern changes also may limit downstream water supplies, and could have impacts on downstream water quality. During construction, localized cumulative water quality impacts could occur if other construction or ground-disturbing activities are occurring on the waterside of the Feather River levees. Environmental commitments to minimize erosion and sedimentation are included in the proposed project. The proposed project would not result in a noticeable change in hydrology, but combined with other projects that may divert more water, there would be a cumulative effect. Hydraulics would be affected only in the vicinity of the proposed project, and there would be no other changes, and thus no cumulative impacts. Although these cumulative water supply, hydrology, and water quality impacts may be significant, the project's contribution is not considerable for purposes of CEQA.

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, the only water-related impacts resulting from the federal action are the short-term changes in water quality and channel capacity during installation of the fish screen. As described above, this impact is not significant, and no other projects are expected to occur in the same area that would affect the water quality or hydraulics. Cumulative impacts would be less than significant for purposes of NEPA evaluation.

Soils and Geology

Affected Environment

Regulatory Setting

This section discusses the federal, state, and local policies and regulations relevant to the analysis of soils and geology issues in the project area.

Federal Regulations

Clean Water Act

Section 402 of the CWA is directly relevant to excavation. Amendments in 1987 to the CWA added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, which is implemented by the state's nine RWQCBs. Under the NPDES Phase II Rule, construction activity disturbing 1 acre or more must obtain a General Permit. General Permit applicants are required to prepare a notice of intent and a SWPPP and implement and maintain BMPs to avoid adverse effects on water quality as a result of construction activities, including earthwork.

Uniform Building Code (International Building Code)

The design and construction of engineered facilities in the California must comply with the requirements of the Uniform Building Code (UBC). The International Code Council (ICC) was established in 1994 as a nonprofit organization dedicated to developing a single set of comprehensive and coordinated national model construction codes The founders of the ICC are Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO), and Southern Building Code Congress International, Inc. (SBCCI). Since the early twentieth century, these nonprofit organizations developed the three separate sets of model codes used throughout the United States. Although regional code development has been effective and responsive in the past, a single set of codes was developed. The nation's three model code groups responded by creating the ICC and by developing codes without regional limitations, the International Codes.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act

prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active* and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones.

Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for the purposes of the act as within the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in Seismic Hazard Zones until appropriate site-specific geologic or geotechnical investigations have been carried out, and measures to reduce potential damage have been incorporated into the development plans.

California Building Code Commission

Established in 1953 by the California Building Standards Law, the California Building Standards Commission (BSC) is an independent commission within the State and Consumer Services Agency. BSC's mission is to produce sensible and usable state building standards and administrative regulations that implement or enforce those standards. As provided in established laws and rules, BSC is charged with:

- assisting state agencies in producing high-quality amendments;
- working to repeal unnecessary building regulations and see that ambiguous regulations are more clearly written;
- assisting various constituents and special interest groups in making their needs known to various code-writing departments;
- administering a public appeal process;

- educating the public about the state's building code and helping them understand and comply with it; and
- ensuring a high-quality California Code of Regulations (CCR), Title 24, with minimal errors.

The State of California's minimum standards for structural design and construction are given in the CBSC (CCR Title 24). The CBSC is based on the UBC (International Code Council 1997), which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC requires that "classification of the soil at each building site will be determined when required by the building official" and that "the classification will be based on observation and any necessary test of the materials disclosed by borings or excavations." In addition, the CBSC states that "the soil classification and design-bearing capacity will be shown on the (building) plans, unless the foundation conforms to specified requirements." The CBSC provides standards for various aspects of construction, including but not limited to excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, certain aspects of the proposed project would be required to comply with all provisions of the CBSC.

Local Regulations

The Yuba City General Plan addresses geology and soils and associated hazards such as erosion, subsidence and expansive soils, as well as seismic hazards. General plan goals and policies that may be applicable to the proposed project include the following:

Guiding Policy

9.2-G-1 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

Implementing Policies

8.5-I-7 Require new construction to utilize best management practices such as site preparation, grading, and foundation designs for erosion control to prevent sediment runoff into waterways, specifically the Feather River. Best management practices include:

- Requiring that low berms or other temporary facilities be built between a construction site and drainage area to prevent sheet-flooding stormwater from entering storm drains and waterway;
- Requiring installation of storm drains or other facilities to collect stormwater runoff during construction; and
- Requiring onsite retention where appropriate.

9.2-I-1 Review proposed development sites at the earliest stage of the planning process to locate any potential geologic or seismic hazards.

Following receipt of a development proposal, engineering staff shall review the plans to determine whether a geotechnical review is required. If the review is required, then the applicant shall be referred to geotechnical experts for further evaluation.

9.2-I-3 Require comprehensive geologic and engineering studies of critical structures regardless of location.

9.2-I-6 Control erosion of graded areas with revegetation or other acceptable methods.

Environmental Setting

Soils in the project area are classified as Columbia fine sandy loam that is frequently flooded, with Shanghai silt loam occurring farther inland (Natural Resources Conservation Service 2005). In general, the potential erodibility of soil in Yuba City is considered slight, because land within the City is generally flat (slopes less than 9%), annual precipitation levels are low (between 15 and 21 inches), and wind velocities are low. The subsidence hazard overall is low in Yuba City because the Sacramento and Feather Rivers provide significant groundwater recharge (Dyett & Bhatia 2004). Additionally, there are no expansive soils in the proposed project area; the extreme southwestern corner of Yuba City is the only area with expansive soils (Dyett & Bhatia 2004).

No active earthquake faults are known to exist in Sutter County, although potentially active faults in the region could produce ground motion in Yuba City (Dyett & Bhatia 2004). Approximately 15 miles west of Sutter County lies the Central Valley Blind-Thrust Fault, which is known to have caused an estimated 6.5 earthquake in 1892 (Dyett & Bhatia 2004). Two earthquakes with magnitudes of 4.0 and 4.9 also occurred between 1900 and 1974 near Williams (Dyett & Bhatia 2004). Potentially active faults do exist in Sutter County in the area near the Sutter Buttes; however, these faults are considered small and have not exhibited activity in the last 200 years (Dyett & Bhatia 2004).

Typical seismically-induced ground failures include liquefaction, lateral spreading, ground lurching, seiches, and landslides. The potential for ground shaking in Sutter County is considered low to moderate; as such, it is unlikely that subsequent ground failure would occur in Yuba City (Dyett & Bhatia 2004). Additionally, landslides are unlikely to occur because the topography of the project area is relatively flat (Dyett & Bhatia 2004). Furthermore, according to the City's General Plan, the project area is located in an area of low risk for erosion and expansion of soils (Dyett & Bhatia 2004).

Thresholds of Significance

The criteria used for determining significance of impacts on soils and geology are based on the CEQA Guidelines, which require impacts be evaluated based on

thresholds of significance. An alternative is considered to have a significant impact on soils and geology if it would:

- expose people or structures to potential substantial adverse effects as a result of: rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable or would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Environmental Consequences

No Project Alternative

The No Project Alternative would not include any ground-disturbing activities and would therefore not affect erosion, liquefaction or expansion of soils, sedimentation or introduction of construction spoils to the Feather River. As such, there would be no impact.

Proposed Project

Impact GEO-1: Construction-Related Increased Erosion

Ground-disturbing activities in and around the intake have the potential to result in accelerated erosion. As one of the Environmental Commitments incorporated into the project, the City would prepare and implement an erosion and sediment control plan as part of a SWPPP to address erosion, stormwater runoff, sediment, and other construction-related pollutants during project construction and until all areas disturbed during construction have been permanently stabilized. The specific BMPs that would be incorporated into the erosion and sediment control plan and SWPPP would be determined during the final design phase and would be prepared in accordance with the RWQCB Field Manual. Therefore, this impact is considered less than significant.

Impact GEO-2: Operation-Related Increased Erosion

Operation of the new intake is not expected to result in changes to erosion compared to existing conditions. The new intake would be designed to minimize erosion or disturbance to soils and the area disturbed during construction would be stabilized with vegetation or engineered structures. Therefore, this impact would be less than significant.

Impact GEO-3: Increased Risk of Property Damage as a Result of Ground Shaking

The proposed project does not involve the construction of new buildings or structures that would house people or be considered susceptible to erosion, liquefaction, or expansion of soils. In addition, because of project design components (i.e., cofferdam/dewatering, dry season construction, and post-construction riprap of the shoreline), temporary erosion concerns during construction would be reduced to a less-than-significant level.

Pipelines would be installed underground, and the fish screen and new intake structure would be designed and constructed to withstand a reasonable amount of ground shaking. The proposed project is susceptible to wind- and water-caused erosion, and therefore has the potential to introduce construction spoils and sediment into the Feather River. Impacts related to water-caused erosion during construction activities would be reduced by the hydrology and water quality environmental commitments in Chapter 2, "Description of the Proposed Project and Alternatives."

Therefore, less-than-significant impacts on soils and geology are associated with the implementation of the proposed project.

Cumulative Impacts

The proposed project combined with other projects has the potential to result in a temporary cumulative impact related to soil disturbance during construction. If other projects are occurring along the waterside of the Feather River levee at the same time that the proposed project is being constructed, there is potential for significant erosion. As described above, the proposed project implements environmental commitments that minimize erosion and sedimentation during and after construction. This would ensure that the proposed project's contribution to any cumulative impacts is not considerable and the impact would be cumulatively less than significant.

Biological Resources

Affected Environment

Regulatory Setting

This section discusses the federal, state, and local policies and regulations relevant to the analysis of biological resource issues in the project area.

Federal Regulations

Endangered Species Act

The Endangered Species Act (ESA) protects fish and wildlife species and their habitats that have been identified by USFWS as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments (DPSs) that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to those likely to become endangered in the near future.

The ESA is administered by USFWS and NOAA Fisheries. In general, NOAA Fisheries is responsible for protection of listed marine species and anadromous fishes, whereas other listed species are under USFWS jurisdiction. Provisions of Sections 7 and 9 of ESA are relevant to this project and are summarized below.

Section 7: Endangered Species Act Authorization Process for Federal Actions

Section 7 provides a means for authorizing take of threatened and endangered species by federal agencies. It applies to actions that are conducted, permitted, or funded by a federal agency. Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult with USFWS, as appropriate, to ensure that the proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed action "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. In response, USFWS issues a biological opinion, with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or
- will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

Section 9: Endangered Species Act Prohibitions

Section 9 prohibits the take of any wildlife species federally listed as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise

authorized by federal regulations.[1] *Take*, as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the former Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 21; 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of MBTA. USFWS is responsible for overseeing compliance with MBTA.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires coordination with USFWS, NOAA Fisheries, and DFG when the waters of any stream or other body of water are proposed, authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified under a federal permit or license (16 USC 661–667[e]). USFWS typically prepares a Coordination Act Report (CAR) with recommendations to address impacts to fish and wildlife resources. The recommendations in the CAR are advisory only.

State Regulations

California Endangered Species Act

California implemented the California Endangered Species Act (CESA) in 1984. The act prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of *take*. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. DFG administers CESA and authorizes take through Section 2081 agreements (except for species designated as fully protected). DFG can adopt a federal biological opinion as a state biological opinion under California Fish and Game Code, Section 2095. In addition, DFG can write a consistency determination for species that are both federally and state listed if DFG determines that the avoidance, minimization, and compensation measures will ensure no take of species.

[1] In some cases, exceptions may be made for threatened species under Section 4[d]. In such cases, USFWS or NOAA Fisheries issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed.

California Fish and Game Code

Fully Protected Species
The California Fish and Game Code provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Birds that are fully protected are listed under Section 3511 and mammals that are fully protected are included in Section 4700. The California Fish and Game Code defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited.

Sections 3503, 3513, and 3800
Section 3503 of the California Fish and Game Code prohibits the killing, possession, or destruction of bird eggs or of bird nests. Sections 3503.5 and 3513 prohibit the killing, possession, or destruction of all nesting birds (including raptors and passerines). Section 3513 prohibits the take or possession of any migratory non-game birds designated under the federal MBTA. Section 3800 prohibits take of non-game birds. Some mammals are protected under Section 4700.

Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5. Migratory non-game birds are protected under Section 3800.

California Environmental Quality Act
A project normally has a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. (Specific significance criteria for this project are described in a separate section below.) The CEQA Guidelines define rare, threatened, or endangered species as those listed under CESA and ESA, as well as other species that meet the criteria of the resource agencies or local agencies—for example, DFG-designated species of special concern and some species listed by the California Native Plant Society. The CEQA Guidelines state that the lead agency preparing an EIR must consult with and receive written findings from DFG concerning project impacts on species listed as endangered or threatened. The effects of a project on these resources are important in determining whether project activities would have significant environmental impacts under CEQA.

Local Regulations

The Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan
The Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), currently under development, is a cooperative planning effort

initiated by Yuba and Sutter counties to address the impacts of regional proposed transportation projects (Highways 99 and 70) and any resulting development in the surrounding area. The purpose of the Yuba-Sutter NCCP/HCP is to provide a way to continue economic growth and community development; retain the economic vitality of the area's agricultural community; maintain public uses of open space; simplify and expedite land use and conservation planning in the plan area; protect threatened and endangered species; and preserve plant and wildlife communities.

Environmental Setting

The proposed project would be within the floodplain of the Feather River. A narrow riparian corridor is present along the west bank of the Feather River, but the river bank immediately downstream of the proposed new intake structure location has been riprapped. Orchards are immediately north, west, and south of the project area.

Listed and proposed listed species potentially affected by the proposed project were identified using a variety of database and field methods, as well as through discussions with resource specialists. Data were collected using the California Natural Diversity Database (CNDDB) (California Natural Diversity Database 2006), and by written request to USFWS. In 2004, as part of the upgrade of the City's WTP, reconnaissance-level biological surveys were conducted in the project area for listed, candidate, and other biological resources of concern. On September 27, 2006, a follow-up reconnaissance survey was conducted to confirm that habitat conditions had not changed. Table 3-10 below identifies those species with known potential to occur in the project area.

Table 3-10. Special-Status Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Status	Habitat in Project Area?
Invertebrates			
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Yes
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	No (vernal pools and swales absent)
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	No (vernal pools and swales absent)
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	No (vernal pools and swales absent)
California linderiella fairy shrimp	*Linderiella occidentalis*	n/a	No (seasonal pools within grasslands absent)
Fish			
Central Valley steelhead	*Oncorhynchus mykiss*	FT	Yes
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT, ST	Yes
Central Valley fall-/late fall–run Chinook salmon	*Oncorhynchus tshawytscha*	FSC, SSC	Yes
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	FE, SE	Yes

Common Name	Scientific Name	Status	Habitat in Project Area?
Green sturgeon	*Acipenser medirostris*	FT, SSC	Yes
Sacramento splittail	*Pogonichthys macrolepidotus*	SSC	Yes
River lamprey	*Lamptera ayresi*	SSC	Yes
Hardhead	*Mylopharodon conocephalus*	SSC	Yes
Delta smelt	*Hypomesus transpacificus*	FT, ST	No (restricted to Sacramento–San Joaquin Delta)
Amphibians			
California red-legged frog	*Rana aurora draytonii*	FT, SSC	No (species extirpated from the Valley floor)
California tiger salamander	*Ambystoma californiense*	FT, SSC	No (vernal pools and swales absent)
Reptiles			
Giant garter snake	*Thamnophis gigas*	FT, ST	No (slow-moving, perennial waters absent)
Western pond turtle	*Clemmys marmorata*	FSC, SSC	Yes
Birds			
Bald eagle	*Haliaeetus leucocephalus*	SE, SFP	Yes
Swainson's hawk	*Buteo swainsoni*	ST	Yes
Black-crowned night heron	*Nycticorax nycticorax*	FSC	Yes
Cooper's hawk	*Accipiter cooperii*	n/a	Yes
Great blue heron	*Ardea Herodias*	FSC	Yes
Great egret	*Ardea alba*	FSC	Yes
Snowy egret	*Egretta thula*	FSC	Yes
White tailed (=black shouldered) kite	*Elanus leucurus*	SFP	Yes
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC, SE	Yes
Double-crested cormorant	*Phalacrocorax auritus*	n/a	Yes
Loggerhead Shrike	*Lanius ludovicianus*	SSC	Yes
Tricolored blackbird	*Agelaius tricolor*	FSC,SSC	Yes
Bank swallow	*Riparia riparia*	ST	Yes
Plants			
Hartweg's golden sunburst	*Pseudobahia bahiifolia*	FE	No (mima mounds absent; extirpated from Sacramento Valley)
Veiny monardella	*Monardella douglasii* ssp. *Nenosa*	CNPS 1B.1	No (foothill annual grassland absent)

FT = federally threatened	SE	=	state endangered
FE = federally endangered	SSC	=	state species of concern
FC = federal candidate	SFP	=	state fully protected
FSC = federal species of concern	CNPS 1B	=	California Native Plant Society
ST = state threatened			

Vegetation Communities

The project area contains three types of natural vegetation communities that could provide or enhance habitat for wildlife species, including special-status terrestrial wildlife species and special-status fish. These three natural vegetation communities are valley riverine aquatic habitat, valley/foothill riparian community, and upland cropland.

Valley Riverine Aquatic

Status in the Project Area
Valley riverine aquatic habitat, as defined by the CALFED Bay-Delta Program, includes:

> the water column of flowing streams and rivers in low-gradient channel reaches below an elevation of approximately 300 feet that are not tidally influenced. This includes associated shaded riverine aquatic (SRA)…Valley riverine aquatic habitat includes portions of the ERP riparian and riverine aquatic habitat.

Valley riverine aquatic habitat in the project area consists of the Feather River and associated SRA habitat. Approximately 0.10 acre of valley riverine aquatic habitat occurs in the project area. Valley riverine aquatic habitat is considered jurisdictional waters of the United States under Section 404 of the CWA.

Valley riverine aquatic habitat in the project area provides habitat for anadromous and other fish species and western pond turtle (*Clemmys marmorata*), which is a State species of concern. The river also provides foraging habitat for numerous other fish and wildlife species. The associated overhead cover SRA habitat (i.e., riparian habitat) is described below under Valley/Foothill Riparian.

Valley/Foothill Riparian Community

Status in the Project Area
The valley/foothill riparian community in the project area consists of riparian woodland and riparian scrub. Valley/foothill riparian communities are assumed to be nonjurisdictional (i.e., not regulated under Section 404 of the CWA). Riparian habitat has been designated by DFG as a habitat of special concern in California because of its limited abundance and high value to wildlife.

Riparian habitat in the study area occurs on the banks and floodplain of the Feather River. The section of river bank within the project footprint is lined with a layer of existing rock revetment. Approximately 0.05 acre of riparian habitat occurs on the river bank in the project area. This riparian habitat is composed of a mature cottonwood tree and riparian scrub vegetation along the riverbank.

Riparian habitat also occurs on adjacent sections of the river bank and on the floodplain terrace immediately south of the project area. Riparian vegetation includes Fremont's cottonwood (*Populus fremontii*), Gooding's willow (*Salix*

gooddingii), valley oak (*Quercus lobata*), and box elder (*Acer negundo*). Elderberry shrubs occur in the riparian habitat.

Overstory trees may be used for nesting and roosting by numerous raptors and also provide suitable habitat for other birds, such as herons, egrets, and numerous songbirds. Riparian habitat provides important nesting and foraging cover for resident, migratory, and wintering songbirds. In addition, riparian vegetation provides habitat for several species of mammals. Riparian habitat also provides SRA overhead and instream cover.

Upland Cropland

Status in the Project Area
Upland cropland habitat is made up of agricultural lands that are not seasonally flooded. Upland cropland in the project area consists of a walnut orchard on the west side of the project area.

No special-status plant species are known to occur in upland cropland habitat because of the soil disturbance inherent in the agricultural practices. Special-status wildlife species, such as raptors, and other common wildlife species may forage in the orchard.

Special-Status Terrestrial Wildlife Species

Eight special-status terrestrial wildlife species were identified as potentially occurring in the project area or vicinity. As noted in Table 3-10, several identified species lack habitat in the project area and, therefore, are not addressed further. A brief description of the distribution, status, and biology of valley elderberry longhorn beetle (VELB) and special-status bird species potentially affected by the proposed project follows.

Valley Elderberry Longhorn Beetle

Elderberry shrubs are the host plant of the federally listed VELB. Current information on the beetle indicates that it is found only with its host plant, the elderberry. Adult VELB feed on foliage and are active from early March to early June. The beetles mate in May, and females then lay eggs on living elderberry shrubs. Larvae bore through the stems of the shrubs to create an opening in the stem, where they then pupate. After metamorphosing into adults, the beetles chew a circular exit hole and emerge (Barr 1991). Elderberry shrubs in California's Central Valley are commonly associated with riparian habitat but also occur in oak woodlands, savannas, and disturbed areas.

There are no CNDDB occurrences of VELB in the study area (California Natural Diversity Database 2007). However, numerous elderberry shrubs are located in the vicinity of the project. Elderberry shrubs occur in scattered locations along the banks of the Feather River. The nearest shrubs are less than 100 feet from the LLPS but at least 20 feet outside the footprint for proposed project activities.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is is a state-listed endangered species, and is protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act (MBTA). This species typically nests on seacliffs, coastal islands, and along large rivers and large lakes. Nests usually are found in large trees or rock outcrops. The nests generally are located close to water and are reused annually. In northern California, bald eagles are almost exclusively fish-eaters, so they are rarely seen far from water.

Bald eagles are uncommon winter visitors to California, with a small number of resident breeders. This species formerly bred throughout the entire length of the state, but is now confined to only a few localities in northern California.

It is unlikely that they nest in the vicinity of the LLPS because there is no suitable nesting habitat. The nearest known bald eagle nest was recorded in Yuba County approximately 20 miles from the LLPS (California Natural Diversity Database 2006).

Swainson's Hawk

The Swainson's hawk is a state-listed threatened species and is a migratory bird species protected under the federal MBTA. The Fish and Game Code (FGC) states:

> It is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation made pursuant thereto (FGC Section 3503.5).

Swainson's hawk (*Buteo swainsoni*) breeding range occurs from southwestern Canada to northern Mexico (Godfrey 1986; Semenchuk 1992; Howell and Webb 1995; Smith 1996; England et al. 1997). While nearly all of the North American populations of Swainson's hawk winter in South America and Mexico, some small populations winter regularly in the United States in Florida and in the Sacramento–San Joaquin River Delta (Delta) area (Yee et al. 1991; Herzog 1996).

Foraging habitat for Swainson's hawk consists of relatively open stands of grass-dominated vegetation, sparse shrublands, and even croplands. Swainson's hawks migrate long distances and tend to nest almost exclusively in large, sparsely vegetated flatlands characterized by valleys, plateaus, broad floodplains, and large expanses of desert (Bloom 1980). In California, these birds typically return to nest sites from early March to April (later in more northern areas of the state). Migratory flocks begin forming in late August and September, and most birds are on their wintering grounds by November.

There are two CNDDB occurrences of Swainson's hawks in the vicinity of the project area (California Natural Diversity Database 2007). Both of these occurrences are north of Yuba City and are more than 1 mile from the project area. There is no Swainson's hawk foraging habitat in the project area, and there is limited foraging habitat in lands adjacent to the access road. Large trees

adjacent to the project area may provide suitable nesting or roosting habitat for Swainson's hawk.

Black-Crowned Night Heron (Rookery)

Black-crowned night herons are permanent residents in the Central Valley (Zeiner et al. 1990). Throughout most of California, the black-crowned night heron's breeding season is from February to July; in the northeastern portion of the state, it is from April to August. Nests are made of sticks, debris, or marsh plants and are built either in trees or on the ground (Cogswell 1977). The heron roosts during the day in dense trees or dense emergent wetland plants. Its diet comprises fish, amphibians, insect larvae, crustaceans, other invertebrates, reptiles, and small mammals (Zeiner et al. 1990).

Although there are no CNDDB records for rookeries in the study area (California Natural Diversity Database 2007), black-crowned night herons could occur in the vicinity of the project area because the riparian habitat along the Feather River provides suitable rookery locations. However, because of the frequent disturbance associated with the existing pump station, it is unlikely that they nest in the immediate project area.

Cooper's Hawk

The Cooper's hawk breeds throughout most of California in a variety of woodland habitats, including riparian and oak woodlands (Zeiner et al. 1990). Although Cooper's hawks have not been recorded in the project area or surrounding areas (California Natural Diversity Database 2007) and formal surveys have not been performed to determine whether this species is present, Cooper's hawk is expected to be a permanent resident long the Feather River because riparian habitat along the Feather River provides suitable nesting, roosting, and foraging habitat.

Great Blue Heron

Great blue herons nest in colonies in the tops of secluded large snags or live trees. Nest colonies, or rookeries, may be located near shallow water feeding areas but may be as far as 10 miles from shallow water areas. Great blue herons also will forage in grasslands, suitable agricultural lands, and pasture lands. In the study area, riparian habitat provides nesting and roosting habitat for this species. Shallow water areas on the Feather River and agricultural lands provide suitable foraging habitat for this species.

Great blue herons could occur in the vicinity of the project area because the riparian habitat along the Feather River provides suitable rookery locations. Because of the frequent disturbance associated with the existing pump station, it is unlikely that they nest in the immediate vicinity of the intake structure. There are no CNDDB records for rookeries in the study area (California Natural Diversity Database 2007).

Great Egret (Rookery)

Great egrets nest in colonies in the tops of secluded large snags or live trees. Great egrets require groves of trees that are suitable for nesting and roosting, are

relatively isolated from human activities, and are found near aquatic foraging areas. Great egrets typically nest from March to July, and populations are concentrated near nesting colonies. After nesting, individuals disperse over a wide range (Zeiner et al. 1990).

Nests are constructed from sticks and stems of marsh plants and are built in large trees. Great egrets feed and rest in fresh and saline emergent wetlands; along the margins of estuaries, lakes, and slow-moving streams; on mudflats and salt ponds; and on irrigated croplands and pastures. They eat primarily fishes, amphibians, snakes, snails, crustaceans, insects, and small mammals (Zeiner et al. 1990).

Great egrets are expected to occur along the Feather River because the riparian habitat along the Feather River provides suitable rookery locations. Because of the frequent disturbance associated with the existing pump station, it is unlikely that they nest in the immediate vicinity of the intake structure. There are no CNDDB records for rookeries in the study area (California Natural Diversity Database 2007).

Snowy Egret (Rookery)

Snowy egrets nest in single-species or mixed-species colonies (Parsons and Master 2000). Nests are built in low, dead trees or shrubs out of sticks and the stems of marsh plants. Nests may be built near freshwater lakes or built on the banks of marshes out of tules (Cogswell 1977). The breeding season is from late March to mid-May in southern and central California and late April through late August in northern California (Zeiner et al. 1990).

Snowy egrets often are observed in saltwater marshes, tidal lagoons, tidal estuaries, and along the banks of lakes, rivers, and streams hunting for food. Snowy egrets feed on a wide variety of prey, including fish, crayfish and other crustaceans, reptiles, amphibians, aquatic and terrestrial insects, and small mammals (Parsons and Master 2000).

Snowy egrets are expected to occur along the Feather River because the riparian habitat along the Feather River provides suitable rookery locations. Because of the frequent disturbance associated with the existing pump station, it is unlikely that they nest in the immediate vicinity of the intake structure. There are no CNDDB records for rookeries in the study area (California Natural Diversity Database 2007).

Double-Crested Cormorant (Rookery)

Double-crested cormorants nest in large colonies in large trees near suitable foraging habitat (Zeiner et al. 1990). The breeding season is from April through July central California. Double-crested cormorants occur in a wide range of habitats ranging from slow-moving rivers and other waterways, lakes, estuaries and coastal waters. Cormorants primarily feed on fish but may occasionally take, crayfish and other crustaceans and insects.

Double-crested cormorants are expected to occur in the study area because the riparian habitat along the Feather River provides suitable rookery locations. Because of the frequent disturbance associated with the existing pump station it is unlikely that they nest in the immediate vicinity of the intake structure. There are no CNDDB records for rookeries in the study area (California Natural Diversity Database 2007).

White-Tailed Kite

The white-tailed kite is a state fully protected species. This species typically breeds in open country with scattered trees, nesting in trees usually located near water. Potential white-tailed kite nesting and roosting habitat exists near the LLPS and intake structure. The open space areas near the project area provide potential foraging habitat. In addition, the large trees adjacent to the river and LLPS may provide suitable nesting or roosting habitat for white-tailed kite.

There are no CNDDB occurrences of white-tailed kite in the project area; the nearest known white-tailed kite nest was recorded approximately 6.15 miles from the LLPS (California Natural Diversity Database 2007). Although formal surveys have not been performed to determine whether this species is present, white-tailed kite is expected to be a permanent resident along the Feather River because riparian habitat along the Feather River provides nesting, roosting, and foraging habitat for this species.

Western Yellow-Billed Cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is a state-listed endangered species. This species occupies riparian forests, preferring large tracts of dense stands dominated by willows and cottonwoods. Nests are commonly placed in dense cover and intermingled with willows.

Cuckoos have been recorded as occurring along the Feather River, approximately 0.5 mile upstream and 2 miles downstream of the proposed project area. These areas are both densely wooded, and the proposed project area is not; therefore, the western yellow-billed cuckoo is not anticipated to occur in the project area, but could fly through the project area (City of Yuba City 2005).

Loggerhead Shrike

The loggerhead shrike (*Lanius loduvicianus*) is a state species of concern. This species typically forages and breeds in open country with scattered trees, grasslands, or agricultural areas. They nest in trees or low shrubs adjacent to open foraging areas. The species is mostly resident and nests the entire length of the state except for the northwest coastal and mountain forests and higher mountain areas.

Potential loggerhead shrike foraging habitat exists near the LLPS and pipeline alignment. This area can support loggerhead shrike prey and is considered suitable foraging habitat for this species. In addition, the scrub and riparian habitats adjacent to the river and LLPS may provide suitable nesting habitat for loggerhead shrike.

However, according to the CNDDB, there are no recorded occurrences of loggerhead shrike within 50 miles of the project area (California Natural Diversity Database 2006).

Bank Swallow

The bank swallow (*Riparia riparia*), a state-listed threatened species, prefers nesting colony sites in natural banks, bluffs, and cliffs where erosion, primarily from running water, maintains a vertical surface. The vertical surface discourages growth of vegetation and protects the nest from predation. Soils must be of sand or loam to allow for burrowing (Garrison 1999). This species tends to return each nesting season to the same reach of river, although not necessarily the same bank site (Buechner 1992).

Suitable habitat for bank swallows exists along the east bank of the Feather River, opposite the LLPS and intake. The nearest recorded occurrence of bank swallows to the proposed project area is upstream approximately 0.5 mile on the Feather River. No swallows were observed in the area in December 2004 or March 2005.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a state species of concern. They are largely endemic to California, and more than 99% of the global population occurs in the state. In any given year, more than 75% of the breeding population can be found in the Central Valley (Hamilton 2000). Tricolored blackbirds have three basic requirements for selecting their breeding colony sites: open accessible water; a protected nesting substrate, including either flooded or thorny or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Hamilton et al. 1995; Beedy and Hamilton 1997, 1999). Almost 93% of the 252 breeding colonies reported by Neff (1937) were in freshwater marshes dominated by cattails and bulrushes (*Schoenoplectus* spp.).

Foraging habitats in all seasons include annual grasslands; wet and dry vernal pools and other seasonal wetlands; agricultural fields (e.g., large tracts of alfalfa with continuous mowing schedules and recently tilled fields); cattle feedlots; and dairies. Tricolored blackbirds also forage occasionally in riparian scrub habitats and along marsh borders. Weed-free row crops and intensively managed vineyards and orchards do not serve as regular foraging sites (Beedy and Hamilton 1997, 1999). High-quality foraging areas include irrigated pastures, lightly grazed rangelands, dry seasonal pools, mowed alfalfa fields feedlots, and dairies (Beedy and Hamilton 1999). Lower quality foraging habitats include cultivated row crops, orchards, vineyards, and heavily grazed rangelands.

The narrow riparian corridor near the LLPS may provide limited nesting and foraging habitat for tricolored blackbirds. The nearest known tricolored blackbird colony was recorded in Yuba County approximately 2 miles from the LLPS (California Natural Diversity Database 2006).

Western Pond Turtle

The western pond turtle is a state species of special concern and inhabits permanent or nearly permanent waters with little or no current (Behler and King 1998). The channel banks of inhabited waters usually have thick vegetation, but basking sites, such as logs, rocks, or open banks, also must be present (Zeiner et al. 1988). Eggs are laid in nests along sandy banks of large, slow-moving streams or in upland areas, including grasslands, woodlands, and savannas.

There are no CNDDB occurrences of western pond turtle anywhere near the project area (California Natural Diversity Database 2007), but this species could occur in the project area because the Feather River provides suitable aquatic habitat for this species and the river banks and surrounding upland areas provide suitable nesting habitat.

Special-Status Fish Species

Eight special-status aquatic species potentially occur in the project area or downstream of the project area. Delta smelt are not present in the Feather River and, therefore, are not addressed in this assessment. The distribution, status, and biology of each special-status fish species potentially affected by the proposed project are described briefly below. An indication of the presence/absence of different life history stages of special-status species potentially in the project area is shown in Table 3-11.

Central Valley Steelhead

Status

Central Valley steelhead was listed as threatened under the federal Endangered Species Act (ESA) (63 FR 13347, March 19, 1998). This distinct population segment (DPS) consists of steelhead in the Sacramento and San Joaquin River basins in the Central Valley. The Feather River Hatchery and the Coleman National Fish Hatchery steelhead populations, although previously included in the DPS, were not part of the listed steelhead population until January 5, 2006 (74 FR 834). The final rule designating Central Valley steelhead critical habitat was issued September 2, 2005 (70 FR 52614).

Life History

There are two life history types of steelhead, stream-maturing or *summer steelhead*, and ocean-maturing or *winter steelhead*, based on the state of sexual maturity at the time of river entry and the duration of their spawning migration. Winter steelhead mature in the ocean, enter fresh water with well-developed gonads, and spawn shortly after river entry. In contrast, winter steelhead enter fresh water with immature gonads and typically spend several months in fresh water before spawning. Winter steelhead are found in Central Valley rivers and streams (McEwan and Jackson 1996), and summer steelhead are found in tributaries of the Smith, Eel, Mad, Klamath, and Trinity River systems (McEwan and Jackson 1996: 38).

Historical and Current Distribution and Abundance

Historically, Central Valley steelhead spawned and reared in the most upstream portions of the Sacramento River–San Joaquin River system and its perennial tributaries. However, dams have resulted in a 95% reduction of river habitat available to anadromous salmonid fish, and reproducing runs of steelhead in the Central Valley currently are restricted to the Sacramento River and accessible tributaries (Reynolds et al. 1993).

Central Valley steelhead occur in the Sacramento, Feather, Yuba, and San Joaquin Rivers (CALFED Bay-Delta Program 2003). Population levels of naturally spawned steelhead are lower than historical levels. Current populations are composed predominantly of hatchery fish.

Reasons for Decline

Factors that adversely affect steelhead include lethal water temperatures during egg incubation and early rearing, increased predation by nonnative predators such as bass, loss of habitat, and entrainment loss to diversions (Moyle 2002).

Life History and Distribution in Project Area

In the Feather River, Central Valley steelhead are possibly a mixture of hatchery and wild fish. The Feather River Fish Hatchery raises and releases steelhead each year. Limited information exists regarding the abundance, location, and timing of steelhead spawning in the Feather River. Hatchery-produced fry are trucked from the hatchery for release downstream of the project site and would not be affected by the project. Returning adults use the Feather River in the project area as a migratory corridor from August through December to the hatchery or upstream spawning areas.

DWR performs redd surveys on the Feather River. Adult steelhead migrate up the river system beginning in August and spawn from December through March (Kindoff and Kurth 2003). Female adult steelhead deposit their eggs in excavated gravel nests (redds). Most spawning occurs between RMs 59 and 63.5 and between RMs 66 and 67 (Kindoff and Kurth 2003). Estimated natural reproduction was 163 steelhead in the Feather River in 2003. The hatchery maintains records of steelhead returns; counts since 1969 have ranged from a low of 78 in 1972 to a high of 2,587 in 1989, averaging 904 adults per year (California Department of Water Resources 2001).

Emigration timing of juvenile steelhead in the lower Feather River has not been well defined because of variable life history patterns and difficulty in capturing emigrating juveniles using standard capture methods (Seesholtz et al. 2004). Available data indicate that juvenile steelhead rear year-round primarily in the low-flow channel (LFC) and upper reaches of the high-flow channel (HFC) (upstream of the project area) and that most emigrate as yearlings or older juveniles in the winter and spring (California Department of Water Resources 2003; Seesholtz et al. 2004).

Critical Habitat in Project Area
The Feather River, from the confluence of the Yuba River upstream to Oroville Dam, is included in the critical habitat range for this species. Critical habitat consists of the water, substrate, and adjacent riparian zone of accessible estuarine and riverine reaches of the Delta.

Spring-Run Chinook Salmon

Status
The Central Valley spring-run Chinook salmon Evolutionarily Significant Unit (ESU) includes populations in the Sacramento River and its tributaries in California, including the Feather River, as well as the Feather River Hatchery spring-run Chinook program. They are listed as threatened under both CESA and ESA (70 FR 37160). The final rule designating critical habitat was issued on September 2, 2005 (70 FR 52598).

Life History
Adult Central Valley spring-run Chinook salmon emigrate from the ocean in late January to early February (California Department of Fish and Game 1998). Spring-run Chinook salmon adults leave the ocean and enter the Sacramento River primarily from March to June. From the Sacramento River, adult Central Valley spring-run Chinook salmon enter native tributaries primarily between mid-April and mid-June (National Marine Fisheries Service 2006). Streamflows must be sufficient to provide olfactory cues for migration and adult passage to upstream holding habitat. The ideal water temperature for upstream migration ranges from 38° to 56°F (3° to 15°C) (Bell 1991).

Adult spring-run Chinook salmon hold in the spawning areas during summer until their gonads mature and become ready for spawning. This is the primary characteristic that distinguishes the spring run from other runs of Chinook salmon. Spring-run Chinook salmon require cool fresh water while their gonads mature for several months over the summer. During this maturation period, spring-run Chinook salmon use mid- to high-elevation streams, which provide appropriate temperatures and adequate flow, cover, and pool depth for over-summering (Yoshiyama et al. 1998). Tailwaters below dams also may provide suitable habitat during sexual maturation if coldwater releases are made (National Marine Fisheries Service 2005a).

Spawning reportedly occurs between September and October, with a peak in September (National Marine Fisheries Service 2005a). The upper limit of the ideal temperature range for adult spawning is 57°F (14°C) (California Department of Fish and Game 1998). Fry emerge from November to March (Moyle 2002). The timing of egg incubation and hatching is temperature-dependent, i.e., embryo development time is a function of water temperature, with faster development (shorter times to hatch) occurring at elevated temperatures. The optimal temperature range for egg incubation is 44 to 54°F (7 to 12°C) (Rich 1997, as cited in California Department of Fish and Game 1998).

Emigration timing of spring-run Chinook salmon is variable; some juveniles begin emigration soon after emergence, and others remain over summer and begin emigration as yearlings the following fall, usually with the onset of storms (California Department of Fish and Game 1998). Chinook salmon spend between 1 and 4 years in the ocean before returning to their natal streams to spawn (National Marine Fisheries Service 2005a).

Historical and Current Distribution and Abundance

Historically, the Central Valley spring-run Chinook salmon ESU was distributed throughout the Sacramento River–San Joaquin River system, with a population as high as 600,000 between the late 1880s and 1940s (California Department of Fish and Game 1998).

Mill, Deer, and Butte Creeks in the Sacramento River system supported self-sustaining, persistent populations of spring-run Chinook salmon. In the late 1980s, population abundance in these creeks reached a low (5-year mean population sizes of 67–243 spawners), compared to a historical peak abundance of perhaps 700,000 spawners for the ESU (Good et al. 2005). As of 2001, abundance data indicate that since the early 1990s Central Valley spring-run Chinook salmon populations have increased in Mill, Deer, and Butte Creeks (Good et al. 2005).

The upper Sacramento, Yuba, and Feather Rivers are reported to support Central Valley spring-run Chinook salmon (CALFED Bay-Delta Program 2003). The population status in the upper Sacramento river is poorly documented, but the size is likely small; the degree of hybridization with fall-run Chinook salmon is unknown (Good et al. 2005). The Feather and Yuba Rivers contain populations believed to be influenced by the Feather River Hatchery spring-run Chinook salmon stock, and there is concern that fall-run and spring-run Chinook salmon have hybridized in the hatchery (Good et al. 2005).

Reasons for Decline

The decline of spring-run Chinook salmon can be attributed to several factors including: water development for hydroelectric production, irrigation, domestic water supplies and flood control; entrainment in water diversions; riparian and aquatic habitat degradation; disease and predation; and genetic threats from the Feather River Hatchery spring-run Chinook salmon program (CALFED Bay-Delta Program 2003). Dams, regulated flows, entrainment of migrating fish into unscreened diversions, and elevated water temperatures have affected important juvenile rearing habitat and migration corridors (Moyle 2002).

Life History and Distribution in Project Area

The project area contains the Feather River populations of Central Valley spring-run Chinook salmon. Adults and juveniles migrate through the project area. Adults hold and spawn approximately 45 miles upstream, in the uppermost 3 miles of accessible habitat below the Feather River Fish Hatchery (California Department of Water Resources 2001). The number of naturally spawning spring-run Chinook salmon in the Feather River has been estimated only periodically since the 1960s, with estimates ranging from two fish in 1978 to

2,908 in 1964. Adult spring-run Chinook salmon that return to the Feather River Fish Hatchery have been counted each year since 1963; their numbers have ranged from 146 to 1967 to 8,662 in 2003 (California Department of Fish and Game 2004a).

Based on run-time observations of spring-run Chinook salmon in the Feather River, adults are likely to be present in the project area during the upstream migration period between February and July. During this period, adults are assumed to actively migrate through the project area to summer holding habitat in the LFC below Oroville Dam.

Results from Feather River Chinook salmon emigration studies indicate that most juvenile Chinook salmon (both spring- and fall-run) emigrate soon after emergence at sizes less than 50 mm in length (Seesholtz et al. 2004). Emigration typically begins in mid-November, peaks between January and March, and continues through June (California Department of Water Resources 1999a, 1999b, 1999c; Seesholtz et al. 2004). Therefore, rearing and emigrating juveniles are likely present in the project area from mid-November through June, with the greatest abundance of individuals in January, February, and March. Little information is available on Chinook salmon emigration in the lowermost portion of the lower Feather River, but most juveniles probably have emigrated from the river by mid-May in response to physiological cues and rising water temperatures.

Critical Habitat in Project Area

NOAA Fisheries designated critical habitat for Central Valley spring-run Chinook salmon September 2, 2005 (70 FR 52488). Critical habitat consists of the water, substrate, and adjacent riparian zone of accessible estuarine and riverine reaches within the historical range of the Central Valley spring-run Chinook salmon ESU that can still be occupied by any life stage of Chinook salmon.

Critical habitat in the project area would be those areas that provide primary constituent elements, physical and biological features of the landscape necessary for survival and reproduction. This would include spawning habitat, freshwater rearing habitat, freshwater migration corridors, and estuarine areas.

The project area provides migratory and rearing habitat for Central Valley spring-run Chinook salmon. The essential features of freshwater salmonid habitat in the project area include adequate substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions (National Marine Fisheries Service 2005a). Water temperature is a major determinant of the suitability of habitat for salmonids in the project area. Consequently, adults and juveniles primarily occur in the project area during the late fall, winter, and early spring when water temperatures are most favorable for migration and rearing. Because of ambient air temperatures, lack of riparian shading, and thermal inputs from agricultural outfall water, water temperatures are warmer than desired for

salmonids from late spring through early fall (National Marine Fisheries Service 2005a).

Habitat in the project area is used primarily as juvenile rearing habitat and migratory habitat for adult and juvenile spring-run Chinook salmon. The channel in the project area is confined by levees with little woody vegetation and generally lacks the attributes of high quality rearing habitat (i.e., shallow water, habitat complexity, and cover). The project area supports relatively little vegetation, except for a single large tree and shrubs and a dominance of low-growing grasses.

Essential Fish Habitat in Project Area

Essential Fish Habitat (EFH) is the aquatic habitat (water and substrate) necessary for fish to spawn, breed, feed, or grow to maturity that would allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem (National Marine Fisheries Service 1998). Consultation with NOAA Fisheries is required for potential effects on all runs of Chinook salmon because of their commercial value.

Fish in the project area that are covered under the EFH assessment are Central Valley spring-run Chinook salmon and Central Valley fall-/late fall–run Chinook salmon (described below). Important components of EFH for spawning, rearing, and migration are adequate:

- substrate composition;
- water quality;
- water quantity, depth, and velocity;
- channel gradient and stability;
- food;
- cover and habitat complexity;
- space;
- access and passage; and
- habitat connectivity.

EFH is included in the Feather River for spring-run Chinook salmon.

Sacramento River Winter-Run Chinook Salmon

Status

Sacramento River winter-run Chinook salmon were listed as threatened in November 1990 (55 FR 46515). In January 1994 their status was reclassified as endangered (59 FR 440) because of continued decline and increased variability of run sizes since 1989, the expectation of weak returns as a result of two small year classes (1991 and 1993), and continuing threats to populations; their endangered status was reaffirmed in June 2005 (70 FR 37160). Critical habitat

for Sacramento River winter-run Chinook salmon was designated in July 1993 (50 FR 33212).

Life History

Adult Sacramento River winter-run Chinook salmon enter the Sacramento River basin between December and July, peaking in March (National Marine Fisheries Service 2006). Suitable temperatures for upstream migration range from 57 to 67°F (14 to 19°C) (National Marine Fisheries Service 1997b). Most Sacramento River winter-run Chinook salmon return to spawn as 3-year-olds (Moyle 2002). Spawning occurs from late April to early August, with peak spawning occurring in May or June (Moyle 2002).

Juvenile Sacramento River winter-run Chinook salmon reside in streams for approximately 5 to 10 months before emigration to the ocean (Moyle 2002). Emigration of juveniles past Red Bluff Diversion Dam begins in mid-July and can continue through March of the following year in dry years (National Marine Fisheries Service 1997).

Additional information on the life history and habitat requirements of Sacramento River winter-run Chinook salmon can be found in NOAA Fisheries' biological opinion for this species based on their review of the Sacramento River Flood Control Project Critical Levee Erosion Repair Project (National Marine Fisheries Service 2006).

Historical and Current Distribution and Abundance

Historically, Sacramento River winter-run Chinook salmon populations occurred in the McCloud, Pit, and Little Sacramento Rivers, as well as tributaries such as Hat Creek and Fall River, with perhaps smaller populations in Battle Creek and the Calaveras River (Good et al. 2005). Following completion of Shasta Dam, distribution of winter-run Chinook salmon was limited to the Sacramento River, Battle Creek, and Calaveras River; presently, populations in Battle Creek and the Calaveras River are believed to have been extirpated (Good et al. 2005). It is estimated that in the 1960s Sacramento River winter-run Chinook salmon population approached 100,000 (National Marine Fisheries Service 2006). Populations declined to fewer than 200 fish in the 1990s (Good et al. 2005), but have recently increased according to population estimates from 2003 to 2005.

Current distribution of winter-run Chinook salmon is limited to the mainstem Sacramento River to above the Red Bluff Diversion Dam (Good et al. 2005). In 2002 and 2003, winter-run population numbers have increased since their lows in the 1990s. From the Red Bluff Diversion Dam counts, 9,169 Chinook salmon passed by the dam in 2002. In 2003, 9,757 winter-run were counted passing the dam (California Department of Fish and Game 2004b). In 2006, an estimated 7,513 winter-run were counted at Red Bluff (Pacific Fishery Management Council 2007).

Reasons for Decline

Dams in the Central Valley have blocked access to all historical spawning grounds, altered water temperatures, and reduced habitat complexity (National

Marine Fisheries Service 2007). Additionally, disease, predation, and poor water quality as a result of toxicants, have contributed to the decline of the Sacramento River winter-run Chinook salmon.

Life History and Distribution in Project Area

Although winter-run Chinook salmon do not spawn in the Feather River, out-of basin juveniles may use habitats in the project area for non-natal rearing and growth November through March.

Critical Habitat in Project Area

Critical habitat for Sacramento winter-run Chinook salmon was designated to include the Sacramento River from Keswick Dam (RM 302) to Chipps Island (RM 0) at the westward margin of the Delta (50 FR 3312). Designated critical habitat does not include the Feather River.

Essential Fish Habitat in Project Area

EFH is included in the Feather River for Sacramento River winter-run Chinook salmon.

Central Valley Fall-/Late Fall–Run Chinook Salmon

Status

The Central Valley fall- /late fall–run Chinook salmon ESU includes all naturally spawned fall- and late fall–run populations of Chinook salmon in the Sacramento and San Joaquin basins and their tributaries, east of the Carquinez Strait, California (National Marine Fisheries Service 1999). The Central Valley fall-/late fall–run Chinook salmon is a candidate species (formerly a Category 1 species) under the ESA (National Marine Fisheries Service 1999). The late fall–run Chinook salmon is listed as a California species of special concern.

Life History

Fall-run Chinook salmon are mostly ocean-type Chinook and are adapted for spawning in lowland reaches of large rivers and associated tributaries. Fall-run Chinook salmon migrate upstream to fresh water from August through November (Moyle 2002). The peak spawning period for fall-run Chinook salmon is October through November. Eggs are deposited in redds in gravel-bottom areas with relatively swift, cool (<60°F) water. The eggs hatch in 3 to 4 months, and the larvae remain in the gravel for another 2 to 3 weeks before emerging. Fall-run Chinook salmon fry emerge December through March and typically seek out shallow, nearshore habitat with slow water velocities (Moyle 2002). As they grow, they move to deeper, faster water. Juveniles have a brief rearing period, ranging from 1 to 7 months, prior to emigration (Moyle 2002). Fall-run Chinook salmon juveniles emigrate between January and June.

The differences between fall- and late fall–run Chinook salmon are related to timing of migration into fresh water, timing of spawning, timing of juvenile emergence, and length of time juveniles remain in fresh water (Moyle 2002). Late fall–run Chinook salmon adults move upstream from October through April (Moyle 2002). Late fall–run Chinook salmon are primarily stream-type, and they

typically enter fresh water in an immature state and hold until they are sexually mature. The peak spawning period for late fall–run Chinook salmon is February through March (Moyle 2002). Late fall–run fry emerge April through June (Moyle 2002). Stream residency for juveniles spans a period of 7 to 13 months. Relative to fall-run juveniles, late fall–run juveniles are comparatively large once emigration begins (Moyle 2002). Emigration of late fall–run Chinook salmon generally occurs from June through December.

Historical and Current Distribution and Abundance

Historically, Central Valley fall-/late fall–run Chinook salmon occupied many streams of the Sacramento–San Joaquin watershed. Fall-run Chinook salmon used rivers and their tributaries in the Central Valley from the Kings River in the south to the Pit and McCloud Rivers in the north (Schick et al. 2005). It is likely that late fall–run Chinook salmon used the Sacramento River and tributaries above Shasta Dam (Moyle et al. 1995). Fall-run Chinook salmon were the most abundant run in the Central Valley (Moyle 2002).

The overall population abundance for this ESU is relatively high, but the abundance of naturally produced fish is declining. Natural production is especially low in the San Joaquin River drainage (63 FR 11481; March 9, 1998). Barriers to fish passage on many streams and rivers limit upstream habitat.

Reasons for Decline

Several factors have contributed to the population decline of Central Valley fall-/late fall–run Chinook salmon, including:

- loss and degradation of spawning and rearing habitat,
- alteration of streamflows,
- over harvesting;
- entrainment into water diversions,
- blockage of migration routes,
- toxicant exposure, and
- loss of genetic viability from interbreeding with hatchery stocks.

Life History and Distribution in Project Area

Adult fall-run Chinook salmon pass through the project area from July through December as they migrate upstream to spawning areas upstream of the project area. Juvenile fall-run Chinook salmon rear and emigrate in the project area from December through June. Their seasonal abundance and emigration patterns are generally similar to those of spring-run Chinook salmon (see above).

Essential Fish Habitat in Project Area

EFH is included in the Feather River for fall-/late fall–run Chinook salmon.

Sacramento Splittail

Status

The Sacramento splittail was federally listed as threatened on February 8, 1999 (64 FR 5963), and delisted on September 22, 2003 (68 FR 55139). The splittail is a California species of special concern because of uncertainties regarding long-term abundance trends.

Life History

Sacramento splittail typically mature at the end of their second year, and adults migrate upstream to forage and spawn in February through May (Moyle 2002). Splittail spawn from February into early July over flooded vegetation, although peak activity is usually in March and April (Moyle et al. 2003). The onset of spawning is associated with rising water levels, lower water temperature, and increasing day length (Moyle et al. 2003).

Splittail eggs are attached to submerged vegetation or other submerged substrate and hatch within 3 to 5 days after spawning (Moyle et al. 2003). Sacramento splittail larvae remain in shallow, weedy areas close to the spawning sites for 10 to 14 days after hatching and move into deeper water as they mature and swimming ability increases (California Department of Water Resources 2004c). Young-of-year splittail typically are captured in large numbers at the SWP and CVP pumping plants in the south Delta in late May through mid-July, indicative of a seasonal downstream movement (Moyle et al. 2003).

Historical and Current Distribution and Abundance

The Sacramento splittail is endemic to rivers, lakes, and sloughs of the Central Valley. Historically, they were found in the Sacramento River as far upstream as Redding and in the American River up to Folsom (Moyle et al. 2003). In the Feather River, Sacramento splittail were found as far upstream as Oroville (Moyle et al. 2003). Historical abundance of Sacramento splittail is not known, but they were considered relatively common and widely distributed in the Bay-Delta estuary through the early 1960s (Moyle et al. 2003).

Currently, splittail are found most frequently in the Sacramento River below the mouth of the Feather River, and their numbers become increasingly limited in an upstream direction, particularly during summer and fall (Moyle et al. 2003). In wet years during winter and spring, adults may migrate upstream in the Sacramento River as far as the Red Bluff Diversion Dam and into the lower Feather and American Rivers (Moyle 2002; Moyle et al. 2003).

Reasons for Decline

Loss and degradation of riverine spawning and rearing habitat and changes in hydrology have reduced Sacramento splittail populations. Flood control practices have created artificial hydrologic conditions that may act to reduce the regularity of flooding in floodplain habitat (e.g., Yolo Bypass). Other factors contributing to splittail population decline include variations in climate, introduction of nonnative predators and competitors, toxic substances, and exploitation (Moyle 2002).

Life History and Distribution in Project Area
Sacramento splittail adults are assumed to occur in the project area during upstream migration to spawning areas in February through May. Juveniles may occur in the project area during downstream migration to the Bay-Delta estuary. Because of the lack of preferred spawning and nursery habitat (flooded shallow-water habitat with submerged vegetation), spawning, larval, or juvenile rearing are unlikely in the immediate project area.

North American Green Sturgeon (Southern DPS)

Status
On April 7, 2006, NOAA Fisheries issued a final rule listing the Southern DPS of North American green sturgeon (*Acipenser medirostris)* as a threatened species. This determination was based on the reduction of potential spawning habitat, the severe threats to the single remaining spawning population, the inability to alleviate these threats with conservation measures in place, and the decrease in observed numbers of juvenile Southern DPS green sturgeon collected in the past two decades compared to those collected historically (71 FR 17757, April 7, 2006).

Critical habitat for the North American green sturgeon has not been designated. NOAA Fisheries has proposed to designate critical habitat for the Southern DPS green sturgeon (73 FR 52084, September 8, 2008). The Sacramento River, lower Feather River, lower Yuba River, the Delta and Suisun, San Pablo, and San Francisco Bays are included in the areas proposed as critical habitat in California.

Life History
The green sturgeon is anadromous, but it is the most marine-oriented of the sturgeon species. It enters rivers primarily to spawn, although its early life stages in freshwater may last as long as 2 years (Moyle 2002). Adults typically migrate upstream into rivers between late February and late July. Spawning occurs from March to July, with peak spawning from mid-April to mid-June. Green sturgeon are believed to spawn every 3 to 5 years, although recent evidence indicates that spawning may be as frequent as every 2 years (70 FR 17386). Peak spawning reportedly occurs between April and June (U.S. Department of the Interior, Bureau of Reclamation 2008). Little is known about the specific spawning habitat preferences of green sturgeon. Deep, cool pools with turbulent water and large cobble are thought to be the preferred spawning habitat of green sturgeon (Adams et al. 2002). It is believed that adult green sturgeon broadcast their eggs in deep, fast water over large cobble substrate, where the eggs settle into the interstitial spaces (Moyle 2002). Spawning generally is associated with water temperatures from 46 to 57ºF (8 to 14°C). In the Central Valley, spawning occurs in the Sacramento River upstream of Hamilton City, perhaps as far upstream as Keswick Dam (Moyle 2002).

Spawning areas and migratory corridors provide rearing habitat for juvenile green sturgeon (U.S. Department of the Interior, Bureau of Reclamation 2008). Movement and foraging during downstream migration occurs at night for both larvae (approximately 10 days post-hatch) and juveniles (73 FR 52084; Cech et

al. 2000, as cited in U.S. Department of the Interior, Bureau of Reclamation 2008). Limited information is available on larval rearing habitat. The optimal temperature for larval growth is believed to be approximately 59ºF (15°C); temperatures outside the range of 52 to 66ºF (11 to 19°C) may be detrimental to growth (Cech et al. 2000, as cited in 73 FR 52084). Larvae complete metamorphosis to juveniles at 45 days post-hatch (Deng et al. 2002). Juveniles inhabit the Delta until they are approximately 4 to 6 years old, when they migrate to the ocean (Kohlhorst et al. 1991).

Historical and Current Distribution and Abundance

In North America, green sturgeon are found in rivers from British Columbia south to the Sacramento River. In the Pacific Ocean, they range from the Bering Sea to Ensenada, Mexico (Moyle 2002). Historical spawning populations in California existed only in the Eel River and the Klamath-Trinity River system (Moyle 2002). Spawning has been confirmed in only three rivers, the Rogue River in Oregon, and the Klamath and Sacramento Rivers in California (National Marine Fisheries Service 2008). Green sturgeon may spawn in the Feather River during high-flow years (California Department of Fish and Game 2002) but sightings to confirm this have not been documented. Historical use of the Feather River, prior to construction of Oroville Dam, is unknown.

Reasons for Decline

Decline of the Southern DPS green sturgeon can be attributed to several factors, including loss of spawning habitat in the upper Sacramento and Feather Rivers; entrainment by water project operations; limiting or lethal water temperatures; and commercial and recreational fisheries harvest (71 FR 17757, April 2006).

Life History and Distribution in Project Area

Historical and current records confirm the presence of adult green sturgeon in the Feather River (Beamesderfer et al. 2004; Seesholtz pers. comm.). In 2008, one adult was detected by a fixed telemetry monitor at Star Bend in May, and another adult was sighted in early June at Shanghai Bend (Seesholtz pers. comm.). In 2006, a dozen sturgeon, of which four were green sturgeon, were observed near the Thermalito Outlet on the Feather River (Seesholtz pers. comm.).

There are no records of larval or juvenile sturgeon, even before the Oroville Dam installation (National Marine Fisheries Service 2005b). As previously stated, there are unconfirmed reports that green sturgeon could spawn in the Feather River during high-flow years (California Department of Fish and Game 2002). Adults likely use the project area for holding and migration.

River Lamprey

Status

River lamprey are currently listed by DFG as a species of special concern, but have no other state or federal listing status.

Life History

Although the river lamprey is native to California, the biology of the species has not been studied in the state. What is known about the river lamprey's life history is based on the biology of the species from British Columbia. Unless otherwise noted, the following discussion is based on this information. The timing of life history landmarks may differ given differences between British Columbia and California (Moyle 2002). The river lamprey is anadromous and migrates from the ocean to rivers and smaller tributaries to spawning grounds. Adults enter fresh water in the fall and move upstream to suitable spawning habitat (Moyle 2002). They undergo sexual maturation in freshwater streams. Spawning occurs in clean gravelly riffles from February through May.

River lamprey eggs hatch into ammocoetes and remain in freshwater for approximately 3 to 5 years in silty backwaters or stream edges where they bury in the sediments and filter feed on various microorganisms (Moyle 2002). Transformation from ammocoete to adult typically begins when ammocoetes are nearly 5 inches long (California Department of Water Resources 2004d) and occurs in the summer over a period of 9 to 10 months (Moyle 2002). Young adults enter the ocean in late spring and spend 3 to 4 months there before migrating back to fresh water (Moyle 2002). Adult lamprey prey on other fish and may reach a total length of around 17cm (Moyle et al. 1995).

Historical and Current Distribution and Abundance

The river lamprey is known to occur from San Francisco Bay to near Juneau, Alaska. The species is considered more abundant in the lower Sacramento-San Joaquin River system than in other streams in California, but few surveys for river lamprey have been conducted (Moyle 2002). Population trends are unknown in California; however, declines may be attributed to the degradation of freshwater spawning and rearing habitat. River lamprey are common in British Columbia, the center of their geographic range.

Reasons for Decline

Habitat alterations as a result of dams, water diversions, and pollutants have contributed to the decline of the river lamprey.

Life History and Distribution in Project Area

River lamprey adults are likely to occur in the project area during upstream movements to spawning areas in September through May. It is unlikely that spawning would occur in the immediate project area based on reported spawning preferences (gravelly riffles in small tributaries). Ammocoetes are not likely to occur in the immediate project area because of upstream distribution and a preference for low-velocity shallows and backwaters away from main channels. Timing of downstream movements of juveniles and immature adults is unknown but may occur in winter and spring based on reported timing of ocean entrance (late spring).

Hardhead

Status

Hardhead are currently listed by DFG as a species of special concern but have no other state or federal listing status.

Life History

Hardhead typically are found in small to large streams at low- to mid-elevation. Hardhead usually occur in the same habitats as Sacramento sucker and Sacramento pikeminnow. Based on occurrence, hardhead prefer warmer water temperatures than salmonids; reported optimal water temperatures for hardhead range from 75.2 to 82.4ºF (24 to 28ºC [Moyle 2002]).

Most hardhead reach sexual maturity at 3 years (Moyle 2002) and spawn in spring (May and April); however, spawning may take place as late as August (University of California Cooperative Extension 2008). Hardhead in small streams spawn near their resident pools, whereas hardhead in larger streams and lakes may move 30 to 75 km to find suitable spawning grounds (University of California Cooperative Extension 2008). Spawning may occur in pools, runs, or riffles, typically on gravel and rocky substrate. The early life history of hardhead is not well known. It is believed that larval and post-larval hardhead remain under dense, flooded vegetative cover or fallen branches along stream or lake edges. As the juveniles grow, they move into deeper water (Moyle 2002).

Historical and Current Distribution and Abundance

Historically, hardhead were widely distributed and abundant in Central California. Today they are widely distributed in low- to mid-elevation streams in the Sacramento-San Joaquin drainage; their range extends from the Kern River to the Pit River, and they are also present in the Russian River. In the San Joaquin drainage, hardhead are distributed in tributary streams, but absent from valley reaches of the San Joaquin River (California Department of Water Resources 2004b). In the Sacramento drainage, hardhead are present primarily in the Sacramento River and larger tributary streams (Moyle 2002). With the exception of the Napa River, hardhead are not present in San Francisco Bay streams (California Department of Water Resources 2004b). Hardhead are not as abundant as they once were. Reports indicate that hardhead populations are becoming increasingly isolated from one another, making them more vulnerable to localized extinction (Moyle 2002).

Reasons for Decline

Habitat loss and predation by nonnative fishes (e.g., smallmouth bass) are the primary cause of hardhead decline (Moyle 2002). Suitable habitat has been eliminated, and upstream areas isolated, as a result of increased water diversions.

Life History and Distribution in Project Area

Adult and juvenile hardhead may occur year-round in the project area. In spring, primarily during April and May, adults may move through the project area during upstream migration to spawning areas. Based on reported spawning preference

(gravelly riffles in small tributaries), spawning in the immediate project area is unlikely.

Table 3-11 addresses the seasonal occurrence (including migration and spawning of adults and outmigration of juveniles) of special-status fish species in the vicinity of the proposed project.

Table 3-11. Seasonal Occurrence of Special-Status Fish Species in the Project Vicinity

	Month											
Species and Life Stage	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Spring-run Chinook salmon												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
Fall-/late fall–run Chinook salmon												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
Winter-run Chinook salmon												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
Steelhead												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
Splittail												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
Hardhead												
Adult migration												
Adult spawning												
Juvenile rearing												
Green sturgeon												
Adult migration												
Adult spawning												
Juvenile rearing/migration												
River lamprey												
Adult migration												
Adult spawning												
Juvenile rearing/migration												

Thresholds of Significance

The criteria used for determining significance of impacts to biological resources are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. An alternative is considered to have a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the DFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Environmental Consequences

No Project Alternative

The No Project Alternative would not result in any changes in terrestrial habitats or species because there would be no changes in facilities or operations. There would be no changes in operations compared to existing conditions and therefore, there would be no impact on aquatic resources.

Proposed Project

Vegetation

Impact BIO-1: Loss of Valley Riverine Aquatic Habitat

Permanent and temporary disturbance of valley riverine aquatic habitat would occur during construction of the project. Permanent impacts include the permanent loss of 0.05 acre of open water because of the construction of permanent structures in the river. Temporary impacts include the placement of coffer dams or sheet piles and dewatering during the construction period. A total of 0.10 acre would be temporarily affected by the project. An area up to 891 meters upstream and downstream of aquatic habitat would be affected by noise from pile driving and areas downstream by increases in suspended sediment and turbidity during construction and operation.

The project would also result in the permanent loss of approximately 50 linear feet of SRA overhead cover habitat due to the removal of riparian vegetation in the project area.

These impacts would be significant. Implementation Mitigation Measures VRAQ-1 through VRAQ-3 (described below) would help ensure that the existing functions and values of valley riverine aquatic habitat in the project area are maintained and reduce this impact to a less-than-significant level.

Mitigation Measure VRAQ-1: Avoid and Minimize Disturbance of Valley Riverine Aquatic Habitat

To the extent possible, the City will avoid and minimize impacts on the valley riverine aquatic habitat by minimizing the size of the in-water work areas, minimizing the removal or pruning of riparian vegetation, and by implementing the environmental commitments listed in Chapter 2.

Mitigation Measure VRAQ-2: Compensate for Loss of Valley Riverine Aquatic (Open Water) Habitat

The City will compensate for the permanent loss of up to 0.05 acre of valley riverine aquatic habitat caused by construction of the project at a ratio of 2 acres for each acre affected, for a total of up to 0.1 acre. The City will purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site.

Mitigation Measure VRAQ-3: Compensate for Loss of Valley Riverine Aquatic (Overhead SRA) Habitat

The City will compensate for the permanent loss of up to 50 linear feet of riparian habitat that provides overhead SRA cover habitat at a ratio of 2 linear feet for each linear foot affected, for a total of up to 100 linear feet. The City will purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site.

Impact BIO-2: Loss of Valley/Foothill Riparian Community

Permanent and temporary disturbance of valley foothill riparian habitat would occur during construction of the project. Permanent impacts include the removal of approximately 0.05 acre of riparian vegetation from the river bank in the project area. Temporary impacts include the pruning of riparian vegetation to provide overhead clearance in the construction area.

As described under Impact BIO-1, the project would also result in the permanent loss of approximately 50 linear feet of SRA overhead cover habitat due to the removal of riparian vegetation in the project area.

This impact is significant. Implementation of Mitigation Measures VFRC-1 and VFRC-2 will help ensure that the existing functions and values of riparian habitat in the project area are maintained and fully mitigate impacts of the project on riparian habitat to a less-than-significant level.

Mitigation Measure VFRC-1: Avoid and Minimize Disturbance of Riparian Habitat

To the extent possible, the City will avoid and minimize impacts on riparian habitat. The City will include the following measures in the project construction conditions to minimize indirect impacts on riparian habitat and on special-status plants that may occur in this community.

- The City will provide a biologist/environmental monitor who will be responsible for monitoring implementation of the conditions in the state and federal permits (CWA Section 401, 402, and 404; ESA Section 7; Fish and Game Code Section 1601; project plans]).
- The biologist/environmental monitor will determine the location of environmentally sensitive areas in and adjacent to the project area based on mapping of existing land cover types and special-status plant species. To avoid construction-phase disturbance to sensitive habitats immediately adjacent to the project area, the monitor will identify the boundaries of sensitive habitats and add a 50-foot buffer, where feasible, using orange construction fencing. The fencing will be mapped on the project designs. Erosion-control fencing will also be placed at the edges of construction where the construction activities are upslope of wetlands and channels to prevent washing of sediments offsite. The biological resources and erosion-control fencing will be installed before any construction activities begin and will be maintained throughout the construction period.
- The biologist/environmental monitor will ensure the avoidance of all sensitive habitat areas during construction operations.
- The City will provide a worker environmental training program for all construction personnel prior to the start of construction activities. The program will educate workers about special-status species and riparian habitats present on and adjacent to the site and also about the regulations and penalties for unmitigated impacts on these sensitive biological resources.

- Where feasible, construction will avoid removal of woody vegetation by trimming vegetation to approximately 1 foot above ground level; the biologist/environmental monitor will ensure that no elderberry shrubs are trimmed.
- Following construction, the construction contractor will remove all trash and construction debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones. The elements that should be included in the revegetation of these sites are described in Mitigation Measure VFCR-2.

Mitigation Measure VFRC-2: Compensate for Temporary and Permanent Loss of Riparian Habitats

The City will compensate for the permanent loss of up to 0.05 acre of riparian habitat associated with project construction. The City will purchase the valley foothill riparian habitat as mitigation credits from an approved mitigation bank in the project vicinity or restore or enhance in-kind riparian habitat at a ratio of 2 acres for each acre affected. Revegetation will be planned and implemented prior to the removal of existing riparian vegetation.

Impact BIO-3: Loss of Upland Cropland Habitat

Upland cropland could be temporarily affected by project staging and storage areas. No permanent loss of upland cropland is anticipated.

Upland cropland habitat is not a sensitive natural community and does not provide critical habitat for special-status species; therefore, there are no compensation requirements for the permanent or temporary loss of upland cropland habitat. The City will design and construct the project to minimize impacts to upland cropland and will provide monetary compensation to the land owner which may be used to restore upland cropland. Impacts to upland cropland would be less than significant.

Special-Status Terrestrial Wildlife Species Impacts

Impact BIO-4: Removal or Disturbance of Valley Elderberry Longhorn Beetle

Project implementation was assumed to have a significant impact on VELB if project activities could result in the removal or disturbance of elderberry shrubs. It is assumed that all elderberry shrubs in the project areas provide habitat and may be occupied by VELB.

No elderberry shrubs were observed in the construction area or along the access road. However several shrubs occur in adjacent uplands and there are 13 shrubs within 100 feet of the project area (Figure 3-1). To the extent possible, the City will attempt to perform construction operations without affecting elderberry

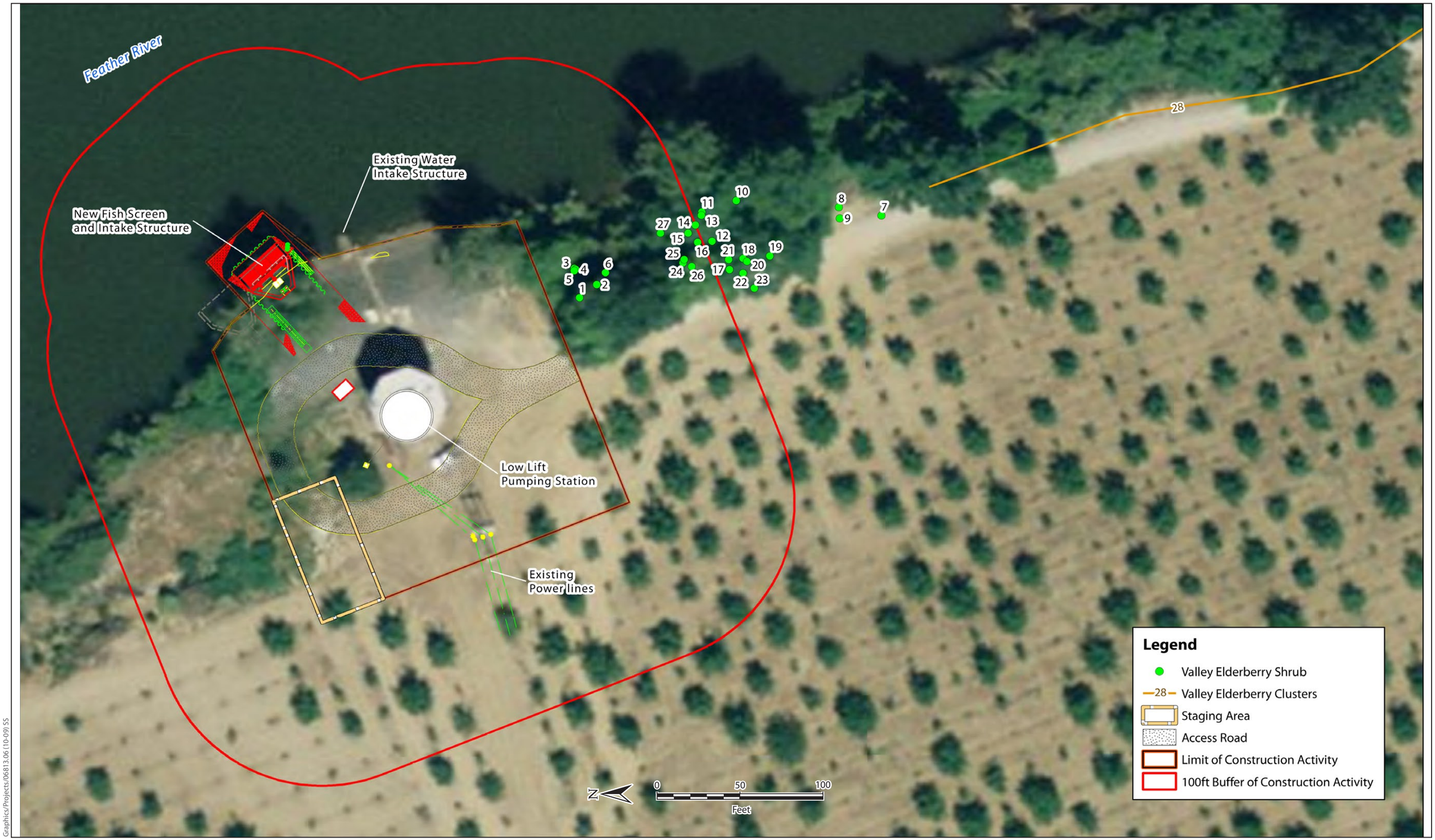

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Figure 3-1
Elderberry Shrubs Within Construction Area & 100' Buffer

shrubs and to maintain a 100-foot buffer zone around all elderberry shrubs. Additionally, the City would implement Environmental Commitment BIO-1.

However, there could be an impact to this shrub and inhabitant VELB. As such, this impact is considered significant. Mitigation Measures VELB-1 and VELB-2 would reduce project impacts on VELB to less-than-significant levels.

Mitigation Measure VELB-1: Perform a Preconstruction and Postconstruction Survey for Elderberry Shrubs

Before the start of construction- and restoration-related activities, a qualified biologist will perform an elderberry shrub survey to ensure that any elderberry shrubs that occur in the vicinity of project components are identified. The biologist will field stake the locations of elderberry shrubs and shrub clusters, if present, before construction begins (Mitigation Measure VELB-2).

The surveys will be performed according to the USFWS VELB conservation guidelines (U.S. Fish and Wildlife Service 1999). During the preconstruction and postconstruction surveys, the following information will be recorded for each shrub or shrub cluster:

- number of stems greater than 1 inch in diameter at ground level—tallied according to stem size class;
- presence of VELB exit holes in elderberry shrubs with stems greater than 1 inch diameter at ground level; and
- whether or not the shrub is in a riparian area.

The location of each elderberry shrub will be mapped using GPS, and a site map will be prepared identifying the location and size of each shrub and shrub cluster. The City will use this site map to determine vehicle and equipment access routes and work areas. Following completion of construction activities, the City will perform a postconstruction evaluation of the elderberry shrubs to determine whether any shrubs were damaged by construction activities. If damage occurs to elderberry shrubs, the City and Reclamation will consult with the USFWS on appropriate mitigation.

Mitigation Measure VELB-2: Avoid and Minimize Impacts on Elderberry Shrubs

The City will attempt to perform construction operations without affecting elderberry shrubs and to maintain a 100-foot buffer zone around all elderberry shrubs, to the greatest extent possible. Avoidance and minimization efforts will be performed according to the USFWS VELB conservation guidelines (U.S. Fish and Wildlife Service 1999). If elderberry shrubs with one or more stems measuring 1 inch or greater in diameter at ground level or shrubs with visible evidence of exit holes are located within or adjacent to proposed construction or staging areas, the City and Reclamation will implement the following actions.

- Install exclusion fencing around each elderberry shrub and shrub cluster.
- Avoid disturbance to VELB by establishing and maintaining, to the maximum extent feasible, a 100-foot buffer around elderberry shrubs

identified as suitable habitat. If a 100-foot buffer cannot be maintained, the City and Reclamation will consult and gain approval from the USFWS for measures that would minimize disturbance and will promptly restore the damaged area.

- Fence and flag all buffer areas and place signs every 50 feet along the edge of the avoidance area, as described in the VELB conservation guidelines (U.S. Fish and Wildlife Service 1999).
- Require that the construction contractor educate all construction personnel at the site regarding the significance of the elderberry shrubs, the need to avoid damaging shrubs, and the possible penalties involved should the shrubs be impacted.
- Train construction personnel to recognize elderberry shrubs and to determine the presence of VELB from exit holes on stems. All construction personnel should receive USFWS-approved environmental awareness training prior to undertaking work at construction sites.

Impact BIO-5: Disturbance to Bald Eagle Foraging Habitat

Bald Eagles are unlikely to nest in the project area and tree removal required for construction is anticipated to be limited to one single tree. However, bald eagles may forage near the Feather River during the winter months, and could potentially be indirectly impacted by construction activities. Potential impacts could result from “heavy construction” activities, defined here as trenching, piledriving, and extensive use of heavy wheeled or tracked vehicles. As described in the noise analysis, construction-related noise would not result in a substantial change from existing levels and foraging habitat occurs upstream and downstream of the project site. It is expected that foraging bald eagles could use other areas without being adversely affected during construction. Upon completion of construction, there would be no effects. As such, this impact is less than significant.

Impact BIO-6: Impacts to Swainson’s Hawk Foraging and Nesting Habitat

Implementation of the project could result in take of Swainson’s hawk should construction occur during breeding season (15 March through 15 October). There is only one suitable nest tree in the project footprint. However, the riparian woodland habitats adjacent to the project area and access road provide potential nesting and roosting habitat for this species. Project implementation was assumed to have an adverse impact on the Swainson’s hawk if project activities could result in the loss or disturbance of riparian woodland habitat or agricultural lands (for foraging) while this species is present in the project area.

The project was also assumed to have a significant impact on the Swainson’s hawk if project activities could result in the removal of a nest tree during the

breeding season (March 1–September 15), nest abandonment, or forced fledging within 0.5 mile of project-related activities. This approach to assessing impacts on nesting Swainson's hawks is consistent with DFG guidelines for the species (California Department of Fish and Game 1994).

Upland cropland that may be disturbed by the project consists of a walnut orchard that does not provide foraging habitat for Swainson's hawk. There are no known nest trees within one mile of the project site. Preconstruction surveys will be carried out prior to construction to confirm absence. The narrow bands of ruderal habitat adjacent to the access road and orchard provide low-quality foraging habitat for this species. Disruption or loss of these areas could result in a significant impact on Swainson's hawk related to foraging and nesting habitat.

Implementation of project components and mitigation measures that include the restoration of affected habitats could result in a low, unquantifiable level of effect on Swainson's hawk. Implementation of Mitigation Measures SWHA-1 through SWHA-4 would reduce impacts on Swainson's hawks to less than significant.

Mitigation Measure SWHA-1: Conduct Preconstruction Surveys to Locate Swainson's Hawk Nest Sites

Preconstruction surveys for Swainson's hawk will be conducted at and adjacent to all locations to be disturbed by construction activities to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.5 mile of proposed construction areas and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with mitigation measures SWHA-2, SWHA-3, and SWHA-4.

Mitigation Measure SWHA-2: Minimize Construction-Related Disturbances within 0.5 Mile of Active Nest Sites

Portions of the construction activities will occur throughout the year and will overlap with the Swainson's hawk breeding season. The City will provide the locations of active nest sites identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

To the greatest extent practicable, major construction activities that will occur within 0.5 mile of an active Swainson's hawk nest will be avoided during the breeding season. If practicable, depending on project components and schedule, construction activities that will result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the buffer zone, the City will monitor the nest site. Monitoring will be performed by a qualified wildlife biologist. The biological monitor will notify DFG if the nest or nestlings are abandoned and the nestlings are still alive to determine the appropriate actions. The City will fund

the recovery and hacking (controlled release) of the nestlings. This mitigation measure was developed based on a DFG staff report for Swainson's hawk.

Mitigation Measure SWHA-3: Avoid Removal of Occupied Nest Sites

As stated under Mitigation Measure SWHA-1, preconstruction surveys will be performed to identify active nest sites before implementing construction activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat for migratory birds in areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting hawks are present. If additional tree removal is required, it will be deferred until after the breeding season.

Mitigation Measure SWHA-4: Replace Lost Foraging and Nesting Habitat

To compensate for the loss of nesting habitat, the City will replace affected riparian vegetation as described in Chapter 2. As part of this mitigation, the City will develop the revegetation plan to ensure that three replacement trees are planted for each tree that is affected, as required by DFG.

Impact BIO-7: Loss or Disturbance of Black-Crowned Night Heron (Rookery)

Implementation of the project components may result in take of black-crowned night-heron rookeries. Although it is unlikely that rookeries occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Project implementation was assumed to have a significant impact on the black-crowned night-heron if project activities could result in the loss or disturbance of active rookeries, or if project activities could result in the removal of a nest tree during the breeding season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities. Project activities have the potential to remove or disturb occupied rookeries, but these impacts will occur only if black-crowned night-herons are nesting at the time the trees are removed or disturbed by these activities.

Project implementation will result in the removal of 0.05 acre of riparian habitat. The reduction in extent of available nest trees present in riparian woodland and scrub in the study area is relatively small. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within 0.25 mile of occupied

nest sites could adversely affect nesting black-crowned night-herons. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provided by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys. This impact is significant, but would be reduced to a less-than-significant level by implementing Mitigation Measures BCNH-1 through BCNH-4.

Mitigation Measure BCNH-1: Conduct Preconstruction Surveys to Locate Black-Crowned Night-Heron Rookeries

Preconstruction surveys for black-crowned night-heron rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with mitigation measures listed below.

Mitigation Measure BCNH-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Rookeries

Portions of the construction activities will occur throughout the year and will overlap with the black-crowned night-heron breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active black-crowned night-heron rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active rookeries identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure BCNH-3: Avoid Removal of Occupied Rookeries

As stated under Mitigation Measure BCNH-1, preconstruction surveys will be performed to identify active rookeries before implementing construction activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting black-crowned night-herons are present. If rookeries are present, vegetation removal will be deferred until after the breeding season.

Mitigation Measure BCNH-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of riparian habitat caused by implementation by restoring or enhancing in-kind riparian habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-8: Removal or Disturbance of Cooper's Hawk Nests

Implementation of project components may result in take of Cooper's hawk. The project was assumed to have a significant impact on the Cooper's hawk if project activities could result in the removal of a nest tree during the breeding season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities. This approach to assessing impacts on nesting Cooper's hawks is consistent with DFG guidelines for raptors (California Department of Fish and Game 1994).

Construction activities could result in the direct removal of Cooper's hawk foraging habitat and removal or disturbance of occupied nest sites. Although it is unlikely that nest sites occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Nest site removal or disturbance will occur only if Cooper's hawks are nesting at the time the trees are removed or disturbed by these activities.

Project implementation will result in the removal of 0.05 acre of riparian woodland that could support active nest sites. The reduction in extent of available nest trees present in riparian woodlands in the study area is relatively small. Because nest sites for Cooper's hawk may vary from year to year, the number of nest sites that could be affected by the project may vary annually. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within 0.25 mile of occupied nest sites could adversely affect nesting Cooper's hawks. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provide by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys, as described below. This impact would be significant. Mitigation Measures COHA-1 through COHA-4 would reduce this impact to less than significant.

Mitigation Measure COHA-1: Conduct Preconstruction Surveys to Locate Cooper's Hawk Nest Sites

Preconstruction surveys for Cooper's hawk will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction features and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS.

Mitigation Measure COHA-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Nest Sites

Portions of the construction activities will occur throughout the year and will overlap with the Cooper's hawk breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active Cooper's hawk nest will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active nest sites identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure COHA-3: Avoid Removal of Occupied Nest Sites

As stated under Mitigation Measure COHA-1, preconstruction surveys will be performed to identify active nest sites before implementing construction activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat in areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting hawks are present. If nest sites are present, tree removal will be deferred until after the breeding season.

Mitigation Measure COHA-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of up to 0.05 acre riparian habitat caused by construction by restoring or enhancing in-kind riparian habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-9: Removal or Disturbance of Great Blue Heron (Rookery)

Implementation of the project components may result in take of great blue heron rookeries. Although it is unlikely that rookeries occur in the project footprint, the

riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Project implementation was assumed to have an adverse impact on the great blue heron if project activities could result in the loss or disturbance of active rookeries.

The assessment of project impacts on great blue heron rookery sites is based on the proximity of known rookeries to proposed project features or activities. The project was assumed to have an adverse impact on great blue heron rookery sites if project activities could result in the removal of a nest tree during the breeding season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities.

Project implementation will result in the removal of 0.05 acre of riparian habitat that could support active nest sites. The reduction in extent of available nest trees present in riparian habitat in the study area is relatively small. Because great blue herons return to the same rookery each year, the number of rookeries that could be affected by the project is not expected to vary annually unless a new rookery is formed or some other action unrelated to the project removes or disturbs an existing rookery. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction-related activities within 0.25 mile of occupied nest sites could adversely affect nesting great blue herons. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provided by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys, as described below. This impact would be significant. Mitigation Measures GBHE-1 through GBHE-4 would reduce this impact to less than significant.

Mitigation Measure GBHE-1: Conduct Preconstruction Surveys to Locate Great Blue Heron Rookeries

Preconstruction surveys for great blue heron rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction features and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with the mitigation measures listed below.

Mitigation Measure GBHE-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Rookeries

Portions of the construction activities will occur throughout the year and will overlap with the great blue heron breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active great blue heron rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active rookeries identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure GBHE-3: Avoid Removal of Occupied Rookeries

As stated under Mitigation Measure GBHE-1, preconstruction surveys will be performed to identify active rookeries before implementing construction or mitigation activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting great blue herons are present. If rookeries are present, vegetation removal will be deferred until after the breeding season.

Mitigation Measure GBHE-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of riparian habitat caused by project implementation by restoring or enhancing in-kind riparian habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-10: Removal or Disturbance of Great Egret (Rookery)

Implementation of the project components may result in take of great egret rookeries. Although it is unlikely that rookeries occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Project implementation was assumed to have an adverse impact on the great egret if project activities could result in the loss or disturbance of active rookeries.

The assessment of project impacts on great egret rookery sites is based on the proximity of known rookeries to proposed project features or activities. The project was assumed to have an adverse impact on great egret rookery sites if project activities could result in the removal of a nest tree during the breeding

season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities.

Construction activities and implementation of mitigation features may result in the direct removal of great egret rookeries or disturbance of occupied rookeries. Rookery removal or disturbance will occur only if great egrets are nesting at the time the trees are removed or disturbed by these activities.

Project implementation will result in the removal of 0.05 acre of riparian habitat that could support active nest sites. The reduction in extent of available nest trees present in riparian woodlands in the study area is relatively small. Because great egrets return to the same rookery each year, the number of rookeries that could be affected by the project is not expected to vary annually unless a new rookery is formed or some other action unrelated to the project removes or disturbs an existing rookery. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within 0.25 mile of occupied nest sites could adversely affect nesting great egrets. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provided by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys.

This impact is significant. With the implementation of Mitigation Measures GREG-1 through GREG-4 described below, impacts to great egret rookeries would be less than significant.

Mitigation Measure GREG-1: Conduct Preconstruction Surveys to Locate Great Egret Rookeries

Preconstruction surveys for great egret rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with conservation measures listed below.

Mitigation Measure GREG-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Rookeries

Portions of the construction activities will occur throughout the year and will overlap with the great egret breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active great egret rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active rookeries identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure GREG-3: Avoid Removal of Occupied Rookeries

As stated under Mitigation Measure GREG-1, preconstruction surveys will be performed to identify active rookeries before implementing construction or mitigation activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction or mitigation activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting great egrets are present. If rookeries are present, vegetation removal will be deferred until after the breeding season.

Mitigation Measure GREG-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of riparian habitat caused by project implementation by restoring or enhancing in-kind riparian habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-11: Removal or Disturbance of Snowy Egret (Rookery)

Implementation of the project components may result in take of snowy egret rookeries. Although it is unlikely that rookeries occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Project implementation was assumed to have an adverse impact on the snowy egret if project activities could result in the loss or disturbance of active rookeries.

The assessment of project impacts on snowy egret rookery sites is based on the proximity of known rookeries to proposed project features or activities. The project was assumed to have an adverse impact on snowy egret rookery sites if project activities could result in the removal of a nest tree during the breeding

season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities.

Project implementation will result in the removal of 0.05 acre of riparian habitat that could support active nest sites. The reduction in extent of available nest trees present in riparian habitat in the study area is relatively small. Because snowy egrets may return to the same rookery each year, the number of rookeries that could be affected by the project is not expected to vary annually unless a new rookery is formed or some other action unrelated to the project removes or disturbs an existing rookery. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within 0.25 mile of occupied nest sites could adversely affect nesting snowy egrets. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provided by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys, as described below.

This impact would be significant. With the implementation of Mitigation Measures SNEG-1 through SNEG-4, impacts to snowy egret rookeries would be less than significant.

Mitigation Measure SNEG-1: Conduct Preconstruction Surveys to Locate Snowy Egret Rookeries

Preconstruction surveys for snowy egret rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction features and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with conservation measures listed below.

Mitigation Measure SNEG-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Rookeries

Portions of the construction activities will occur throughout the year and will overlap with the snowy egret breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active snowy egret rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible.

The City will provide the locations of active rookeries identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure SNEG-3: Avoid Removal of Occupied Rookeries

As stated under Mitigation Measure SNEG-1, preconstruction surveys will be performed to identify active rookeries before implementing construction or mitigation activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction or mitigation activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting snowy egrets are present. If rookeries are present, vegetation removal will be deferred until after the breeding season.

Mitigation Measure SNEG-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of riparian habitat caused by project implementation by restoring or enhancing in-kind riparian habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-12: Removal or Disturbance of Double-Crested Cormorant (Rookery)

Implementation of the project components may result in take of double-crested cormorant rookeries. Although it is unlikely that rookeries occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. Project implementation was assumed to have an adverse impact on the double-crested cormorant if project activities could result in the loss or disturbance of active rookeries.

The assessment of project impacts on double-crested cormorant rookery sites is based on the proximity of known rookeries to proposed project features or activities. The project was assumed to have an adverse impact on double-crested cormorant rookery sites if project activities could result in the removal of a nest tree during the breeding season, nest abandonment, or forced fledging (March 1–September 15) within 0.25 mile of project-related activities.

Project implementation will result in the removal of 0.05 acre of riparian habitat that could support active nest sites. The reduction in extent of available nest trees present in riparian habitat in the study area is relatively small. Because double-crested cormorant may return to the same rookery each year, the number of rookeries that could be affected by the project is not expected to vary annually unless a new rookery is formed or some other action unrelated to the project

removes or disturbs an existing rookery. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within ¼ mile of occupied nest sites could adversely affect nesting double-crested cormorants. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction in the level of care provided by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys, as described below.

Implementation of project components and mitigation measures that include the restoration of affected habitats could result in a low, unquantifiable level of take of double-crested cormorant rookeries. The following mitigation measures have been developed to avoid, minimize, and compensate for impacts of implementing project components and mitigation-related activities on double-crested cormorant rookeries. These mitigation measures are designed to avoid and minimize impacts of construction- and restoration-related activities on double-crested cormorant rookeries.

Mitigation Measure DCCO1—Conduct Preconstruction Surveys to Locate Double-Crested Cormorant Rookeries

Preconstruction surveys for double-crested cormorant rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction features and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Rookery locations will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with Mitigation Measures DCCO2 through DCCO4, described below.

Mitigation Measure DCCO2—Minimize Construction-Related Disturbances within 0.25 Mile of Active Rookeries

Portions of the construction activities will occur throughout the year and will overlap with the double-crested cormorant breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active double-crested cormorant rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active rookeries identified during the preconstruction surveys to DFG and will

coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure DCCO3—Avoid Removal of Occupied Rookeries

As stated under Mitigation Measure DCCO1, preconstruction surveys will be performed to identify active rookeries before implementing construction or mitigation activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction or mitigation activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting double-crested cormorant are present. If rookeries are present, vegetation removal will be deferred until after the breeding season.

Mitigation Measure DCCO4—Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of riparian habitat caused by project implementation by restoring or enhancing in-kind riparian habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Impact BIO-12: Loss of White-Tailed Kite Habitat

The riparian habitat in the vicinity of the project area provides nesting and roosting habitat for this species. The project was assumed to have an adverse impact on the white-tailed kite if project activities could result in the removal of a nest tree during the breeding season (March 1–September 15), nest abandonment, or forced fledging within 0.25 mile of project-related activities. This approach to assessing impacts on nesting white-tailed kites is consistent with DFG guidelines for raptors (California Department of Fish and Game 1994).

Construction activities will result in the removal of approximately 0.05 acre of riparian habitat. Although it is unlikely that rookeries occur in the project footprint, the riparian woodland and riparian scrub habitats in the vicinity of the project area provide nesting habitat for this species. The reduction in extent of available nest trees in the study area is relatively small. Because the location of white-tailed kite nest sites may vary from year to year, the number of nest sites that could be affected by the project may vary annually. Preconstruction surveys will be performed throughout the spring to determine whether nest sites are located within 0.25 mile of proposed project activities.

Noise and visual disturbances associated with operation of equipment and other construction- and maintenance-related activities within 0.25 mile of occupied nest sites could adversely affect nesting white-tailed kites. Noise and visual disturbances of sufficient magnitude could result in nest abandonment, reduction

in the level of care provide by adults for eggs and young (e.g., duration of brooding, frequency of feeding), or forced fledging. If these situations occur, it could reduce the likelihood for successful production of young during the year of disturbance. The number of nests or young that could be affected will be determined annually during the preconstruction surveys and active construction period surveys, as described below.

Implementation of Mitigation Measures WTKI-1 through WTKI-5 would ensure there are no impacts on white-tailed kites.

Mitigation Measure WTKI-1: Conduct Preconstruction Surveys to Locate White-Tailed Kite Nest Sites

Preconstruction surveys for white-tailed kites will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all suitable nest sites within 0.50 mile of proposed construction and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds. Nest sites will be marked on an aerial photograph, and the position will be recorded using GPS. Preconstruction survey data will be used in accordance with Mitigation Measures WTKI-2, WTKI-3, and WTKI-4.

Mitigation Measure WTKI-2: Minimize Construction-Related Disturbances within 0.25 Mile of Active Nest Sites

Portions of the construction activities will occur throughout the year and will overlap with the white-tailed kite breeding season. To the greatest extent practicable, major construction activities that will occur within 0.25 mile of an active white-tailed kite nest will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active nest site will be deferred until after or as late in the breeding season as possible. The City will provide the locations of active nest sites identified during the preconstruction surveys to DFG and will coordinate with DFG on appropriate avoidance and minimization measures on a case-by-case basis.

Mitigation Measure WTKI-3: Avoid Removal of Occupied Nest Sites

As stated under Mitigation Measure WTKI-1, preconstruction surveys will be performed to identify active nest sites before implementing construction or mitigation activities. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat in areas where vegetation is scheduled to be cleared. Removal of vegetation before the nesting season will ensure that occupied nests are not removed. If construction or mitigation activities require the removal of additional vegetation not previously designated for removal, the City will perform clearance surveys to determine whether nesting kites are present. If nest sites are present, tree removal will be deferred until after the breeding season.

Mitigation Measure WTKI-4: Replace Lost Breeding Habitat

The City will compensate for the unavoidable loss of suitable nesting habitat in the project area by restoring or enhancing in-kind habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riparian habitat in Chapter 2.

Mitigation Measure WTKI-5: Replace Lost Foraging Habitat

To the extent practicable, natural habitats and agricultural habitats adjacent to occupied nesting habitats will be restored or enhanced to create a buffer zone of natural habitat. This buffer zone would protect nesting pairs from adverse impacts that could be associated with future changes in land use on nearby lands and provide foraging and nesting habitat suitable for the natural expansion of populations.

The City will compensate for the unavoidable loss of suitable foraging habitat in the project area by restoring or enhancing in-kind habitat. The City will also compensate for the loss of ruderal vegetation that may provide suitable foraging habitat for white-tailed kites by implementing BMPs. BMPs relevant to ruderal vegetation will include reseeding disturbed areas following completion of construction activities. Ruderal habitat will be reseeded with a noninvasive native and naturalized grass and forb seed mix that will replace the habitat values lost as a result of construction activities.

Impact BIO-13: Loss or Disturbance of Western Pond Turtle Habitat

Riverine habitat and adjacent uplands in the project area provide habitat for this species. Project implementation was assumed to have an adverse impact on the western pond turtle if project activities would result in the loss or disturbance of riverine habitat.

The assessment of project impacts on western pond turtle is based on the proximity of known occurrences of this species to proposed project features or activities and the presence of suitable habitat in the project area. Construction activities could result in the direct removal or disturbance of 0.05 acre of western pond turtle breeding habitat. In-water work would result in the temporary disturbance of 0.05 acre of open water habitat and 0.3 acre of ruderal habitat that provide suitable habitat for western pond turtle.

Mitigation Measures WEPT-1 and WEPT-2 will ensure project impacts on western pond turtles are less than significant.

Mitigation Measure WEPT-1: Perform Preconstruction Clearance Surveys for Western Pond Turtle

Western pond turtles are known to occur in the Feather River. Because this is a large, open system, it is not feasible to clear and permanently exclude all western pond turtles from the site. Preconstruction surveys will be conducted by a qualified biologist to determine the approximate population density of turtles in

the construction areas. The City will install sheetpiles, coffer dams, or other measures to minimize sedimentation between the in-channel construction zones and adjacent waterways. This system will minimize the degradation of aquatic habitats outside the construction zone and inhibit the movement of turtles into the construction zone. Turtles occurring in the work area will be captured and relocated by a qualified biologist to a nearby location outside the work area.

To avoid the loss of western pond turtle and eggs as a result of construction, the City will install exclusion fencing on the channel banks to prevent turtles from nesting in the work areas. The exclusion fencing will consist of plastic orange mesh exclusion fence material or silt fence material. Fences will be installed to a depth of 6 inches below the ground surface to prevent turtles from going under the fence. Fences will be installed before the nesting season (i.e., March 1) and remain in place through August. The fencing may be removed prior to grading.

A qualified biologist will be present during all in-channel activities to relocate western pond turtles outside the construction zones.

Mitigation Measure WEPT-2: Replace Lost Breeding and Foraging Habitat

The City will compensate for the unavoidable loss of up to 0.05 acre of riverine habitat by restoring or enhancing in-kind habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected, as described in the mitigation measures for riverine aquatic habitat in Chapter 4.

The City will compensate for the loss of ruderal vegetation that may provide suitable nesting habitat for the western pond turtle by implementing BMPs. BMPs relevant to ruderal vegetation will include reseeding disturbed areas following completion of construction activities. Ruderal habitat will be reseeded with a noninvasive native and naturalized grass and forb seed mix that will replace the habitat values lost as a result of construction activities.

Special-Status Fish Species Impacts

Potential impacts to special-status fish species are categorized by type of impact rather than type of fish because all special-status fish species that are present could be affected in the same manner. Fish present in the project area year-round or at particularly vulnerable life stages could be more susceptible to project effects. However, the environmental commitments for fish (BIO-2 through BIO-6) should ensure that impacts associated with each type of impact are less than significant. As a result, even fish that are present in the project area year-round or at a vulnerable life stage would not be significantly affected.

Types of potential impacts are divided into two categories:

- Potential impacts related to construction (generally short-term), and
- Potential impacts related to operations and maintenance (more long-term).

Construction-Related Impacts

Impact BIO-14: Temporary Increase in Sedimentation and Turbidity

All construction activities that result in disturbance to soil and vegetation on the bank and channel of the Feather River may cause increases in sedimentation and turbidity of these waters. These conditions, if prolonged, could affect the growth, survival, and reproductive success of aquatic organisms. Prolonged exposure to high levels of suspended sediment can create:

- a loss of visual capability, leading to a reduction in feeding and growth rates;
- thickening of the gill epithelium, potentially causing loss of respiratory function;
- clogging and abrasion of gill filaments; and
- increases in stress levels, reducing the tolerance of fish to disease and toxicants (Waters 1995).

Bash et al. (2001) characterized the effects of suspended sediment and turbidity on salmonids into three general categories: physiological, behavioral, and habitat.

The effects of sediment on salmon depend on temperature, size, and angularity of the particles and the life stage (Bash et al. 2001). In general, adverse effects of turbidity increase with temperature, are greater for juveniles than for adults, and highly angular particles may have a greater adverse effect than smooth or rounded particles (Lake and Hinch 1999).

Physiological effects of particular relevance to this project are gill trauma and osmoregulation. Gill trauma occurs when gills are damaged by passing high levels of sediment across the gill membranes. Lake and Hinch (1999) found that highly angular particles caused greater damage to the gills of coho salmon than did smooth particles although angularity was not related to mortality. An LC50 value (e.g., a lethal concentration of a substance which kills 50% of a sample population in a given time) of sockeye salmon increased with particle size (i.e., smaller particles are worse than larger ones). In laboratory experiments, cough frequency of juvenile coho salmon was elevated at 240 milligrams per liter (mg/L) (Bash et al. 2001).

Osmoregulation is a concern for salmonid adult and smolt transformation between fresh and salt water. The project is upstream of the Delta, where juvenile fish are entering the critical life history phase. During the transition period, juvenile salmonids are more susceptible to sediment impacts than they are at other times. During smoltification, LC50s have been reported to decline to 1,500 mg/L but rise to 30,000 mg/L during other periods (Bash et al. 2001).

Behavioral effects that could be a concern include avoidance of high levels of sediment by adult and juvenile salmonids as well as possible effects on foraging and predation. Avoidance is the most common result of increases in turbidity and sedimentation. Fish would not occupy areas that are not suitable for survival unless they have no other option. Therefore, habitat can become limiting in systems where high turbidity precludes a species from occupying habitat required for specific life stages.

High levels of suspended sediment can cause movement and redistribution of fish. Many fish, including juvenile salmonids, are sight feeders. Turbid waters reduce the fish's efficiency in locating and feeding on prey. Some fish, particularly juveniles, can become disoriented and leave areas where their main food sources are located, possibly resulting in reduced growth rates. Where fish are actively feeding, increased turbidity can decrease feeding success (Bash et al. 2001). Conversely, increased turbidity can provide protection for fish being preyed upon. Increased sediment loading can also degrade food-producing habitat downstream of the project area, interfere with photosynthesis, and result in the displacement of aquatic food organisms (e.g., benthic invertebrates).

Increased sedimentation and turbidity resulting from project construction would be temporary and limited to a small portion of the river during installation and removal of the cofferdam and removal of the existing intake structure. Implementation of a SWPPP, as discussed in Environmental Commitment HWQ-1, and restricting in-channel activities to the period from July 1 through October 31, would minimize sediment inputs and avoid the period of peak abundance of juvenile salmonids. As such, this impact would be less than significant.

Impact BIO-15: Temporary Increase in Underwater Noise and Vibrations from Pile Driving

Noise, vibrations, and other physical disturbances can harass fish, disrupt or delay normal activities, or cause injury or mortality. In fish, the hearing structures and swim bladder and surrounding tissues are particularly vulnerable to high-pressure sounds; the ear is vulnerable to extreme pressure and motion, and the swim bladder expands and contracts with the passage of a pressure wave (Popper et al. 2006). The potential magnitude of effects depends on several factors, including the type and intensity of the sound, proximity of the action to the water body, timing of actions relative to the occurrence of sensitive life stages, and frequency and duration of activities. For most activities, the effects on fish would be limited to avoidance behavior in response to movements, noises, and shadows caused by construction personnel and equipment operating in or adjacent to the water body. In these instances, fish may be more vulnerable to predation if the disturbance causes fish to leave protective habitat. Injury or mortality may result from direct contact with machinery and materials or sound pressure (pile driving) if it occurs at high sound pressure levels.

There is little relevant scientific information that can be used to evaluate the effects of pile driving sound on the species of concern. Based on what is known about the general effects of sound on fish, these may include behavioral effects, physical injury, and mortality. The degree to which a fish exposed to pile driving sound would be affected is dependent on several variables, including: 1)fish species; 2) life stage; 3) body size; 4) distance from source; 5) type and size of pile and hammer; 6) depth of water around the pile; 7) peak sound pressure and frequency; and 8) presence/absence of a swimbladder; (Hastings and Popper 2005). Behavioral effects may include movement of fish away from important habitat, reduced feeding ability, and increased vulnerability to predators.

Terminology

Key terms used in pile driving noise assessment are defined below:

- *Peak sound pressure* refers to the highest absolute value of a measured waveform (i.e., sound pressure pulse as a function of time).
- *Sound exposure level (SEL)* is defined as the constant sound level acting for one second, which has the same amount of acoustic energy as the original sound. Expressed another way, the sound exposure level is a measure of the sound energy in a single pile driver strike.
- *Accumulated SEL ($SEL_{accumulated}$)* is the cumulative SEL resulting from successive pile strikes. $SEL_{accumulated}$ is based on the number of pile strikes and the SEL per strike; the assumption is made that all pile strikes are of the same SEL. $SEL_{accumulated}$ is calculated by adding the SEL from a single pile strike at a certain position or distance to 10 times the base 10 logarithm of the number of pile strikes:

  $$SEL_{accumulated} = SEL_{per\ strike} + 10 \log_{10} (\text{number of pile strikes})$$

- *Root mean squared (RMS) sound level* is the average of squared sound pressures over the period of time that encompasses that portion of the waveform containing 90% of the sound energy.

Cofferdam installation would require both vibratory (70%) and impact (30%) pile driving over a period of two weeks. Twenty one of the 37 sheet piles would be installed in the wetted river channel; the remainder would be driven on dry land. The distance from the river (mean low flow) to the sheet piles driven on land would vary for each sheet pile; the furthest sheet pile would be approximately 7.5 meters from the river (mean low flow).

All CISS piles would be driven within the cofferdam. The section of the cofferdam within the wetted channel would be dewatered prior to installation of the in-channel CISS piles. Although specific installation methods have not yet been fully identified, it is estimated that sheet pile installation would take approximately two weeks. Similarly, CISS pile installation would require two weeks; two piles would be driven per day and each pile would require 50 to 75 blows.

The interim threshold criteria for injury of fish exposed to the impact sound associated with pile driving are a cumulative sound exposure level ($SEL_{cumulative}$)

of 187 dB re: 1µPa^2/sec, and a peak sound pressure of 206 dB re: 1µPa (206 dB_{Peak}) in any single strike. These thresholds, referred to as the "dual criteria" were recently agreed upon by NOAA Fisheries, Federal Highways Administration, DFG, USFWS, and the state transportation agencies for California, Oregon, and Washington. Data on adverse behavioral responses of fish to pile driving sounds are limited; however USFWS has set the initial criterion at 150 dB RMS.

The potential for exposure of fish to underwater sound generated by pile driving was evaluated and is presented in the following sections. This analysis estimated the peak sound pressure and cumulative SEL using existing best available noise monitoring data from similar pile driving projects. Source noise levels for piles driven in a cofferdam or on land are assumed to be 10 dB less than source noise levels of piles driven in water. Estimated pile driving noise values and number of pile strikes in a day were used as input to the NOAA Fisheries Underwater Noise Calculation Spreadsheet model to calculate the distance from the pile driving noise source where the underwater sound level would attenuate to the peak or cumulative SEL threshold, and to estimate the accumulated SEL a stationary fish (conservative assumption) would be exposed to given a selected source noise level.

Key assumptions used in this analysis were:

CISS Piles

- Two CISS piles would be installed per day;
- Each CISS pile would require 75 strikes to be set (150 strikes total per day assuming installation of two piles per day); and
- Standard attenuation rate assumption of 4.5 dB per doubling of distance of pipe piles.

Steel Sheet Piles

- Actual driving occurs 40% of an eight hour work day (192 minutes);
- 70% of driving time is vibratory driving (134 minutes);
- 30% of driving time is impact driving (58 minutes) for a total of 600 strikes per day; and
- Attenuation rate assumption of 6 dB per doubling of distance for sheet piles to account for the higher frequency sound produced during sheet pile driving.

Vibratory Driving

Sound generated during vibratory driving of the cofferdam sheet piles is expected to be low. For sheet piles driven on land, sound levels at ten meters from the pile are estimated to be 160 dB_{Peak} and 140 dB_{SEL}. For sheet piles driven within the wetted channel, sound levels at ten meters from the sheet pile are estimated to be slightly greater at 170 dB_{Peak} and 155 dB_{SEL}. The injury threshold for peak sound levels (206 dB) would not be exceeded for vibratory pile driving on land or in water.

The injury thresholds for cumulative SEL (187 dB and 183 dB) would be exceeded within 3 meters of sheet piles driven with a vibratory hammer on land, and within 18 meters of sheet piles driven with a vibratory hammer in water.

NOAA Fisheries typically assumes that fish exposed to underwater noise levels above a threshold of 150 dB RMS incur adverse behavioral effects. For this analysis, model results indicate that noise levels would exceed 150 dB RMS during all pile driving with the exception of sheet piles driven on land.

Impact Driving

As previously stated, approximately 30% of the sheet pile installation would be conducted with an impact hammer. For sheet piles driven on land with an impact hammer, sound levels would be approximately 195 dB $_{Peak}$ and 169 dB $_{SEL}$at ten meters from the sheet pile. For sheet pile driven within the wetted channel sound levels would be approximately 205 dB $_{Peak}$ and 179 dB $_{SEL}$at ten meters from the sheet pile.

Model results indicate that the injury threshold for peak sound levels (206 dB) would not be exceeded for sheet piles driven with an impact hammer on land or in water within a distance of three meters and nine meters, respectively. The model predicts that for cumulative SEL, the 187 dB criterion for fish 2 g or larger would be exceeded within 98 meters of the sheet piles driven in water and within 31 meters of the sheet piles driven on land. The cumulative SEL for fish less than 2 g (183 dB) would be exceeded within 155 meters from sheet piles driven in water and within 49 meters from sheet piles driven on land.

CISS Pile Installation

At ten meters from the pile, the peak sound level during pile driving within the dewatered cofferdam or on land is estimated to be 193 dB. This is well below the interim criterion of 206 dB. This criterion would not be exceeded at any distance greater than 1 meter from a CISS pile.

The model predicts that the cumulative SEL for fish 2 g or larger (187 dB) would be exceeded within 15 meters of a CISS pile driven within the dewatered cofferdam or on land. The cumulative SEL for fish less than 2 g would be exceeded within 28 meters of a CISS pile being driven on land or within the dewatered cofferdam.

It was assumed that fish in the vicinity would be stationary, i.e., not traveling through the area. It is unlikely that fish would remain static during pile driving, although it is unknown how far they would move during or between strikes. However, they are likely to change orientation and actively move away from, or avoid the area during the driving of piles.

Potential Effects on Adult Fish

Adult spring- and fall-run Chinook salmon, steelhead, and green sturgeon may be present in the project area during installation of the cofferdam sheet piles and the CISS piles. It is anticipated that pile driving would expose some fish to underwater sound that exceeds the interim threshold for accumulated sound for

fish larger than 2 g (187 dB $SEL_{accumulated}$). Central Valley steelhead adults use the Feather River in the project area as a migratory corridor from September through April. Spring- and fall-run Chinook salmon are likely to be present in the project area from February through December, respectively. Adult green sturgeon may use the action area as a migratory corridor and may be present in the lower Feather River from March through November, with highest abundance occurring during the period of April through mid-June.

There is the potential for injury or mortality due to underwater accumulated sound from pile driving for fish remaining within 155 meters of sheet piles being driven in the river during the time the impact hammer is used. Similarly, during the time sheet piles are impact driven on land there is the potential for fish remaining within 49 meters of the pile driving to be adversely affected. These conclusions are based on several conservative assumptions, as previously discussed. This analysis assumes that fish, were they to be in the area, would remain there during pile driving. Given that adult salmonids would be migrating through the action area, and would likely exhibit avoidance behavior in response to pile driving noise and associated activities and actively move away from the construction area, injury or mortality is considered less likely than temporary harassment.

The hearing capabilities of green sturgeon are not known, but the ear structures in sturgeon are very different from teleost fish (Hastings and Popper 2005). Sturgeon do have swim bladders, so it is reasonable to assume that they could be adversely affected to some extent by pile driving noise exceeding the dual criteria thresholds. Therefore, there is the potential for adults migrating through the action area to incur injury as a result of pile driving noise should they pass within distances from the piles where criterion levels would be exceeded during pile driving.

Potential Effects on Juvenile Fish

Small fish are more susceptible to injury by intense sound than are larger fish of the same species. The installation of the sheet piles and CISS piles would occur during the low flow period sometime between July 1 and October 31 when juvenile salmonid abundance is lowest in the action area. Juvenile Sacramento River winter-run Chinook salmon may use the action area for non-natal rearing; however, the potential occurrence of winter-run Chinook salmon is primarily limited to November through May. Therefore, restricting pile driving activities to the proposed construction time frame would minimize potential exposure of salmonids to pile driving noise.

It is important to note that there is a lack of significant cover or other important habitat features in the immediate project area that could attract juvenile salmonids and other fishes and increase the likelihood of impacts. However, the potential exists for juvenile salmonids and other small fishes (<2g) to be injured or killed within 155 meters of the sheet piles during times when these piles are being driven by an impact hammer. The potential for injury or death of juvenile fish (<2g) is reduced to 49 meters of piles that are being driven by an impact hammer on land.

Noise-related impacts on adults and juveniles are considered significant. Implementation of Mitigation Measure FISH-1 would reduce these impacts to a less-than-significant level.

Mitigation Measure FISH-1: Noise-Reduction Measures

Although specific thresholds for effects of underwater sound associated with pile driving are unknown, potential injury and mortality of fish associated with pile driving shall be avoided or minimized by implementing the following noise-reduction measures:

- In-channel construction, including riverbank and channel bed construction below the OHWM, would be limited to the summer low-flow period (July 1–October 31) to minimize potential exposure of juvenile salmonids to pile driving sounds.
- A cofferdam would be installed around the in-channel construction area, which would be dewatered before additional pile driving and/or construction activities. Once the outer sheet piling is completed, fish would not have access to the construction site, and underwater sounds produced by pile driving would be attenuated.
- The number and size of piles will be limited to the minimum necessary to meet the engineering and design requirements of the project.
- The smallest pile driver and minimum force necessary will be used to complete the work.
- Vibratory hammers will be used whenever feasible. If use of an impact hammer cannot be avoided, a hydraulic hammer will be used. The force of the hammer blow can be controlled with hydraulic hammers, and reducing the impact force would reduce the intensity of the resulting sound.

Impact BIO-16: Fish Stranding in Cofferdams

As described above as part of the noise-reduction measures, closure of the cofferdam may trap fish that would ultimately die from stress, injury, and mortality caused by poor water quality, predation, dewatering, or construction activities within the cofferdam. Juvenile fish are most susceptible to entrapment because of their slower escape response and tendency to remain along shallow river margins.

Measures that would minimize potential adverse effects on listed fish species include restriction of cofferdam installation to the period of lowest juvenile salmonid abundance (July 1–October 31), the construction of the cofferdam in an upstream to downstream direction, and implementation of a fish rescue plan, as described in Environmental Commitment Bio-5. This impact would be less than significant.

Impact BIO-17: Alteration of Aquatic and Riparian Habitat

Removal of Riparian Vegetation

Riparian vegetation directly influences the quality of salmonid habitat, affecting cover, food, instream habitat complexity, streambank stability, and water temperatures. Large woody debris (LWD) usually originates from riparian trees and provides cover and habitat complexity within the stream, essential components of fish habitat. Riparian vegetation also provides shade and an insulating canopy that moderates water temperatures in both summer and winter. Riparian vegetation provides a filter that reduces the transport of fine sediment to the stream, and the roots provide streambank stability and cover for rearing fish (Meehan 1991). Riparian vegetation influences the food chain of a stream, providing organic detritus and terrestrial insects. Because of the numerous ways riparian vegetation influences the stream ecosystem, the effects of altering riparian vegetation are highly variable, ranging from increased sedimentation and warmer stream temperatures to decreased food production and habitat complexity.

The proposed project would require the removal of riparian vegetation and shaded riverine aquatic (SRA) cover immediately adjacent to the new intake location. SRA habitat is defined as the near-shore aquatic habitat at the interface between the river and the adjacent riparian zone, where the riverbank is composed of earthen substrate supporting riparian vegetation that overhangs or protrudes into the water, as well as the woody debris in the water, including logs, branches, and roots. SRA habitat also includes shallow water habitat, water velocity, and substrate (e.g., boulders). SRA habitat has been designated by USFWS as irreplaceable habitat (i.e., Resource Category 1).

Removal of riparian vegetation would occur along approximately 40 linear feet of the Feather River where existing shoreline vegetation would be cleared and replaced with riprap. However, SRA cover losses would be negligible because of the low quality of existing nearshore habitat, the presence of revetted banks, and the lack of significant in-stream and overhead cover at the project site.

Intake Structure and Riprap Installation

Approximately 0.17 acre of the channel bed and bank of the Feather River below the OHWM would be altered by installation of the intake structure and riprap. When riprap or other engineered structures are placed in or adjacent to stream channels to prevent erosion, the suitability of fish habitat is affected by changes in nearshore cover and local stream hydraulics. Riprap has been shown to reduce or eliminate new accretion of point bars and other surfaces for recruitment of riparian vegetation, arrest meander migration and limit lateral mobility of the channel, which decreases habitat complexity; incise the thalweg of the river next to the armored areas and narrow the low-flow channel width; reduce hydrodynamic complexity; reduce bank erosion, which reduces habitat complexity; impede riparian vegetation growth; and reduce the recruitment of woody vegetation falling into the river channel (U.S. Fish and Wildlife Service 2000).

Impacts to existing nearshore habitat would be negligible because of the low quality of existing habitat, the presence of existing revetted banks, and the lack of significant instream and overhead cover. The riparian habitat that is affected will be compensated for upstream or downstream of the site. Additionally, the intake structure and associated pilings and foundation may attract predatory fish species, potentially resulting in higher predation rates on juvenile salmonids and other fishes. However, predation associated with the facility is expected to be small, and likely negligible. The project is designed to minimize and avoid adverse effects related to scour and erosion and minimize turbulence that could disorient fish and increase vulnerability to predation.

These alterations are minor and with the incorporation of environmental commitments to compensate for loss of riparian habitat, this impact is less than significant.

Impact BIO-18: Harm to Fish as a Result of Accidental Hazardous Materials and Chemical Spills

Construction-related activities (e.g., activities associated with access routes, storage and staging areas) could potentially impair water quality if hazardous chemicals (e.g., fuels and petroleum-based lubricants) or other construction materials are spilled or enter the Feather River. In general, construction-related chemical spills could potentially affect fisheries and aquatic resources by causing physiological stress, reducing biodiversity, altering primary and secondary production, interfering with fish passage, and causing direct mortality. As discussed in Chapter 2 (Environmental Commitment HAZ-1), the City would minimize the potential for accidental spills of hazardous, toxic, or petroleum substances and the potential for these substances to adversely affect fish and other biological resources by preparing or requiring the construction contractor to prepare a Spill Prevention Control and Countermeasure Plan (SPCCP). Therefore, this impact would be less than significant.

Operations and Maintenance Activities

Impact BIO-19: Changes in Impingement and Entrainment

Installation and operation of a fish screen would eliminate or substantially reduce the risk of fish entrainment at the project site relative to baseline conditions. The existing unscreened intake would be replaced with an approved fish screen designed to minimize entrainment and impingement of fish passing the intake structure. The City and Reclamation have worked with NOAA Fisheries, USFWS, and DFG to ensure that the fish screen and pumping plant facility are designed to meet the DFG and NOAA Fisheries fish screen performance criteria. The design was based on protective criteria for juvenile salmonids but also included consideration of green sturgeon.

Environmental Commitment BIO-6 includes preparation and implementation of an operations and maintenance plan and hydraulic monitoring plan to ensure that the fish screen and pumping plant are operated and maintained in accordance with the fish screen performance criteria.

In summary, the potential adverse impacts to special-status fish species from the increased diversion rate would be more than offset by the benefits of the new screened intake, which would decrease the overall risk of entrainment. Therefore, this impact is less than significant.

Impact BIO-20: Alteration of Flow and Temperature

Changes in streamflow can affect the quantity and quality of fish habitat through effects on water depths, velocities, and, to some extent, water temperatures. In the lower Feather River, natural flow patterns are altered primarily by water storage, diversion, and hydroelectric projects upstream of Oroville Facilities, Lake Oroville operation, and diversions from Thermalito Afterbay (California Department of Water Resources 2007).

Water diversions in the action area can contribute to flow reductions and potentially affect special-status fish species. The primary species and life stages of concern are adult and juvenile Chinook salmon and steelhead because of their relative sensitivity to altered flows and water temperatures. The potential effects of increased water diversions include creating passage impediments for adults, reducing the amount of shallow edge habitat and cover available to juvenile fish, and increasing water temperatures. These mechanisms are recognized as potentially important to adult and juvenile salmon and steelhead in this portion of the river but have not been investigated. However, a general assessment of potential project effects can be made based on the magnitude and frequency to which flows and general habitat indicators will be affected.

Oroville Facilities are currently managed to meet minimum flow requirements and water temperature objectives for spring-run Chinook salmon, fall-run Chinook salmon, and steelhead in the primary holding and spawning reaches of the Feather River upstream of the action area. The minimum flow requirement below Thermalito Afterbay is 1,700 cfs from October through March and 1,000 cfs from April through September. In critical years, the minimum flow can be reduced to 1,200 cfs from October to February and 1,000 cfs in March. However, flows vary substantially from year to year depending on annual runoff, flood management releases, downstream water supply and quality control commitments, and tributary inflows (California Department of Water Resources 2007).

Monthly mean flow records are available for three locations within the action area:

- Feather River at Yuba City, USGS Station 11407700
- Feather River at Shanghai Bend, USGS Station 11421700

- Feather River at Nicolaus, USGS Station 1142500

These gages were discontinued in the 1980s but the records are considered generally representative of baseline flows under current Oroville Facility operations.

Under baseline conditions (represented by monthly Yuba City diversions in 2007), monthly diversion rates range from 12 to 34 cfs or 0.15–0.98% of the 1964–1984 monthly mean flows in the Feather River at Yuba City. Downstream of Yuba City, the magnitude of diversion effects on Feather River flow is even smaller because of the flow contributions of the Yuba and Bear Rivers, as reflected by the gage records for Shanghai Bend and Nicolaus.

Under the proposed action, the maximum diversion rate would be 48 mgd (74 cfs). Assuming year-round operation at full capacity, the proposed action could reduce river flows by an additional 40–62 cfs relative to 2007 diversion rates, resulting in a 0.7–2.8 % reduction in flow at Yuba City, a 0.5–1.7% reduction in flow at Shanghai Bend, and a 0.5–2.0% reduction in flow at Nicolaus.

In critically dry years, Feather River flows below Thermalito Afterbay above the Yuba River could be as low as 1,000 cfs during the spring and summer and 1,200 cfs in the fall and the winter. Assuming a worst-case scenario in which flows are at these minimum levels as far downstream as Yuba City, the proposed action could reduce flows in the Feather River by up to 6–7%. Under baseline conditions, up to 2–3% of the flow could be diverted. However, changes in river flow of this magnitude are very infrequent and are not expected to measurably change conditions for threatened and endangered species. Additionally, operational changes implemented by DWR during dry years when they are required to release water from Lake Oroville to satisfy in-basin entitlements and meet minimum flow requirements to protect fisheries resources in the Feather River may reduce any potential adverse effect. As such, this impact is less than significant.

Effects on Physical Habitat

General indicators of the effect of flow reductions on physical habitat are reductions in river stage, widths, and depths. Within the action area, these changes could affect the amount of shallow water and cover available to juvenile fish along the margins of the river. During the primary emigration and rearing months (December through June), maximum diversion rates under the proposed action could reduce monthly mean flows in the Feather River by 0.9–2.0% at Yuba City, 1.0–1.5% at Shanghai Bend, and 0.7–1.4% at Nicolaus. In comparison, baseline diversion rates reduce monthly mean flows by 0.2–0.7% at Yuba City, 0.2–0.5% at Shanghai Bend, and 0.1–0.5% at Nicolaus. Thus, maximum diversion rates under the proposed action would be expected to cause slight reductions in river widths and depths which would result in slight reductions in the availability of preferred habitat for juvenile fish. These reductions are not expected to measurably affect juvenile salmon and steelhead survival, growth, and migration success. The potential for adverse effects would

increase slightly in dry years, but may be tempered by DWR water releases to satisfy in-basin entitlements and meet minimum flow requirements. However, changes in river flow during dry years are similarly not expected to measureably change the availability or quality of habitat.

Deeper, main channel habitats used by adult salmon, steelhead, and sturgeon would be virtually unaffected by the proposed action. The only potential passage impediment in the action area is at Shanghai Bend where a hard clay bench forms a 3- to 5-foot waterfall, high-velocity chute, and shallow side channel at low flows. This bench has been identified as a potential passage impediment to adult sturgeon at low flows (California Department of Water Resources 2003c). During the primary migration periods of adult green sturgeon (March through July), maximum diversion rates under the proposed action could reduce monthly mean flows in the Feather River by 0.9–2.2% at Yuba City, 0.7–1.5% at Shanghai Bend, and 0.5–2.0% at Nicolaus. In comparison, baseline diversion rates would reduce monthly mean flows by 0.2–0.8% at Yuba City, 0.1–0.5% at Shanghai Bend, and 0.1–0.7% at Nicolaus. Because of the small effect of these flow reductions on river depths and velocities, the proposed action is not likely to adversely affect passage conditions for adult sturgeon.

Effects on Water Temperature

Oroville Facilities are currently managed to meet water temperature objectives for spring-run Chinook salmon, fall-run Chinook salmon, and steelhead in the primary holding and spawning reaches of the Feather River upstream of the action area (California Department of Water Resources 2003a). Water temperature objectives have been established for the Feather River Hatchery and the low flow channel upstream of Thermalito Afterbay Outlet (<65°F at Robinson Riffle, RM 61.6 from June 1 through September 30). Downstream of the Afterbay Outlet, water temperatures must be suitable for fall-run Chinook salmon during the fall months (after September 15) and suitable for American shad, striped bass, and other warmwater species from May through August (California Department of Water Resources 2003a).

Based on a review of the general emigration timing and water temperature responses of juvenile salmon, DWR concluded that emigrating juvenile salmon in the lower Feather River may experience thermal stress from elevated water temperatures in late May and June (California Department of Water Resources 2003a). For example, in 2002 and 2003, mean and maximum daily water temperatures frequently exceeded 62.6°F (17°C) after mid-May and 68.0°F (20°C) through June in the lower Feather River downstream of Honcut Creek (California Department of Water Resources 2004a). Adult spring-run and fall-run Chinook salmon may also be exposed to stressful water temperatures during their upstream migrations to holding and spawning areas in the late spring, summer, and early fall.

Water temperatures are coldest in the uppermost portions of the lower Feather River and warm progressively downstream during the spring, summer, and early fall. Recent water temperature modeling indicates that warming of the river downstream of Thermalito Afterbay Outlet is affected by release temperature,

release discharge, tributary inflows, and atmospheric conditions (California Department of Water Resources 2004a). The effect of release temperature and discharge on river temperature decreases with increasing distance downstream from Oroville Dam as air temperature becomes the dominant influence on river temperature. For example, water temperatures measured throughout the river in June and July 2002 indicate that most of the warming in the Feather takes place between the Fish Barrier Dam and the Yuba River (California Department of Water Resources 2004a). Except for the localized influence of tributary inflows, longitudinal profiles of mean and maximum daily water temperatures in the action area indicate that water temperatures have largely stabilized in this portion of the river during spring, summer, and early fall.

Given the location of the diversion and the magnitude of proposed diversion rates, the project is expected to have negligible effects on river temperature. Water temperature in the action area appears to be relatively insensitive to flow within the range of flows that typically occur during the spring, summer, and fall migration periods of Chinook salmon, steelhead, and green sturgeon. Removing water from the river can affect the magnitude or rate of heating or cooling in response to tributary inflows and fluctuating air temperatures but the slight reduction in flow resulting from the action is not likely to measurably affect these processes.

Sediment Management Effects

Salmonids are the fish species most likely to be affected by sediment management activities. The effects of sediment and turbidity on fish were addressed above.

The potential for effects on salmonids is likely greatest for adult fall-run Chinook salmon because their migration occurs when the ambient turbidity level in the river is typically at the lowest and when flow diversion and sediment return are typically the greatest. Other salmonids pass by the intake facility during winter and spring months when ambient turbidity levels are both typically much higher and variable and the ratio of flow diversion and sediment return to river flow is lowest. Therefore, potential changes to ambient conditions that may occur in the fall have the most potential to affect salmonids.

The plume is not expected to have any adverse effects on salmonids because the returned material is no different from that in the ambient turbidity, the plume would likely be spatially confined and occupy a small proportion of the flow width, and the suspended sediment levels would rapidly dissipate to levels approaching ambient levels a short distance from the return facility. Therefore, the plume should be easily avoided and bypassed by salmonids and other fishes.

Impact BIO-21: Effects on Critical Habitat

Critical habitat for Central Valley spring-run Chinook salmon and Central Valley steelhead is designated within the project area. The action area lacks spawning sites and estuarine and marine habitats but does include freshwater rearing sites

and freshwater migration corridors. Potential project effects on critical habitat include long-term beneficial effects on passage conditions for juvenile fish, short-term adverse effects on water quality, losses of riparian habitat within the project footprint, and long-term reductions in flow associated with increased diversion capacity.

The proposed action would result in long-term beneficial effects to critical habitat by improving passage conditions for Central Valley spring-run Chinook salmon and Central Valley steelhead. Replacement of the existing unscreened intake with a fish screen designed in accordance with current NOAA Fisheries and DFG screen performance criteria, and implementation of approved hydraulic and operations and maintenance plans would ensure that these benefits are maintained over the life of the project.

Temporary adverse effects on water quality would occur from noise, suspended sediment and turbidity, and cofferdam closure during construction activities. Restricting in-water activities to the period from July 1 through October 31 and implementing the environmental commitments would minimize the magnitude and duration of these adverse effects.

Potential project impacts on critical habitat include losses of riparian habitat within the project footprint. The proposed project footprint would encompass approximately 0.17 acre of channel bed and bank that is currently dominated by a simple streambank slope and rock revetment. The quality of juvenile rearing and migration habitat in the immediate project area is low because of the very limited amount of substantial "natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks." Only small amounts of these essential elements that are present would be affected by the project. Because of the lack of significant SRA cover and the low quality of existing habitat, no adverse effects to critical habitat would occur in the project area.

Potential reductions in river flow associated with increases in diversion capacity are not expected to appreciably change water quantity, water temperature, and access to cover/shelter. Consequently, the proposed project will not affect critical habitat.

Cumulative Impacts

The proposed project would not result in any significant impacts when considering the mitigation proposed to avoid, minimize, and compensate for impacts. Additionally, the fish screen will result in substantial improvements for fish. The cumulative impact is less than significant.

Cultural Resources

Affected Environment

Regulatory Setting

This section discusses the federal and state policies and regulations relevant to the analysis of cultural resource issues in the project area. No local regulations pertaining to cultural resources are applicable in the project area.

Federal Regulations

Section 106 of the National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code (USC) 470 et seq.), is the primary federal legislation dictating the federal government to consider the effects of its actions on historic properties. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how federal agencies address these effects. Historic properties are defined as those cultural resources listed, or eligible for listing, on the NRHP. The criteria for National Register eligibility are outlined in 36 CFR Part 60.

Compliance with Section 106 (CFR Part 800) follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties. Regulations in 36 CFR Part 800.5 require federal agencies to apply the criteria of adverse effect to historic properties identified within the APE. The criteria of adverse affect, defined in 36 CFR Part 800.5(a)(1), states that:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

State Regulations

California Environmental Quality Act

California Public Resources Code sections 21083.2 and 21084.1 require public agencies to consider the effects of their actions on historical resources and unique archaeological resources. Historical resources are defined as any cultural resource listed on, or determined eligible for listing on, the California Register of Historical Resources (CRHR) (California Public Resources Code Section 21084.1 and California Environmental Quality Act (CEQA) Guidelines Section 15064.5, subds. (a) and (b)). The CRHR includes cultural resources listed, or

formally determined eligible for listing, on the NRHP as well as some California State Landmarks and Points of Historical Interest. A unique archaeological resource is defined as an artifact, object, or site about which it can be clearly demonstrated that there is a high probability that it meets the criteria for listing on the CRHR and the NRHP pursuant to California Public Resources Code, Section 21083.2, subd. [g]).

The public agency has a responsibility to assess whether the actions of a project will cause a substantial adverse change in the significance of a historic resource or unique archaeological resource pursuant to California Public Resources Code Section 21084.1. If a project will adversely affect historic resources or unique archaeological resources, the agencies will resolve those affects in consultation with the Office of Historic Preservation (OHP). Additionally, California Public Resources Code Section 5024 requires consultation with the OHP when a project may affect historical resources located on state-owned land.

As noted above, CEQA also requires lead agencies to consider whether projects will affect "unique archaeological resources." California Public Resources Code Section 21083.2, subdivision [g], states that "'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- is directly associated with a scientifically recognized important prehistoric or historic event or person" (California Public Resources Code, Section 21083.2, subd. [g]).

Environmental Setting

This section discusses the potential for the proposed project to affect cultural resources. A cultural resources study conducted by EN2 Resources, Inc. and Past Forward, Inc. for Yuba City Water Treatment Plant 24 to 30 mgd Water Supply Replacement Project includes the footprint for the current project area. A detailed description of the methods, findings, and conclusions of this study is presented in the *Cultural Resources Inventory Report for the Yuba City Water Treatment Plant 24 to 30 mgd Water Supply Replacement Project* (Quidachay and Baxter 2005). Additionally, Jones and Stokes conducted a records search to ensure that the most current available information was used to supplement the previous study.

Consultation with interested parties was conducted to determine whether there were any specific concerns regarding cultural resources in the project area. EN2 Resources sent letters and coordinated with the Native American Heritage

Commission, the Enterprise Rancheria of Maidu Indians, and the Community Memorial Museum of Sutter County. No additional communication has been received from these organizations to date.

As described in EN2 Resources, Inc. FIS/MND, on February 21, 2005, the Northeast Information Center (NEIC) of the California Historical Resources Information System conducted a thorough search of their records pertaining to the project area (the project corridor, access roads, and staging areas) within a 0.25-mile radius. The NEIC records document a cultural resources survey in a small portion of the project area (Storm 1976).

EN2 Resources and Past Forward, Inc. conducted an intensive pedestrian survey of the project corridor from the Feather River to the WTP (Quidachay and Baxter 2005). A segment of the Southern Pacific Railroad grade was the only cultural resource identified in the project area. This segment was evaluated for significance using the criteria of the NRHP and the CRHR. The resource does not appear to meet the NRHP or CRHR significance criteria and therefore does not constitute a significant cultural resource for the purposes of NEPA or CEQA.

Document research was conducted in two phases. The first phase focused on sources that would assist in providing an overview of the project area's cultural setting. The second phase of research was conducted after cultural resources were identified in the project area as a result of pre-field research, consultation, and the pedestrian survey. This phase of research focused on determining the significance of resources that would be directly affected by project activities. Varied materials were reviewed, including files, maps, and documents located at the following repositories:

- Northeast Center of the California Historical Resources Information System and
- Community Memorial Museum of Sutter County. (Quidachay and Baxter 2005.)

Quidachay and Baxter (2005) recorded the portion of the grade in the present project area and evaluated the earthen levee/railroad grade (KH-12) for significance using the criteria of the NRHP and the CRHR. The resource does not appear to meet the NRHP or CRHR significance criteria and therefore does not constitute a significant cultural resource for the purposes of NEPA or CEQA.

Records search updates conducted in October 2006 by Jones and Stokes indicated that one additional cultural resource survey was conducted within a 0.25-mile radius of the project area (Wickstrom et al. 1989). A review of historic maps indicates that no mapped historic-era cultural resources are located in the project area (General Land Office 1859; U.S. Geological Survey 1909, 1952).

Thresholds of Significance

The criteria used for determining significance of impacts on historical resources are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. An alternative is considered to have a significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of a historical resource as defined in §15064.5;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- disturb any human remains, including those interred outside of formal cemeteries.

Environmental Consequences

No Project Alternative

Under the No Project Alternative, existing conditions would remain the same and there would be no impacts to cultural resources.

Proposed Project

Impact CR-1: Impacts on Known Cultural Resources

The Southern Pacific Railroad grade is not eligible for listing in the CRHR or the NRHP; therefore, no significant cultural resources will be impacted by the project.

Impact CR-2: Impacts on Undiscovered Cultural Resources

During ground-disturbing construction activities, there is potential for discovery of buried cultural resources, including human remains that have not been identified. Environmental Commitments for Cultural Resources as described in Chapter 2, “Description of the Proposed Project and Alternatives,” outline the procedures for addressing cultural resources discovered during construction. This would ensure that impacts on historical resources are less than significant.

Cumulative Impacts

The proposed project does not affect any significant historical resources and if unknown resources are discovered during construction, procedures would be followed to ensure the proper handling of the resources. Therefore, cumulative impact on cultural resources is less than significant.

Hazardous Materials

Affected Environment

Regulatory Setting

This section discusses the federal, state, and local policies and regulations relevant to the analysis of hazardous materials issues in the project area.

Federal Regulations

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the EPA. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in CFR Titles 29, 40, and 49.

Resource Conservation and Recovery Act

The federal Resource Conservation and Recovery Act enables the EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

State Regulations

California regulations are equal to or more stringent than federal regulations. The EPA has granted the State of California primary oversight responsibility to

administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Several key laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to but more stringent than the federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste:

- identification and classification;
- generation and transportation;
- design and permitting of recycling, treatment, storage, and disposal facilities;
- treatment standards;
- operation of facilities and staff training; and
- closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, the California Highway Patrol, RWQCBs, air quality management districts, and Yuba County disaster response offices.

Local Regulations

Yuba City General Plan

The Yuba City General Plan provides guiding and implementing policies for ensuring public safety as it pertains to hazardous materials. The following are applicable to the proposed project:

Guiding Policy

9.5-G-1 Minimize the risk of property damage and personal injury resulting from the production, use, storage, disposal, or transportation of hazardous materials.

Implementing Policy

9.5-I-3 Require the clean-up of sites contaminated with hazardous substances.

Other Laws, Regulations, and Programs

Various other state regulations have been enacted that affect hazardous waste management, including:

- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the State of California to cause cancer; and
- California Government Code Section 65962.5, which requires the Office of Permit Assistance to compile a list of possible contaminated sites in the state.

State and federal regulations also require that hazardous materials sites be identified and listed in public records. These regulations and lists include:

- Comprehensive Environmental Response, Compensation, and Liability Information System;
- National Priorities List for Uncontrolled Hazardous Waste Sites;
- Resource Conservation and Recovery Act;
- California Superfund List of Active Annual Workplan Sites; and
- lists of state-registered underground and leaking underground storage tanks.

Environmental Setting

Hazardous materials and wastes are those substances that, because of their physical, chemical, or other characteristics, may pose a risk of endangering human health or safety or of endangering the environment (California Health and Safety Code Section 25260). Types of hazardous materials include petroleum hydrocarbons, pesticides, and volatile organic carbons.

Hazardous Materials at the Project Site

The California Department of Toxic Substances Control (DTSC) maintains a list of sites in Yuba City that represent hazardous waste facilities subject to corrective action, lands designated as hazardous waste properties or border zone properties, and public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis. The DTSC also includes data gathered by the State Water Board, which reports a list of all Leaking Underground Storage Tank (LUST) sites and all solid waste disposal facilities from which there is a migration of hazardous waste. The nearest confirmed hazardous waste site is approximately 0.7 mile from the project area (California Department of Toxic Substances Control 2009).

Hazardous Materials and Waste Handling and Response

The Sutter County Hazardous Waste Management Plan was adopted in 1990, as required by state law. This plan establishes a waste management hierarchy that focuses on waste reduction and minimization (Dyett & Bhatia 2004). This plan also includes a comprehensive approach to management of hazardous wastes in the County, including education and enforcement efforts to minimize and control the hazardous waste stream and policies to maintain a unified database on businesses that generate waste. The Sutter County Community Services Department is the local agency responsible for enforcing a variety of hazardous material and waste requirements. The majority of the hazardous waste generated in the county (95%) is from small quantity generators, who do not ship hazardous wastes, and from individual households (Dyett & Bhatia 2004). Sutter County's generator programs, as recommended in the Sutter County Hazardous Waste Management Plan, focus on encouraging recycling of waste oil (Dyett & Bhatia 2004). Although some businesses in Yuba City use hazardous materials, hazardous waste is not generated in large amounts. The Yuba-Sutter Household Hazardous Waste Facility in Yuba City collects waste oil and household hazardous wastes. This facility is operated jointly by Yuba and Sutter Counties.

In the event that a hazardous materials spill occurs in the city, the Police and Fire Departments are simultaneously sent to the scene to respond and assess the situation (Dyett & Bhatia 2004). The Fire Department keeps two firefighters with special hazardous materials training on each shift. If a spill occurs on the freeway, the California Highway Patrol would call upon the City's resources in identifying, isolating, and if necessary, evacuating the area.

Sensitive Receptors in the Project Area

Schools are considered sensitive receptors for hazardous material issues because children are more susceptible than adults to the effects of many hazardous materials. No schools are located in the project area.

The nearest airport is Yuba County Airport, located more than 5 miles from the project area in Olivehurst. No private airstrips are near the project area, and no airport land use plans apply to the project area.

Thresholds of Significance

Based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance, it was determined that the proposed project would result in a significant hazardous or hazardous material effect if it would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- 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, would create a significant hazard to the public or the environment;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Environmental Consequences

No Project Alternative

The No Project Alternative would not include construction or other activities that would generate hazardous wastes or use hazardous materials. Additionally, there would be no change in other hazards associated with the continued operation of the existing intake. As such, there would be no impact.

Proposed Project

The proposed project is not located near schools, private airstrips, airports, or wildlands. As such, impacts related to hazards would be a result of use of hazardous materials during construction and operation of the proposed project.

Impact HAZ-1: Exposure to or Release of Hazardous Materials during Construction

Ground-disturbing activities during construction may result in the release of hazardous materials. However, the project area has not been identified as a hazardous waste site, and there are no known hazardous materials in the area that would be disturbed. Additionally, construction activities could result in the accidental release of a hazardous substance such as fuel, oil, or other material from construction equipment, during equipment refueling, or during transport and installation of equipment and materials to the site. Accidental releases of these hazardous substances could contaminate soils and degrade surface water and groundwater quality. Accidental releases also could pose risks to worker safety by exposing workers to hazardous materials. As such, potential impacts associated with hazardous materials could occur during construction but would be localized and temporary in nature. As there are no airports, private airstrips, or schools within a mile of the project area, the project would not cause undue exposure or increase in hazards to off-site sensitive receptors. The potential to expose the environment and workers to hazardous materials therefore is low and would be minimized further by implementing the provisions of a spill prevention and containment plan (Environmental Commitment HAZ-1) as described in Chapter 2, "Description of the Proposed Project and Alternatives." This plan will include measures for responding to and remediating spills that will minimize impacts on surrounding areas. As such, this impact is less than significant.

Impact HAZ-2: Exposure to or Release of Hazardous Materials during Operation

Routine operations and maintenance activities may involve the use of solvents and lubricants. However, operation would not result in hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste. Therefore, this impact is less than significant.

Cumulative Impacts

The proposed project would not contribute to any significant cumulative impacts related to hazards or hazardous materials. As described above, the project has the potential for accidental spills during construction, but environmental commitments would ensure that the potential is small and if such release were to occur, it would be contained. Additionally, the project area is small and construction activities are limited. As such, cumulative impacts would be less than significant.

Visual Quality

Affected Environment

Regulatory Setting

This section discusses the state policies and regulations relevant to the analysis of visual quality issues in the project area. No federal or local regulations pertaining to visual quality are applicable to the proposed project.

State Regulations

California's Scenic Highway Program was created by the California State Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway.

Environmental Setting

The project area is located within areas that have been previously developed or disturbed. Surrounding views are typical of a rural and agricultural environment. Yuba City is surrounded on three sides by rural landscape. Yuba City residents strongly identify with the rural and agricultural setting of Sutter County, and therefore the views and images of orchards and crop rows are considered important aesthetics (Dyett & Bhatia 2004).

The project area is not adjacent to or near a Federal Highway Administration (FHWA)–designated or state-designated Scenic Highway. The project site is located on the western side of the Feather River, east of a walnut grove. Although the LLPS is adjacent to the Feather River, the river and its floodplain are not visible from residential areas and public roadways because of the levee and the walnut grove. The project site has no public access. The Feather River Levee Bike Trail runs on top of the levee; however a half-mile lies between the levee and the eastern side of the walnut grove where the project site is located.

The project area is visible to such viewer groups as boaters, anglers, and swimmers and is also visible from the opposite bank of the Feather River. The current LLPS is visible as well; however, both the LLPS and the project area are partially obscured by trees located along the river bank.

Thresholds of Significance

The criteria used for determining significance of impacts on visual resources are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. An alternative is considered to have a significant impact on 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 within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Environmental Consequences

No Project Alternative

The No Project alternative would not result in any construction or operational changes that could change views or aesthetic character. As such, there would be no impact.

Proposed Project

Neither the intake structure nor the LLPS is located along a state scenic highway. In addition, no trees, rock outcroppings, or historic buildings would be affected as a result of the proposed project.

Impact VIS-1: Temporary Degradation of Visual Quality during Construction

Construction equipment and activities would be visible from the Feather River. The construction would occur over no more than two seasons, and changes in visual quality would be limited to the immediate area of the intake structure. Boaters passing the project site would quickly pass the area of effect, and the overall character of the river would not be substantially changed. Swimmers and

anglers, however, would remain near the project area for longer periods of time than boaters, and thus the visual quality would be slightly degraded for those viewer groups while they are in the area during construction. This impact on the visual quality of the project area would be limited to the construction period, resulting in a temporary impact. Upon completion of construction, the intake area would appear nearly identical to the existing condition. As such, this impact is less than significant.

Impact VIS-2: Permanent Changes in Views, Light, or Glare

The portions of the project that would be visible from either the river or the bank are the LLPS and a portion of the intake structure. Although the intake structure may differ in design from the existing intake structure, the overall viewer response to the new structure would be similar to existing conditions. No changes would be made to the LLPS structure exterior that could affect visual resources in the area. There would be no changes in light or glare because the new intake structure would be made of materials similar to those of the existing structure, there would be no additional lighting, and there would be no changes to the LLPS. This impact is less than significant.

Cumulative Impacts

The proposed project combined with other past, present, and future projects would result in a less than significant cumulative impact because there would be no net change in the visual quality of the diversion area and other projects would generally maintain or improve the visual quality of the Feather River in and around the Yuba City area.

Recreation

Affected Environment

Regulatory Setting

This section discusses the local policies and regulations relevant to the analysis of recreation issues in the project area. No federal or state regulations pertaining to recreation are applicable to the proposed project.

Local Regulations

The Parks, Schools and Community Facilities Element of the Yuba City General Plan identifies the City's long-term program for the development of parks,

schools, and community facilities. The General Plan presents policies to support the implementation of the Feather River Parkway Strategic Plan, a comprehensive plan developed by the City to establish a framework for improvements for lands on the western bank of the Feather River. Proposed uses include a trail system, beaches, river viewing pavilions, boating facilities, and active recreational facilities, such as a golf course (Dyett & Bhatia 2004).

Environmental Setting

The project area is zoned as Open Space and Recreation by the City's General Plan. The proposed project area is adjacent to the Feather River, which hosts a variety of recreation, including fishing and recreational boating.

The Feather River Parkway is a restoration project in the city that recently has received funding for implementation and is expected to be completed within 1.5 years (McIntire pers. comm.). This project would improve the habitat along the river, including restoring woodlands and plantings of native grasses and shade trees, and would install pedestrian and biking trails along with interpretive signage.

Thresholds of Significance

The criteria used for determining significance of impacts on recreation resources are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance. An alternative is considered to have a significant impact on recreation resources if it would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- eliminate or substantially reduce recreational opportunities; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Environmental Consequences

No Project Alternative

Under the No Project Alternative, there would be no construction or operational changes and therefore no impacts on recreation.

Proposed Project

Impact REC-1: Temporary Decrease in Recreational Opportunities

Dewatering a portion of the Feather River channel during project construction would occur during summer, when recreation activity is at its peak. This would result in temporarily decreased opportunities for fishing, swimming, and boating in the project area. It is expected that potential recreationists would use other adjacent areas for recreation. None of the uses is intensive, and this temporary shift to another location would not require construction or improvement of other existing recreation facilities. Other recreation activities that may occur on land may be temporarily affected by construction, but these activities (walking, biking, etc.) would quickly pass the project area, and this effect would not result in a lost opportunity. This impact is less than significant.

Cumulative Impacts

The proposed project combined with other past, present, and future projects would result in a less than significant cumulative impact on recreation. This impact would occur during construction and could result in multiple locations on the Feather River where recreation is prohibited or restricted. This restriction would be less than significant because many areas along the Feather River still would provide recreational opportunities, impacts on recreation would be temporary, and other projects would improve recreational access and opportunities.

Socioeconomics and Housing

Affected Environment

Regulatory Setting

No federal, state or local regulations pertaining to socioeconomics and housing are applicable to the proposed project. However, one of the stated purposes of the Yuba City General Plan is to meet the City's jobs/housing balance objectives and the need for housing in the community. The jobs/housing ratio expected at General Plan buildout of undeveloped areas will be 1.26 jobs for each housing unit (Dyett & Bhatia 2004).

Environmental Setting

The proposed project site is entirely within the boundaries of Yuba City. According to Yuba City's General Plan (Growth Element) early economic growth was related to providing services within a large agricultural area. In addition to agriculture, which served as the traditional employment base for the region, employment cores were developed in downtown Yuba City and at the intersection of SR 20 and SR 99. With substantial growth occurring in the past 20 years, Yuba City is now the economic hub of the surrounding agricultural area, providing services for both city and regional residents. It also is part of the Sacramento metropolitan area economy and is influenced by trends in this larger area (Dyett & Bhatia 2004).

Thresholds of Significance

The criteria used for determining significance of impacts on population and housing are based on the CEQA Guidelines, which require that impacts be evaluated based on thresholds of significance, and professional standards. An alternative is considered to have a significant impact on population, housing, and socioeconomics if it would:

- displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
- result in a reduction in employment and income; or
- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Environmental Consequences

No Project Alternative

The No Project alternative would result in continued diversions from the existing intake facility and the associated changes in population and housing. No construction would occur, so no new jobs or housing needs would be created. There would be no changes in the current population, housing, and income trends in Yuba City. As such, there would be no impact.

Proposed Project

Impact SOC-1: Increased Employment and Income

Construction of the proposed project would require approximately 10 to 15 workers at any given time. These workers are expected to come from the

Sacramento region. The 2-year construction period would generate temporary employment for construction workers and also could indirectly contribute to increased employment related to construction materials. This impact would be beneficial.

Impact SOC-2: Increased Housing Needs

As described under Impact SOC-2, there would be an increase in employment, primarily related to construction workers from Sacramento. There is currently a housing surplus in both the Sacramento and Yuba City areas and no new housing is expected to be constructed to support the proposed project. There would be no impact.

Cumulative Impacts

The proposed project combined with other projects has the potential to cause growth and development in the Yuba City area. This would result in an increase in housing, employment, and income in the region. This regional growth is described and evaluated in the GP EIR. As such, the proposed project would have no additional impacts on housing, employment, or income, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, there would be no change in housing, and only very small, temporary changes in employment and income related to the federal action. As such this cumulative impact is less than significant.

Population and Growth

This section describes the potential growth-inducing effects of the proposed project.

Section 15126 (d) of the CEQA Guidelines requires that growth-inducing effects of a proposed action be addressed. NEPA requires environmental documents to analyze growth-inducing effects that may include changes in patterns of land use, population density, or growth rate and related environmental effects.

Affected Environment

Regulatory Setting

This section discusses the local policies and regulations relevant to the analysis of population and growth issues in the project area. No federal or state regulations pertaining to population and growth are applicable to the proposed project.

Local Regulations

Yuba City General Plan

The Yuba City General Plan states that one of its key initiatives is to retain the compact form of Yuba City and protect the surrounding rural areas with a clearly defined UGB. The policies presented in the Land Use Element relating to the City's growth and expansion focus on containing development within the UGB and preserving the rural, agricultural landscape outside the UGB. Those guiding and implementing policies that are applicable to the proposed project include the following:

Guiding Policies

3.4-G-1 Maintain a well-defined compact urban form, with a defined urban growth boundary and urban development intensities on land designated for urban uses.

3.4-G-2 Promote a balanced land use program that increases the ability of people to live and work in the city.

Implementing Policy

3.4-I-4 Support the County's efforts to maintain viable agricultural uses surrounding the City in areas outside the proposed Urban Growth Boundary.

Environmental Setting

Yuba City had an estimated population of 60,506 in 2006 (California Department of Finance 2006). The city's population is expected to increase to 82,000 in 2010 and 90,800 in 2015, an increase of approximately 36% and 50%, respectively.

Thresholds of Significance

Operating the expanded Feather River intake would be considered growth inducing if it would:

- foster economic, population, or housing growth;

- remove obstacles to growth; or
- encourage or facilitate other activities that cause significant environmental effects.

Environmental Consequences

No Project Alternative

The No Project Alternative would not include expanding the Feather River intake or increasing the amount of water that could be treated at the WTP and delivered within the Yuba City service area. No growth-inducing effects would occur under the No Project Alternative because no additional water would be available for delivery within the Yuba City service area.

Proposed Project

The proposed project would increase the capacity of the intake structure to approximately 48 mgd, 6 mgd more than the current peak capacity of the WTP.

Impact GRO-1: Indirect Growth-Inducement

Operating the expanded Feather River intake would facilitate future growth in the Yuba City service area by creating a larger and more reliable water supply to existing and future municipal and industrial water users. Enhancing the water supply would help foster economic and population growth in Yuba City.

As indicated above, the population of Yuba City is expected to increase by nearly 50% by 2015. This growth would be accommodated by converting existing land uses within Yuba City to residential and commercial uses. This residential and commercial growth could result in significant environmental effects on existing land uses and agriculture (described above under Impact LU-2: Indirect Impacts on Land Use as a Result of Increased Diversions).

Additionally, because the proposed project would remove an obstacle to growth, indirect impacts on terrestrial biological resources would occur due primarily to habitat loss as development is implemented. The potential loss of agriculture and open space have been described in the Yuba City General Plan, and evaluated in the Yuba City General Plan EIR. These land use changes are primarily a conversion from agricultural uses to residential and commercial uses, which would result in a loss of habitat for species that use agricultural land. These impacts are described and evaluated in the GP EIR. As such, the proposed project would have no additional impacts on utilities and services, and no further analysis is necessary (CEQA Guidelines Section 15183 (b) through (d).

As described in Chapters 1 and 2, the federal action is limited to the funding for a portion of the fish screen that is not linked to the new intake diversion rate. As such, there would be no growth-inducing effects related to the federal action and there would be no cumulative impact for purposes of NEPA evaluation.

Indian Trust Assets

Affected Environment

Regulatory Setting

Consistent with President Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," Reclamation assesses the effect of its programs on tribal trust resources and federally recognized tribal governments. Reclamation is tasked with actively engaging federally recognized tribal governments and consulting with such tribes on a government-to-government level (59 FR 1994) when its actions affect Indian Trust Assets (ITAs).

The DOI Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices (U.S. Department of the Interior 1995). Part 512, Chapter 2 of the Departmental Manual states that it is the policy of DOI to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members. All bureaus are responsible for, among other things, identifying any impact of their plans, projects, programs or activities on ITAs; ensuring that potential impacts are explicitly addressed in planning, decision, and operational documents; and consulting with recognized tribes who may be affected by proposed activities.

Consistent with this, Reclamation's Indian trust policy states that Reclamation will carry out its activities in a manner that protects ITAs and avoids adverse impacts when possible, or provides appropriate mitigation or compensation when it is not. To carry out this policy, Reclamation incorporated procedures into its NEPA-compliance procedures to require evaluation of the potential effects of its proposed actions on ITAs (U.S. Department of the Interior, Bureau of Reclamation 1996). Reclamation is responsible for assessing whether the proposed project has the potential to affect ITAs, and will comply with procedures contained in Departmental Manual Part 512.2.

Environmental Setting

The nearest ITA is the Mooretown Rancheria, approximately 21 miles north/northeast of the project area.

Environmental Consequences

No Project Alternative

The No Project Alternative would not result in any construction activities or changes in operation that could affect any ITAs. As such, there would be no impact.

Proposed Project

The proposed project would not affect Indian Trust Assets because the nearest ITA is located approximately 21 miles from the project area, and there are no discernable changes that would occur outside the project area or Yuba City.

Environmental Justice

The concept of environmental justice embraces two principles: (1) fair treatment of all people regardless of race, color, nation of origin, or income and (2) meaningful involvement of people in communities potentially affected by program actions. Low-income populations and minority populations are more likely to be exposed to physical displacement and adverse impacts on their cultural institutions, traditional forms of land use, community cultural character, religious practices, and financial well being.

Affected Environment

Regulatory Setting

This section discusses the federal policies and regulations relevant to the analysis of environmental justice issues in the project area. No state or local regulations pertaining to environmental justice are applicable to the proposed project.

Federal Regulations

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of the order is to avoid the disproportionate placement of any adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations. Executive Order 12898 requires all federal agencies to conduct programs, policies, and activities that subsequently affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have an effect of

excluding persons (including populations) from participation in or denying persons the benefits of those programs, or subjecting persons to discrimination because of their race, color, or national origin. Section 1-101 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority and low-income populations. By memorandum on February 11, 1994, President Clinton directed the EPA to ensure that agencies analyze environmental effects on minority and low-income communities, including human health, social, and economic effects.

Environmental Consequences

No Project Alternative

As there are no impacts related to the No Project Alternative, there would be no environmental justice issues.

Proposed Project

None of the impacts identified above would disproportionately affect low-income or minority groups. The replacement of the existing intake structure on and adjacent to the Feather River would not take place in minority or low-income areas or communities.

Chapter 4
Consultation and Coordination

Introduction

This chapter provides an overview of the permits and approvals that would likely be needed to implement the proposed project and describes the consultation and coordination that the City and Reclamation have had with other agencies to date.

Permits and Approvals

Since there is both City and federal participation in the project, environmental documentation will need to comply with federal, state, and local regulations. The City is serving as lead agency for CEQA compliance, and Reclamation is serving as lead agency for NEPA compliance.

The proposed project may need to receive the following permits and approvals:

- Section 401 Water Quality Certification (or waiver of certification), certifying compliance with state water quality standards, from the Central Valley RWQCB;
- Section 402 National Pollutant Discharge Elimination System (NPDES) Permit from the Central Valley RWQCB;
- Section 404 Permit from the Corps;
- Section 1600 Streambed Alteration Agreement from DFG;
- Central Valley Flood Protection Board Encroachment Permit;
- Section 7 Incidental Take Permit from NOAA Fisheries for winter-run and spring-run Chinook salmon and Central Valley steelhead;
- USFWS Section 7 Incidental Take Permit for valley elderberry longhorn beetle;
- The Natural Communities Conservation Plan Act;
- Section 106 of the National Historic Preservation Act; and
- Section 2081 of the California Fish and Game Code.

Clean Water Act

Federal water quality regulations are established primarily in the CWA and administered by the EPA. These regulations are subsequently implemented primarily by the State Water Resources Control Board (State Water Board), the Corps, and other state agencies as deemed appropriate.

Several sections of the CWA pertain to regulating effects on waters of the United States. Section 101 specifies the objectives of the CWA, which are implemented largely through Title III (Standards and Enforcement) and Section 301 (Prohibitions). Section 401 (Certification) specifies additional requirements for permit review, particularly at the state level. Section 402, the NPDES permit program, is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of the CWA and specifically under Section 404 of the act (Discharges of Dredge or Fill Material).

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval [such as issuance of a Section 404 permit]) must also comply with CWA Section 401. In California, the authority to grant water quality certification has been delegated to the State Water Board, and applications for water quality certification under CWA Section 401 are typically processed by the RWQCB with local jurisdiction. Water quality certification requires evaluation of potential impacts in light of water quality standards and CWA Section 404 criteria governing the discharge of dredged or fill material into waters of the United States. For purposes of this project, Reclamation and the City will submit an application for Section 401 certification from the Central Valley RWQCB.

Section 402—National Pollutant Discharge Elimination System Program

The 1972 amendments to the federal Water Pollution Control Act established the NPDES permit program to regulate discharges of pollutants from point sources (Section 402). The 1987 amendments created a new section to the CWA devoted to stormwater permitting. The EPA has granted the state primacy in administering and enforcing the provisions of the CWA and the NPDES permit

program. The State Water Board issues both general and individual permits for certain activities.

The proposed project has the potential to result in the discharge of pollutants due to erosion during construction near the Feather River. As such, Reclamation will seek a Section 402 permit.

Section 404

Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the United States. Under Section 404, the Corps is responsible for issuing permits authorizing the placement of dredged or fill material into jurisdictional waters of the United States. The proposed project would result in fill related to the intake structure in waters of the United States. As such, Reclamation will obtain a Section 404 permit.

Section 1600 of the California Fish and Game Code—Streambed Alteration Agreement

DFG regulates work that will substantially affect resources associated with rivers, streams, and lakes in California, pursuant to Fish and Game Code Sections 1600–1616. Any action from a public project that substantially diverts or obstructs the natural flow or changes the bed, channel, or bank of any river, stream, or lake or uses material from a streambed must be previously authorized by DFG in a Lake or Streambed Alteration Agreement under Section 1600 of the Fish and Game Code. This requirement may, in some cases, apply to any work undertaken within the 100-year floodplain of a body of water or its tributaries, including intermittent streams and desert washes. As a general rule, however, it applies to any work done within the annual high-water mark of a wash, stream, or lake that contains or once contained fish and wildlife or that supports or once supported riparian vegetation.

The proposed project includes alteration of the Feather River resulting from construction of the new intake facility. As such, the City would need to enter into a Streambed Alteration Agreement with DFG to minimize impacts on fish and wildlife habitat.

Central Valley Flood Protection Board Encroachment Permit

The Central Valley Flood Protection Board (Board) administers permits for projects that are within federal flood control project levees and a Board easement, may have an effect on the flood control functions of project levees, are within a Board-designated floodway, or are within regulated Central Valley

streams listed in Title 23 of the California Code of Regulations. Activities that may require a permit include any project that proposes to work in a regulated stream, a designated floodway on federal flood control project levee slopes, or within 10 feet of the levee toe. As such, the proposed project would need an encroachment permit from the Board.

ESA Section 7 Consultation and California ESA Incidental Take Permit

In support of the required permits and consultations, an ASIP has been prepared (Jones & Stokes 2007) based on literature reviews and site-specific biological surveys that were conducted in and adjacent to the intake site by EN2 (City of Yuba City 2005) and Jones & Stokes during surveys in 2007 and 2008 to assess potential impacts of intake construction on plant and wildlife species in the area. The ASIP, which will serve as a biological assessment for federally listed species and an incidental take permit application for state-listed species, includes measures to comply with the NCCPA. USFWS and NFMS will use the ASIP to issue biological opinions, and DFG will use it to issue an incidental take permit and NCCP.

To date, the City and Reclamation have been informally consulting with USFWS, NOAA Fisheries, and DFG regarding the project description, impacts assessment, and appropriate mitigation measures. Informal consultation has been ongoing since 2006. The final ASIP will be provided to USFWS and NOAA Fisheries in support of ESA Section 7 consultation concurrent with the distribution of this EA/IS. The impacts, mitigation measures, and environmental commitments described in this EA/IS are consistent with the ASIP.

Section 106 of the National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code (USC) 470 et seq.), is the primary federal legislation dictating the federal government to consider the effects of its actions on historic properties. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how federal agencies address these effects. Historic properties are defined as those cultural resources listed, or eligible for listing, on the NRHP. The criteria for National Register eligibility are outlined in 36 CFR Part 60.

Compliance with Section 106 (CFR Part 800) follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties. Regulations in 36 CFR Part 800.5 require federal agencies to apply the criteria of adverse effect to

historic properties identified within the APE. The criteria of adverse affect, defined in 36 CFR Part 800.5(a)(1), states that:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Chapter 5
References

Printed References

Adams, P. B., C. B. Grimes, J. E. Hightower, S. T. Lindley, and M. L. Moser. 2002. *Status Review for North American Green Sturgeon, Acipenser medirostris*. National Marine Fisheries Service. 58 pp.

Barr, C. B. 1991. *The Distribution, Habitat, and Status of Valley Elderberry Longhorn Beetle,* Desmocerus californicus dimorphus. U.S. Fish and Wildlife Service, Sacramento, California.

Bash, J., C. Berman, and S. Bolton. 2001. *Effects of Turbidity and Suspended Solids on Salmonids*. Final Research Report—Research Project T1803, Task 42. Prepared for Washington State Transportation Commission, Department of Transportation. November 2001. 92 pp.

Beamesderfer, R., M. Simpson, G. Kopp, J. Inman, A. Fuller, and D. Demko. 2004. *Historical and Current Information on Green Sturgeon in the Sacramento and San Joaquin Rivers and Tributaries*. August 10. Prepared for State Water Contractors.

Beedy, E. C., and W. J. Hamilton, III. 1997. *Tricolored Blackbird Status Update and Management Guidelines*. Prepared for U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, and California Department of Fish and Game, Bird and Mammal Conservation Program. Sacramento, CA.

———. 1999. Tricolored blackbird (*Agelaius tricolor*) in A. Poole and F. Gill (eds.), *The Birds of North America.* No. 423. Philadelphia, PA: The Academy of Natural Sciences and Washington, D.C.: The American Ornithologists' Union.

Behler, J., and F. King. 1998. National Audubon Society Field Guide to North American Reptiles and Amphibians. New York, NY: Alfred A. Knopf, Inc.

Bell, M. C. 1991. *Fisheries Handbook of Engineering Requirements and Biological Criteria* (third edition). U.S. Army Corps of Engineers, Portland, OR.

Bloom, P. H. 1980. *The Status of the Swainson's Hawk in California, 1979.* (Job II 8.0.) Sacramento, CA: California Department of Fish and Game, Wildlife Management Branch, Nongame Wildlife Investigation.

Buechner, M. 1992. *Preliminary Population Viability Analysis for Bank Swallows (*Riparia riparia*) on the Sacramento River*. California. California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Sec. Rep. 92-01.

CALFED Bay-Delta Program. 2003. *Environmental Water Account Draft Environmental Impact Statement/Environmental Impact Report*. Chapter 9. Available: <http://www.usbr.gov/mp/EWA/docs/DraftEIS-Vol1/Ch9.pdf>. Accessed: September 1, 2008.

California Air Resources Board. 2009. ARB's Emissions Inventory. Last revised: January 9, 2009. Available: <http://www.arb.ca.gov/ei/ei.htm>. Accessed: February 4, 2009.

California Department of Finance. 2006. E-1 City/County Population Estimates. Available: <http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/ReportsPapers.asp>. Accessed: December 20, 2006.

California Department of Fish and Game. 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California. Sacramento, CA.

———. 1998. A Report to the Fish and Game Commission: A Status Review of the Spring-Run Chinook (Oncorhynchus tshawytscha) in the Sacramento River Drainage. Candidate Species Status Report 98-01. June. Sacramento, CA.

———. 2002. California Department of Fish and Game comments to NMFS regarding green sturgeon listing. 79 pp. plus appendices. Sacramento, CA.

———. 2004a. Freshwater Sport Fishing Regulations, 2004–2006. Sacramento, CA.

———. 2004b. *Sacramento River Winter-Run Chinook Salmon. Biennial Report 2002–2003*. June. Prepared for the Fish and Game Commission. Habitat Conservation Division. Native Anadromous Fish and Watershed Branch. Available: <http://www.dfg.ca.gov/fish/documents/SAL_SH/SAL_Chin_WinterR_2003.pdf>. Accessed: September 6, 2007.

California Department of Toxic Substances Control. 2009. EnviroStor database. Available: <http://www.envirostor.dtsc.ca.gov/public/>. Accessed: April 30, 2009.

California Department of Transportation. 1996. *Manual of Traffic Controls for Construction and Maintenance Work Zones*. Vista, CA. Building News Incorporated.

———. 2006. Analysis of Pile Driving Noise Impacts to Listed Salmonids for the Mad River Bridge Replacement Project. Sacramento, CA.

———. 2007. Compendium of Pile Driving Sound Levels. Sacramento, CA.

California Department of Water Resources. 1999a. *Feather River Study, Chinook Salmon Emigration Survey, March–June 1996*. Draft. June. Sacramento, CA.

———. 1999b. Feather River Study, Chinook Salmon Emigration Survey, October–December 1996. Draft. June. Sacramento, CA.

———. 1999c. Feather River Study, Chinook Salmon Emigration Survey, December 1997–June 1998. Draft. June. Sacramento, CA.

———. 2001. Initial Information Package for the Relicensing of the Oroville Facilities, FERC No. 2100. Sacramento, CA.

———. 2003a. Timing, Thermal Tolerance Ranges, and Potential Water Temperature Effects on Emigrating Juvenile Salmonids in the Lower Feather River. Oroville Facilities Relicensing, FERC Project No. 2100. October. Sacramento, CA.

———. 2003b. *River Flow Effects on Emigrating Juvenile Salmonids in the Lower Feather River*. SP-F10 Task 4A. Oroville Facilities Relicensing, FERC Project No. 2100. December. Sacramento, CA.

———. 2003c. *Final Assessment of Potential Sturgeon Passage Impediments.* SP-F3.2 Task 3A. Oroville Facilities Relicensing, FERC Project No. 2100. September. Sacramento, CA.

———. 2004a. *Project Effects on Temperature Regime.* SPW6. Oroville Facilities Relicensing FERC Project No. 2100. Draft Final Report. July. Sacramento, CA.

———. 2004b. *Matrix of Life History and Habitat Requirements for Feather River Fish Species—Hardhead.* SP-F3.2 Task 2, Oroville Facilities Relicensing FERC Project No. 2100. April. Sacramento, CA.

———. 2004c. *Matrix of Life History and Habitat Requirements for Feather River Fish Species—Splittail.* SP-F3.2 Task 2, Oroville Facilities Relicensing FERC Project No. 2100. April. Sacramento, CA.

———. 2004d. *Matrix of Life History and Habitat Requirements for Feather River Fish Species—River Lamprey.* SP-F3.2 Task 2, Oroville Facilities Relicensing FERC Project No. 2100. April. Sacramento, CA.

———. 2006. *California's Groundwater Bulletin 118—Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin*. Department of Planning and Local Assistance. Available: <http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/pdfs_desc/5-21.62.pdf>. Accessed: June 1, 2009.

———. 2007. Draft Environmental Impact Report for Oroville Facilities Relicensing. FERC Project No 2100. May. Sacramento, CA.

California Natural Diversity Database. 2006. RareFind 3, Version 3.0.5. Search of various 7.5-minute USGS quadrangles. California Department of Fish and Game. Sacramento, CA.

———. 2007. RareFind 3, Version 3.0.5. California Department of Fish and Game. Sacramento, CA.

Cech, J. J., S. I. Doroshov, G. P. Moberg, B. P. May, R. G. Schaffter, and D. M. Kohlhorst. 2000. *Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watershed* (Phase 1). Final report to CALFED Bay-Delta Program. Project # 98-C-15.

Central Valley Regional Water Quality Control Board. 1998. *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region*, Fourth Edition, The Sacramento River Basin and the San Joaquin River Basin. Last posted or revised: October 2007. Available: <http://www.swrcb.ca.gov/rwqcb5/water_issues/basin_plans/sacsjr.pdf>. Accessed: June 1, 2009.

City of Yuba City. 2005. Final Initial Study and Mitigated Negative Declaration for the City of Yuba City Water Treatment Plant 24 to 30 MGD Water Supply Replacement Project. Yuba City, CA.

City of Yuba City. 2009. City of Yuba City 2008 Feather River diversions. Data provided by Ian Pietz, Senior Engineer, City of Yuba City.

Cogswell, H. L. 1977. *Water Birds of California*. Berkeley, CA: University of California Press.

Deng, X., J. P. Van Eenennaam, and S. I. Doroshov. 2002. Comparison of early life stages and growth of green and white sturgeon. *Transactions of the American Fisheries Society* 28:237–248.

Dyett & Bhatia. 2003. *Draft Environmental Impact Report for the Yuba City General Plan*. October. San Francisco, CA. Prepared for the City of Yuba City, CA.

Dyett & Bhatia. 2004. *Yuba City General Plan*. Adopted: April 8 (Resolution # 04-049). San Francisco, CA. Prepared in association with Fehr & Peers Associates and Charles Salter Associates. Prepared for City of Yuba City, CA.

Dyett & Bhatia. 2004. *Final Environmental Impact Report for the Yuba City General Plan*. Month. San Francisco, CA. Prepared for the City of Yuba City, CA.

England, A. S., M. J. Bechard, and C. S. Houston. 1997. Swainson's hawk (*Buteo swainsoni*). No. 265 in A. Poole and F. Gill (eds.), *The Birds of North America*. Philadelphia, PA: The Academy of Natural Sciences; Washington, DC: The American Ornithologists' Union.

Feather River Air Quality Management District. 2004. FRAQMD Best Available Mitigation Measures—Construction Activity. Available: <http://www.fraqmd.org/Construction.htm>. Accessed: June 1, 2009.

——. 2006. Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. Marysville, CA.

Federal Highway Administration. 2006. *FHWA Roadway Construction Noise Model User's Guide*. Final report 2006. Washington, DC.

Garrison, Barrett A. 1999. Bank Swallow (*Riparia riparia*) in A. Poole, (ed.) *The Birds of North America Online*. Ithaca, NY: Cornell Lab of Ornithology. Available: <http://bna.birds.cornell.edu/bna/species/414doi:10.2173/bna.414>. Accessed: June 2, 2009.

General Land Office. 1859. Plat of the New Helvetia Rancho. On file at North Central Information Center, California State University, Sacramento, CA.

Godfrey, W. E. 1986. *The Birds of Canada*. Second edition. Ottawa, Canada: National Museum of Canada.

Good, T. P., R. S. Waples, and P. Adams (eds.). 2005. Updated status of federally listed ESUs of West Coast salmon and steelhead. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-NWFSC-66, 598 pp.

Hamilton, W. J. III, L. Cook, and R. Grey. 1995. Tricolored blackbird project 1994. Unpublished report prepared for United States Department of the Interior, Fish and Wildlife Service, Portland, OR.

Hamilton, W. J., III. 2000. *Tricolored Blackbird 2000 Survey and Population Analysis*. Unpublished report prepared for the U.S. Department of the Interior, Fish and Wildlife Service, Portland, OR.

Hanson, C. 2001. Are juvenile Chinook salmon entrained at unscreened diversion in direct proportion to the volume of water diverted? In R. Brown (ed.), Contributions to the biology of Central Valley salmonids. *Fish Bulletin*: 179. Vol. II. Scripps Institution of Oceanography Library. Available: <http://repositories.cdlib.org/sio/lib/fb/179>.

Hastings, M. C. and A. N. Popper. 2005. *Effects of Sound on Fish*. Prepared for the California Department of Transportation. Prime contractor: Jones & Stokes. January. Sacramento, CA.

Herzog, S. K. 1996. Wintering Swainson's hawks in California's Sacramento–San Joaquin River Delta. *Condor* 98:876–879.

Howell, S. N. G. and S. Webb. 1995. *A Guide to the Birds of Mexico and Northern Central America.* New York, NY: Oxford University Press.

Intergovernmental Panel on Climate Change. 2007. *Climate Change 2007: The Physical Science Basis, Summary for Policy Makers*. (Working Group 1 Fourth Assessment Report.) February. Available: <http://www.ipcc.ch/SPM2feb07.pdf>. Accessed: May 24, 2007.

Jones & Stokes. 2009. *Yuba City Feather River Fish Screen Action Specific Implementation Plan—Draft*. October. Sacramento, CA. Prepared for City of Yuba City, CA.

Kindoff, J., and R. Kurth. 2003. *SP F-10, Task 2B Report: 2003 Lower Feather River Steelhead (*Oncorhynchus mykiss*) Redd Survey*. Oroville Facilities Relicensing FERC Project No. 2100. July 10. California Department of Water Resources. Available: <http://orovillerelicensing.water.ca.gov/pdf_docs/07-30-03_env_att_11.pdf>. Accessed: November 3, 2006.

Kohlhorst, D. W., L. W. Botsford, J. S. Brennan, and G. M. Cailliet. 1991. Aspects of the structure and dynamics of an exploited Central California population of white sturgeon (*Acipenser transmontanus*) in P. Williot (ed.), Acipenser: *Acts of the First International Sturgeon Symposium*. October 3–6, 1989. Bordeaux, France, Cemagref-Dicova. 277–293.

Lake, R. G. and S. G. Hinch. 1999. Acute effects of suspended sediment angularity on juvenile coho salmon (*Oncorhynchus kisutch*). *Canadian Journal of Fisheries and Aquatic Sciences* 56: 862–867.

McEwan, D. and T. A. Jackson. 1996. *Steelhead Restoration and Management Plan for California*. Sacramento, CA: California Department of Fish and Game, Inland Fisheries Division.

Meehan, W. R. (ed.). 1991. *Influences of Forest and Rangeland Management on Salmonid Fishes and their Habitats*. (Special Publication 19.) Bethesda, MD: American Fisheries Society.

Moyle, P. B. 2002. *Inland Fishes of California*. Berkeley, CA: University of California Press. 502 pp.

Moyle, P. B., R. D. Baxter, T. Somme, T. C. Foin, and S. A. Matern. 2003. *Biology and Population Dynamics of Sacramento Splittail in the San Francisco Estuary: A Review*. Draft. May 27.

Moyle, P. B., R. M. Yoshiyama, J. E. Williams, and E. D. Wikramanayake. 1995. *Fish Species of Special Concern in California*. Second Edition. Final report to California Department of Fish and Game, contract 2128IF. Sacramento, CA.

National Marine Fisheries Service. 1997a. Fish screening criteria for anadromous salmonids. January. Available: <http://swr.nmfs.noaa.gov/hcd/fishscrn.htm>. Accessed: October 24, 2008.

———. 1997b. *NMFS Proposed Recovery Plan for the Sacramento River Winter-Run Chinook Salmon*. Long Beach, CA: National Marine Fisheries Service, Southwest Region.

———. 1998. A Primer for Federal Agencies—Essential Fish Habitat: New Marine Fish Habitat Conservation Mandate for Federal Agencies.

———. 1999. Endangered and threatened species: threatened status for two Chinook salmon evolutionarily significant units (ESUs) in California. *Federal Register* 64(179): 50394-50415.

———. 2005a. Biological Opinion on the Feather River Water District Long-Term Central Valley Project Water Service Contract Renewal. May 16. Letter to Michael J. Ryan, U.S. Bureau of Reclamation.

———. 2005b. Green sturgeon (*Acipenser medirostris*) status review update. NOAA Fisheries, Southwest Fisheries Science Center.

———. 2006. Biological Opinion for the Sacramento River Flood Control Project, Critical Levee Erosion Repair Project. June 21. Letter to Colonel Ronald Light, U.S. Army Corps of Engineers.

———. 2007. 2007 Federal Recovery Outline for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. National Marine Fisheries Service, Southwest Region. 40 pp.

———. 2008. Proposed Designation of Critical Habitat for the Southern Distinct Population Segment of North American Green Sturgeon Draft Biological Report. September. 90 pp.

Natural Resources Conservation Service. 2005. Web soil survey. Photographed: June 30, 2005. Available: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed: April 29, 2009.

Neff, J. A. 1937. Nesting distribution of the tricolored red-wing. *Condor* 39:61–81.

Pacific Fishery Management Council. 2007. Review of 2006 Ocean Salmon Fisheries. Available: <http://www.pcouncil.org/salmon/salsafe06/salsafe06.html>. Accessed: October 21, 2008.

Parsons, K.C. and T.L. Master. 2000. Snowy egret (*Egretta thula*) in A. Poole and F. Gill (eds.), *The Birds of North America*, No. 489. Philadelphia, PA: The Birds of North America, Inc.

Popper, A. N., T. J. Carlson, A. D. Hawkins, B. L. Southall, and R. L. Gentry. 2006. *Interim Criteria for Injury of Fish Exposed to Pile Driving Operations: A White Paper*. May.

Quidachay, K. and S. Baxter. 2005. Cultural Resources Inventory Report for the Yuba City Water Treatment Plant 24 to 30 MGD Water Supply Replacement Project. April. Prepared for City of Yuba City, CA.

Reynolds, F. L., T. Mills, R. Benthin, and A. Low. 1993. *Central Valley Anadromous Fisheries and Associated Riparian and Wetland Areas Protection and Restoration Action Plan*. Draft. Sacramento, CA: California Department of Fish and Game, Inland Fisheries Division.

Rich, A. A., 1997. Testimony of Alice A. Rich, Ph.D., regarding water rights applications for the Delta Wetlands Project, proposed by Delta Wetlands Properties for Water Storage on Webb Tract, Bacon Island, Bouldin Island, and Holland Tract in Contra Costa and San Joaquin Counties. July. California Department of Fish and Game Exhibit DFG-7. Submitted to State Water Resources Control Board.

Schick, R.S., A.L. Edsall, and S.T. Lindley. 2005. Historical and current distribution of pacific salmonids in the Central Valley, CA. NOAA Technical Memo 369:1-30.

Seesholtz, A., B.J. Cavallo, J. Kindopp, and R. Kurth. 2004. Juvenile fishes of the lower Feather River: Distribution, emigration patterns, and associations with environmental variables. In: Feyrer, F., L. R. Brown, R. L. Brown, J. J. Orsi (eds), Early life history of fishes in the San Francisco Estuary and watershed. *American Fisheries Society Symposium* 39:141–166.

Semenchuk, G. P. (ed.). 1992. *The Atlas of Breeding Birds of Alberta*. Edmonton, Alberta: Federation of Alberta Naturalists..

Smith, A. R. 1996. *Atlas of Saskatchewan Birds*. Regina, Saskatchewan: Saskatchewan Natural History Society.

State Water Resources Control Board. 2006a. Proposed 2006 CWA Section 303(d) list of water quality limited segments. Available: <http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/statetcl_final303d.pdf>. Accessed: May 5, 2009.

———. 2006b. Proposed 2006 CWA Section 303(d) list of water quality limited segments being addressed by USEPA approved TMDLs. Available: <http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/r5_final303dlist.pdf>. Accessed: May 5, 2009.

Storm, D. 1976. Cultural resources assessment within Reclamation District 1500, Sutter County, California (SAC 3) for cultural resources inventory and evaluation for the U.S. Army Corps of Engineers, Sacramento District PL 84-99 levee rehabilitation on the Feather, Bear, Sacramento, and San Joaquin River Systems. On file at Northeast Center, California State University, Chico (I.C. Report #3134).

U.S. Department of the Interior. 1995. *Departmental Responsibilities for Indian Trust Assets* (512 DM 2). December 1.

U.S. Department of the Interior, Bureau of Reclamation. 2008. Biological Assessment on the Continued Long-term Operations of the Central Valley Project and the State Water Project. August. Sacramento, CA.

U.S. Fish and Wildlife Service. 1999. Conservation guidelines for the valley elderberry longhorn beetle. July. Sacramento, California.

———. 2000. *Impacts of Riprapping to Ecosystem Functioning, Lower Sacramento River, California*. U.S. Fish and Wildlife Service, Sacramento Field Office, Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento District.

U.S. Geological Survey. 1909. 7.5-minute Yuba City, California, topographic quadrangle. On file at North Central Information Center, California Historical Resources Information System, Sacramento, CA.

———. 1952. 7.5-minute Yuba City, California, topographic quadrangle. On file at North Central Information Center, California Historical Resources Information System, Sacramento, CA.

University of California Cooperative Extension. 2008. California Fish Website—Hardhead, *Mylopharodon conocephalus*. Last revised: 2003. Available: <http://calfish.ucdavis.edu/calfish/Hardhead.htm>. Accessed: October 21, 2008.

Waters, T. F. 1995. *Sediment in Streams—Sources, Biological Effects and Control*. (American Fisheries Society Monograph 7.) Bethesda, MD.

Wickstrom, C. K. R., C. M. Blount, T. L. Jackson, D. E. Self, and D. J. Theodoratus. 1989. *Historical Overview, Yuba River Basin Project Alternatives*. August. Prepared by BioSystems Analysis, Inc., Santa Cruz, CA (J-443). Prepared for U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA (purchase order no. DACW0589P3119). On file at North Central Information Center, California State University, Sacramento.

Yee, D. G., S. F. Bailey, and B. E. Deuel. 1991. The winter season–middle Pacific Coast region. *American Birds* 45:315–318.

Yoshiyama, R.M., F.W. Fisher, and P.B. Moyle. 1998. Historical abundance and decline of Chinook salmon in the Central Valley region of California. *North American Journal of Fisheries Management* 18:487-521.

Zeiner, D. C., W. F. Laundenslayer, Jr., and K. E. Mayer (eds.). 1988. *California's Wildlife*, Volume 1, Amphibians and Reptiles. California Department of Fish and Game, Sacramento, CA.

Zeiner, D. C., W. F. Laundenslayer, Jr., K. E. Mayer, and M. White (eds.). *1990 California's Wildlife*, Volume 2, Birds. California Department of Fish and Game, Sacramento, CA.

Personal Communication

McIntire, Brad. 2009. Director. Yuba City Parks and Recreation. May 5, 2009—telephone discussion.

Seesholtz, Alicia. 2008. Environmental Scientist. California Department of Water Resources. September 19, 2008—telephone conversation.

Chapter 6

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Appendix A

CEQA Initial Study Checklist

Appendix A
Environmental Checklist

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	❑	❑	■	❑
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	❑	❑	❑	■
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	❑	❑	■	❑
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	❑	❑	■	❑

Discussion

a, c & d
See Chapter 3 Analysis. Changes in aesthetics would be temporary and there would be no substantial changes in the visual quality and character of the area.

b
Neither the intake structure nor the LLPS are located along a state scenic highway. In addition, no trees, rock outcroppings or historic buildings would be affected as a result of the proposed project.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES.** In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	❑	■	❑	❑
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	❑	❑	❑	■
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	❑	■	❑	❑

Discussion

a & c

See Chapter 3 analysis regarding indirect effects on agriculture. The increased diversion amount has the potential to remove an obstacle to planned growth in Yuba City that would result in the conversion of agricultural land to non-agricultural uses.

b

There would be no change in existing zoning by the proposed project and the project area is not under Williamson Act Contract. Therefore there is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III.	**AIR QUALITY.** When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a.	Conflict with or obstruct implementation of the applicable air quality plan?	❑	❑	■	❑
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❑	❑	■	❑
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	❑	❑	■	❑
d.	Expose sensitive receptors to substantial pollutant concentrations?	❑	❑	■	❑
e.	Create objectionable odors affecting a substantial number of people?	❑	❑	❑	■

Discussion

a–d

See Chapter 3 analysis regarding air quality impacts. Air quality would not be substantially affected by construction or operation of the proposed project. No federal, state, or local thresholds would be exceeded.

e

Objectionable odors would not be created as a result of project construction or operations. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	■	❑	❑
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	■	❑	❑
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	❑	■	❑	■
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	❑	■	❑	❑
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	❑	❑	■	❑
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	❑	❑	❑	■

Discussion

a–e

See Chapter 3 regarding the specific impacts of the proposed project on terrestrial and aquatic habitats and species. Some habitat may be modified and some species could be affected by the project, but implementation of mitigation measures and environmental commitments ensures that impacts are less than significant.

f

There are no Habitat Conservation Plans (HCPs) or Natural Communities Conservation Plans (NCCPs) within the project area. However, a Yuba-Sutter HCP/NCCP is currently under development and the proposed project is not expected to conflict with it. Therefore, there is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	❑	❑	❑	■
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	❑	❑	■	❑
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❑	❑	❑	■
d.	Disturb any human remains, including those interred outside of formal cemeteries?	❑	❑	■	❑

Discussion

a
As discussed in Chapter 3 of the EA/IS, no historic resources would be affected by the project. Therefore, there is no impact.

b
As discussed in Chapter 3 of the EA/IS, no archeological resources were identified during the records search and the area has been previously surveyed. No archeological resources would be affected by the project. In addition, Conservation Measures described in Chapter 2, Project Description, would ensure that unforeseen impacts are less than significant.

c
As discussed in Chapter 3 of the EA/IS, there are no paleontological or unique geologic features that would be affected by the project. Therefore, there is no impact.

d
No human remains were discovered as part of the records search or previous cultural surveys conducted in the project area. Conservation measures in Chapter 2 Project Description would ensure that unforeseen impacts are less than significant.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.** Would the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❑	❑	■	❑
	2. Strong seismic groundshaking?	❑	❑	■	❑
	3. Seismic-related ground failure, including liquefaction?	❑	❑	■	❑
	4. Landslides?	❑	❑	❑	■
b.	Result in substantial soil erosion or the loss of topsoil?	❑	❑	■	❑
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	❑	❑	❑	■
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	❑	❑	❑	■
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	❑	❑	❑	■

Discussion

a

See Chapter 3 analysis for discussion of groundshaking, landslide, and liquefaction potential. The proposed project would not substantially change the structures subject to geologic hazards.

b

See Chapter 3 analysis for detailed discussion of erosion potential. The potential erodability of soil in Yuba City is considered slight, since land within the City is generally flat (slopes less than 9%), annual precipitation levels are low (between 15 and 21 inches), and wind velocities are low (Yuba City 2004). Therefore, erosion is not considered a critical issue in Yuba City (Yuba City 2004).

c & d

Subsidence hazard overall is low in Yuba City since the Sacramento and Feather Rivers provide significant groundwater recharge and since City residents do not rely on groundwater for drinking water supply (Yuba City 2004). The extreme southwestern corner of Yuba City is the only area with expansive soils (Yuba City 2004). There are no expansive soils within the proposed project area. There would be no impact.

e

No septic tanks or alternative wastewater disposal systems are included as part of the project. Therefore, there would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	❑	❑	■	❑
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	❑	❑	■	❑
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	❑	❑	■	❑
d.	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, would it create a significant hazard to the public or the environment?	❑	❑	❑	■
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	❑	❑	❑	■
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	❑	❑	❑	■
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	❑	❑	❑	■
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❑	❑	❑	■

Discussion

a–c
See Chapter 3 for a detailed discussion of the pontential for accidental spill during construction. BMPs to minimize the potential for release and contain hazardous materials in the event there is a spill ensure this impact is less than significant.

d
The project is not located in an area where there have been facilities generating hazardous materials or waste and the proposed project would not generate hazardous waste. Therefore there would be no impact.

e & f
The project is not located within an airport land use plan or within two miles of a public airport. There are no additional hazards associated with airports. Therefore there would be no impact.

g
The project would not impair or interfere with any adopted emergency response plans or emergency evacuation plans. Therefore there would be no impact.

h
There would be no changes in the likelihood or wildfire or other hazards and the proposed project would not expose people or structures to the existing risk. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VIII.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a.	Violate any water quality standards or waste discharge requirements?	❑	❑	■	❑
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	❑	❑	■	❑
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	❑	❑	■	❑
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	❑	❑	■	❑
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	❑	❑	❑	■
f.	Otherwise substantially degrade water quality?	❑	❑	■	❑
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❑	❑	❑	■
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	❑	❑	❑	■
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	❑	❑	❑	■
j.	Contribute to inundation by seiche, tsunami, or mudflow?	❑	❑	❑	■

Discussion

a, b, d, & f
See Chapter 3 analysis for a detailed discussion. The proposed project could slightly degrade water quality during construction. Environmental commitments would ensure this impact is less than significant.

c
See Chapter 3 analysis for a detailed discussion. Dewatering of a portion of the Feather River during construction could temporarily affect groundwater recharge. This impact is less than significant.

e
The proposed project would not affect any stormwater drainage systems or provide substantial additional sources of polluted runoff. There is no impact.

g, h, i, & j
The proposed project would change flood, seiche, tsunami, or mudflow risk. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.** Would the project:				
a.	Physically divide an established community?	❑	❑	❑	■
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	❑	❑	❑	■
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	❑	❑	❑	■

Discussion

a–c
See Chapter 3 analysis regarding indirect land use impacts related to the proposed project. These impacts would occur primarily on agricultural land, which are addressed above.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X.	**MINERAL RESOURCES.** Would the project:				
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	❑	❑	❑	■
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	❑	❑	❑	■

Discussion

a & b

Construction of the proposed project would not require any mineral resources or preclude future mineral extraction. Therefore, there are no impacts on mineral resources.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI.	**NOISE.** Would the project:				
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	❑	❑	■	❑
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	❑	❑	■	❑
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	❑	■
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	■	❑
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	■
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	■

Discussion

a, b, & d

See Chapter 3 analysis for detailed discussion of construction and operation noise changes. No sensitive receptors are located within the area that would experience noise level changes above the thresholds during construction. The LLPS is fully contained and therefore, increased operation would not result in a noticeable change in ambient noise. These impacts are less than significant.

c

The proposed project would not result in change in noise levels since the LLPS is fully contained. There would be no impact.

e & f

The proposed project is not located in an airport use plan area or in the vicinity of a private airstrip. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.** Would the project:				
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	❑	❑	■	❑
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	■
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	■

Discussion

a

See Chapter 3 analysis for a detailed discussion of the potential growth-inducing effects of the proposed project. This growth is within the planned urban growth boundary of the City of Yuba City and impacts and mitigation are addressed in the general plan EIR. This impact is less than significant.

b & c

See Chapter 3 analysis regarding potential benefits of the proposed project related to income and employment. No houses would be constructed to accommodate the construction work-force, nor would people be displaced. There would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII.	**PUBLIC SERVICES.** Would the project:				
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
	Fire protection?	❑	❑	❑	■
	Police protection?	❑	❑	❑	■
	Schools?	❑	❑	❑	■
	Parks?	❑	❑	❑	■
	Other public facilities?	❑	❑	❑	■

Discussion

a

There would be no impact to fire and police protection, schools, parks, or other public facilities as a result of the proposed project. The City would not interrupt current water supply while constructing improvements at the LLPS. The project would help to ensure that sufficient water supply would be available to provide reliable fire protection. Therefore, there is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV.	**RECREATION.** Would the project:				
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	❑	❑	■	❑
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	❑	❑	❑	■

Discussion

a

See Chapter 3 for a more detailed discussion of temporary disruptions to recreation in the proposed project vicinity. Other areas in the immediate area would provide recreational opportunities and the disruption would be temporary. Therefore, this impact is less than significant.

b

No recreational facility expansion is planned as part of the proposed project. No adverse physical effects would result. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV.	**TRANSPORTATION/TRAFFIC.** Would the project:				
a.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	❑	❑	■	❑
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	❑	❑	■	❑
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	❑	❑	❑	■
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	❑	❑	■	❑
e.	Result in inadequate emergency access?	❑	❑	❑	■
f.	Result in inadequate parking capacity?	❑	❑	❑	■

Discussion

a, b & d

See Chapter 3 for a detailed discussion of traffic impacts. The proposed project would involve truck trips each day to and from the proposed project site. This would not result in a substantial increase in local traffic. This impact is considered less than significant.

c

The project would not change air traffic patterns. There would be no substantial safety risk as a result. Therefore there is no impact.

e & f

The proposed project would not disrupt emergency access or involve such an increase in traffic that there would be inadequate parking. As such, there would be no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	■	❑
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	■	❑
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	■	❑
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	❑	❑	■	❑
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❑	❑	■	❑
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	❑	■
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	■

Discussion

a–e

See Chapter 3 analysis for a detailed discussion of potential changes in wastewater treatment. The proposed project would increase the amount of water that can be diverted for use in Yuba City under existing entitlements, which could result in an increased demand on wastewater treatment. The proposed project would not exceed requirements of the Central Valley Regional Water Quality Control Board (RWQCB). This impact is less than significant.

f & g

Construction waste generated by the proposed project would be minimal and would not affect the capacity of the local landfill. There would be no impact

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	❑	■	❑	❑
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	❑	❑	■	❑
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	❑	❑	■	❑

Appendix B

Fish Rescue and Salvage Plan

Appendix B
Fish Rescue and Salvage Plan

Fish Rescue and Salvage Plan

The following protection measures will be incorporated to minimize potential effects on fish populations, primarily as a result of construction of the cofferdam for the new intake structure, and to safely rescue fish from the cofferdam before dewatering activities.

Visual Estimate of Fish within Cofferdam

A sheet pile cofferdam will be constructed on the waterside of the riverbank along the outermost edge of the intake structure footprint. The cofferdam will be constructed by placement of drilled or driven piers within the river. Before the cofferdam is completely enclosed, biologists will conduct a visual survey for anadromous salmonids and other fish species by snorkeling within the cofferdam area and using a counting device to record the number of any fish visually observed. Snorkeling will begin at the upstream end of the cofferdam and continue to the downstream end. The biologists will specify the type of fish observed, specifically steelhead or Chinook salmon. The visual surveys will be performed twice. The first survey will serve as a baseline and a second survey will check the accuracy of the first survey. If a major discrepancy is noted between the first and second surveys, a third survey will be performed.

Placement of Crowding Net

Upon the completion of the visual surveys, a crowding net will be placed at the upstream end of the cofferdam. The net will span the width of the cofferdam and will be placed at a depth sufficient to span the deepest reaches of the cofferdam. Biologists or other project staff will move the net from the upstream end of the cofferdam to the downstream end and attach it to a sheet panel pile, thus creating an exclusion area to keep fish from entering the cofferdam. Once the crowding net is in place, divers will conduct another visual survey to determine if fish are located within the cofferdam. If fish remain within the cofferdam, the netting procedure would be repeated. The net would be collapsed, removed from both ends of the cofferdam and gathered together to the surface. Captured fish would immediately be removed from the net and returned to the river.

Reporting Requirements

Upon the completion of the fish rescue and salvage activities, a Fish Salvage Operation Report will be submitted to NOAA Fisheries for review and comment. The report will document the procedures implemented to rescue and salvage fish within the cofferdam and will include information on the number of fish salvaged and the type and size of fish and special-status fish salvaged. The project proponents will respond to any comments by NOAA Fisheries on the report and submit a finalized version in order to comply with appropriate reporting requirements for the project.

Appendix C

U.S. Fish and Wildlife Service Special-Status Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

November 21, 2006

Document Number: 061121112624

Jim James
Jones & Stokes Associates
2600 V Street
Sacramento, Ca 95818

Subject: Species List for Yuba City Feather River Intake Screen

Dear: Interested party

We are sending this official species list in response to your November 21, 2006 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 19, 2007.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 061121112624
Database Last Updated: October 27, 2006

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation became final on May 15, 2006. See our map index.

Species

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha
Central Valley fall/late fall-run chinook salmon (C) (NMFS)
Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Selected Quads

YUBA CITY (544A) SUTTER (544B) GILSIZER SLOUGH (544C) OLIVEHURST (544D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys incluc any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepa for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally liste wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, tra capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by or of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that n result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together t avoid or minimize the impact on listed species and their habitat. Such consultation would resu in a biological opinion by the Service addressing the anticipated effect of the project on listed proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and a likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct a indirect impacts to listed species and compensates for project-related loss of habitat. You shou include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management

considerations or protection. They provide needed space for growth and normal behavior; food, wat air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are n restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See o critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end o your project.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need tc obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 19, 2007.

Table 1. Mitigation and Monitoring Plan for the Yuba City Feather River Intake Screen Environmental Assessment/Initial Study Report

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
AIR QUALITY				
Incorporate the following construction measures: • apply soil stabilizers to inactive areas; • water exposed surfaces 2 times daily; • all earthmoving ceases when winds reach 20 mph; • material transported off site will be covered; • area disturbed by construction will be minimized; • reseed bare areas quickly and continuously; • stabilized roads as quickly as possible at the end of construction. • implement the FRAQMD Fugitive Dust Control Plan; • reduce oxides of nitrogen (NO_X) emissions from off-road diesel-powered; • equipment exhaust will not exceed FRAQMD Visible Emissions Limitations; • contractor is responsible for the viability of equipment; • idling time minimized to 10 minutes; • existing power sources will be used; • owner of equipment responsible to meet CARD or FRAQMD standards. The following measure is to be implemented during construction to minimize ozone precursor impacts on air quality: Implement the FRAQMD Fugitive Dust Control Plan. The proponent shall assemble a comprehensive inventory list of all heavy-duty off-road equipment that would be used an aggregate of 40 or more hours: *Reduce oxides of nitrogen (NO_X) emissions from off-road diesel-powered equipment*; Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions; contractor shall be responsible for ensuring all equipment is tuned and maintained prior to and for the duration of on-site operation; Idling time minimized to 10 minutes; and Existing power sources shall be used. Portable engines and portable engine-driven equipment used at the project work site,	CEQA-triggered mitigation measure	Prior to and during construction	Contractor	Ch. 2: 7

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with CARB or FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.				
BIOLOGICAL RESOURCES				
TERRESTRIAL RESOURCES				
Valley Elderberry Longhorn Beetle To ensure that any additional elderberry shrubs, besides those recorded during the 2009 surveys, are identified, a qualified biologist will perform an elderberry shrub survey before implementation of the project. The biologist will field stake the locations of elderberry shrubs and shrub clusters before construction begins. All surveys will be performed according the USFWS valley elderberry longhorn beetle compensation guidelines (U.S. Fish and Wildlife Service 1999). During the preconstruction and post-construction surveys, the following information will be recorded for each shrub or shrub cluster: • the number of stems greater than 1 inch in diameter, • the number of stems less than 1 inch in diameter, • the approximate height and width of the elderberry shrub or shrub cluster; • the presence of valley elderberry longhorn beetle exit holes, and • the dominant vegetation that is associated with the elderberry shrub or shrub cluster. To reduce potential impacts on elderberry shrubs and valley elderberry longhorn beetle (VELB), all elderberry shrub clusters within the riparian corridor in the vicinity of the proposed project, including the access road, will be surveyed by a qualified biologist and flagged to provide protection from construction activities. The City will also require that the construction contractor educate all contractors and workers at the site regarding the significance of the elderberry shrubs, the need to avoid damaging shrubs, and the possible penalties involved should the shrubs be affected. VELB mitigation also includes daily monitoring and weekly reporting during construction activities along the Feather River. As discussed under Environmental Commitment AQ-1, the City would also develop and implement a fugitive dust	CEQA-triggered mitigation measure	Prior to, during, and after construction	City	Ch 2: 9 Ch. 3: 61

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
control plan and implement other best management practices (BMPs) and techniques to minimize dust in the construction area.				
Raptors Surveys for bald eagle, Swainson's hawk, and white-tailed kite nests will be conducted in all suitable nesting habitat within a 0.5-mile radius of the project area. Surveys for loggerhead shrike nests and tricolored blackbird colonies will be conducted in all suitable nesting habitat within 200 feet of the project area. These surveys will take place 1 week prior to the start of construction activities. Should any nesting sites for bald eagle, Swainson's hawk, and white-tailed kite be found within a 0.5-mile radius or loggerhead shrike or tricolored blackbird nests/colonies be found within a 200-foot radius of the project area during the survey, DFG will be contacted regarding the appropriate actions to be taken (in accordance with DFG standards). Trees containing active nests (i.e., a nest currently in use) will be marked for avoidance until after the young birds have fully fledged. Open agricultural fields, grasslands, and alfalfa fields in adjacent areas identified as potential Swainson's hawk foraging habitat should be avoided.	CEQA-triggered mitigation measure	Prior to, during, after construction	City	Ch 2: 9 Ch. 3: 65
Black-Crowned Night-Heron Preconstruction surveys for black-crowned night-heron rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Surveys will also be performed at all mitigation sites prior to implementation of the mitigation features. Preconstruction surveys will consist of surveying all potential nest sites within ¼ mile of proposed construction and mitigation sites. Surveys will be performed several times during the breeding season to avoid and minimize impacts on late-nesting birds.	CEQA-triggered mitigation measure	Prior, and post construction	City	Ch. 3: 66
Snowy Egret Preconstruction surveys for snowy egret rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. To the greatest extent practicable, major construction activities that will occur within ¼ mile of an active snowy egret rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of	CEQA-triggered mitigation measure	Prior, and post construction	City	Ch. 3: 73

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared.				
Double-Crested Cormorant Preconstruction surveys for snowy egret rookeries will be conducted at and adjacent to all locations to be disturbed by construction to ensure that this species is not nesting in these locations. Preconstruction surveys will consist of surveying all potential nest sites within 0.25 mile of proposed construction features and mitigation sites. To the greatest extent practicable, major construction activities that will occur within ¼ mile of an active double-crested cormorant rookery will be avoided during the breeding season. If practicable, construction activities that will result in the greatest disturbance to an active rookery will be deferred until after or as late in the breeding season as possible. Before the start of the nesting season, the City will remove suitable nest trees in locations where trees are scheduled for removal. Additionally, before February 15 of each construction season, the City will remove all suitable nesting habitat areas where vegetation is scheduled to be cleared.	CEQA-triggered mitigation measure	Prior, and post construction		Ch 3: 94
AQUATIC RESOURCES				
Juvenile Fish The City's plans for the proposed project include a fish screen that would be designed to meet DFG (2000) and NMFS (1996; 1997) requirements (e.g., 1.75 mm slot size and 0.33 fps approach velocity) to conform to salmonid fry criteria.	CEQA-triggered mitigation measure	Prior to, during, after construction	City	Ch 2: 10
Construction-Period Limits In-channel construction, including riverbank and channel-bed construction below the OHWM, will be limited to the summer low-precipitation period (July 1 to October 31) to reduce the likelihood of adverse effects on fish spawning, rearing, and migration. Project construction in the channel will also be subject to the following constraints: Construction requiring stream dewatering, stream crossings, or work in the channel bed will not start before July 1. Upstream passage for fish will be provided through or around the construction site at all times. A cofferdam will be installed in the river to divert streamflow around the construction area of the new fish screen. Limiting in-channel construction to the June 1 to October 31 period will avoid the primary	Environmental Commitment	During construction	Contractor	Ch 2: 10

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
juvenile salmonid rearing and emigration period and the spawning and early rearing periods of other special-status species. Although restricting the construction period will not preclude effects, potential adverse effects will be minimized by implementing the proposed erosion-control measures and conducting all in-water work during periods of lowest juvenile salmonid migration.				
Minimize Noise Impacts on Special-Status Fish Species Potential injury and mortality associated with pile driving will be avoided or minimized by implementing the following noise-reduction measures: In-channel construction, including riverbank and channel-bed construction below the OHWM, will be limited to the summer low-flow period (July 1–October 31) to reduce the likelihood of adverse effects on juvenile salmonids; A cofferdam will be installed around the in-channel construction area, which will be dewatered before additional pile driving and/or construction activities. Once the outer sheet piling is completed, fish will not have access to the construction site, and underwater sounds produced by pile driving will be attenuated. The number and size of piles will be limited to the minimum necessary to meet the engineering and design requirements of the project; Vibratory hammers will be used whenever feasible; and The smallest pile driver and minimum force necessary will be used to complete the work.	Environmental Commitment	During construction	Contractor	Ch 2, p10
Avoid Stranding Impacts A qualified fish biologist shall be on site during the installation of cofferdams and during the cofferdam dewatering process to remove any trapped salmonids and other fish from the cofferdam. The fish will be relocated to suitable habitat upstream of the work area. Protocols for the capture, handling, and release of fish will be developed in cooperation with NMFS, DFG, and the City. Fish biologists will contact NMFS and DFG immediately if any steelhead, Chinook salmon, or green sturgeon are found dead or injured.	Environmental Commitment	Prior to, during, after construction	Contractor	Ch 2, p11
Performance of New Fish Screen The City shall evaluate the performance of the newly constructed fish screen to ensure that the fish screen and pumping plant are operated and maintained in accordance with acceptable fish screen performance criteria. The following steps shall be followed prior to full operation of the facility to ensure proper operation:	Environmental Commitment	Prior to construction	City	Ch 2, p11

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
A draft hydraulic plan will be submitted to NMFS before completion of the project. The plan shall outline in detail a proposed methodology for monitoring the performance of the fish screen to ensure the protection of juvenile salmonids, as outlined in the Guidelines for Developing Post-Construction Evaluation and Assessment Plans and Operations and Maintenance Plans (Guidelines); A draft operations and maintenance plan shall be developed and submitted to NMFS before operations of the pumping plant are initiated. The plan shall act as a manual for operating and maintaining the pumping plant and fish screen in accordance with the Guidelines; An operations and maintenance log shall be maintained by the City on a daily basis. The log shall be made available for inspection by NMFS personnel with 24 hours notice given to the City; and The City shall curtail diversion to the greatest extent possible when any portion of the fish screen structure is damaged or removed for maintenance or repair, which would allow unscreened fish to pass.				
Western Pond Turtle Preconstruction surveys will be conducted by a qualified biologist to determine the approximate population density of turtles in the construction areas. The City will install sheetpiles, coffer dams, or other measures to minimize sedimentation between the in-channel construction zones and adjacent waterways. This system will minimize the degradation of aquatic habitats outside the construction zone and inhibit the movement of turtles into the construction zone. The City will compensate for the unavoidable loss of up to 0.05 acre of riverine habitat by restoring or enhancing in-kind habitat. This compensation will restore or enhance in-kind habitat at a ratio of 2 acres for each acre affected.	CEQA-triggered mitigation measure mitigation measure	Prior to, during, after construction	City	Ch. 3: 76
Spring-Run Chinook Salmon The Central Valley spring-run Chinook salmon Evolutionarily Significant Unit (ESU) includes populations in the Sacramento River and its tributaries in California, including the Feather River, as well as the Feather River Hatchery spring-run Chinook program. To minimize the effects of SRA removal the City will restore habitat adjacent to the intake and/or will purchase the appropriate credits at an agency-approved mitigation bank.	CEQA-triggered mitigation measure	Prior to, during, after construction	City	Ch. 3: 45 Ch. 7: 3
Central Valley Steelhead	CEQA-	Prior to, during,	City	Ch. 3: 44

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
Central Valley steelhead was listed as threatened under the federal Endangered Species Act (ESA) (63 FR 13347, March 19, 1998). This distinct population segment (DPS) consists of steelhead in the Sacramento and San Joaquin River basins in the Central Valley. To minimize the effects of SRA removal the City will restore habitat adjacent to the intake and/or will purchase the appropriate credits at an agency-approved mitigation bank.	triggered mitigation measure	after construction		Ch. 7: 3
VEGETATION				
Avoid and Minimize Disturbance of Valley Riverine Aquatic Habitat To the extent possible, the City will avoid and minimize impacts on the valley riverine aquatic habitat by minimizing the size of the in-water work areas, minimizing the removal or pruning of riparian vegetation, and by implementing the environmental commitments listed in Chapter 2.	Environmental Commitment	Prior to, during, after construction	City	Ch. 3: 59
Compensate for loss of Valley Riverine Aquatic Habitat The City will compensate for the permanent loss of up to 0.05 acre of valley riverine aquatic habitat caused by construction of the project at a ratio of 2 acres for each acre affected, for a total of up to 0.1 acres. The City will purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site.	CEQA-triggered mitigation measure	After construction	City	Ch. 3: 59
Avoid and minimize disturbance of riparian habitat The following measures in the project construction conditions to minimize indirect impacts on riparian habitat and on special-status plants that may occur in this community. • The City will provide a biologist/environmental monitor. • The biologist/environmental monitor will determine the location of environmentally sensitive areas in and adjacent to the project area. • The biologist/environmental monitor will ensure the avoidance of all sensitive habitat areas during construction operations. • The City will provide a worker environmental training program for all construction personnel prior to the start of construction activities. • Where feasible, construction will avoid removal of woody vegetation. • Following construction, the construction contractor will remove all trash and	Environmental Commitment	Prior to, during and after construction	City	Ch. 3: 60

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
construction debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones.				
Compensate for temporary and permanent loss of riparian habitats The City will compensate for the permanent loss of up to 0.05 acre of riparian habitat associated with LLPS construction. The City will purchase the valley foothill riparian habitat as mitigation credits from an approved mitigation bank in the project vicinity or restore or enhance in-kind riparian habitat at a ratio of 2 acres for each acre affected. Revegetation will be planned and implemented prior to the removal of existing riparian vegetation.	CEQA-triggered mitigation measure	Post construction	City	Ch. 3: 61
Compensate for temporary and permanent loss of riparian habitats The City will compensate for the permanent loss of up to 0.05 acre of riparian habitat associated with LLPS construction. The City will purchase the valley foothill riparian habitat as mitigation credits from an approved mitigation bank in the project vicinity or restore or enhance in-kind riparian habitat at a ratio of 2 acres for each acre affected. Revegetation will be planned and implemented prior to the removal of existing riparian vegetation.	CEQA-triggered mitigation measure	Post construction	City	Ch. 3: 61
Impacts to upland cropland The City will design and construct the project to minimize impacts to upland cropland.and will provide monetary compensation to the land owner which may be used to restore upland cropland.	Environmental Commitment		City	Ch. 3: 61
CULTURAL RESOURCES				
If any previously unknown cultural resources are encountered during construction, necessary discovery measures will include (1) shutting down construction activities in the immediate area of a find; (2) notifying the Yuba City Cultural Resources Manager and the lead federal agency; (3) continuing work cessation for a reasonable period of time to allow professional evaluation of finds, as determined by and in consultation with the State Historic Preservation Officer; and (4) providing time and funding for professional recovery and analysis of significant archaeological and historical finds (36 Code of Federal Regulations [CFR] 800.11). If any prehistoric sites are discovered during construction or during further inventory efforts, the Native American Heritage Commission will be consulted prior to any archeological testing of such sites. Discoveries of human remains and associated artifacts during construction will be handled according to the provisions of the California Health and Safety Code, Section 7052, and the California Public	CEQA-triggered mitigation measure	During construction	Contractor	Ch 2, p11

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
Resources Code, Section 5097.99 (i.e., construction activities would cease until the Sutter County coroner is notified, and if remains are Native American, the Native American Heritage Commission would also be notified so that the most likely descendants of the remains might be identified). It should be emphasized that California statutes apply to any human remains, regardless of whether the archaeological site is severely disturbed.				
TRANSPORTATION/TRAFFIC				
Traffic Control Plan The City will develop and implement a traffic control plan to reduce construction-related effects on the local roadway system and avoid hazardous traffic and circulation patterns during the construction period. The traffic control plan will include an emergency access plan. All construction activities will follow the standard construction specifications and procedures of the appropriate jurisdictions. The traffic control plan will include, but not be limited to, the following actions: • Coordinating on construction hours of operation; • Following guidelines for road closures caused by construction activities; • installing traffic control devices; • Notifying the public of temporary road, bike lane and recreational trail closures; • Providing access to driveways and private; • Monitoring road and bike lane damage; and • develop an emergency access plan for emergency vehicle access into and adjacent to the construction zone.	Environmental Commitment	Prior to construction	City	Ch 2, p12
WATER QUALITY				
Stormwater Pollution Prevention Plan To address potential water quality impacts during construction, the City or its contractor will prepare a stormwater pollution and prevention plan (SWPPP) acceptable to the Regional Water Quality Control Board (RWQCB). The construction contractor hired by the City will be responsible for implementing the BMPs identified in the plan as well as daily monitoring and weekly reporting on the effectiveness of the measures. To minimize the mobilization of sediment to adjacent water bodies, the following BMPs will be included in the SWPPP, which will be included in the construction specifications and the project performance specifications		Prior to construction	City	Ch 2, p13

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
based on standard City measures and standard dust-reduction measures: Final selection of BMPs will be subject to review by the City. The City will verify that a notice of intent (NOI) and a SWPPP have been filed before allowing construction to begin. The City or its agent shall perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.				
Obtain Dewatering Permit Dewatering of the project area in the Feather River will likely require a General Dewatering Permit issued by the RWQCB. The RWQCB has also adopted a General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (General Dewatering Permit). To obtain coverage, the City will submit an NOI and a pollution prevention and monitoring program (PPMP). The PPMP must include a description of the discharge location, discharge characteristics, primary pollutants, receiving water, treatment systems, spill prevention plans, and other measures necessary to comply with discharge limits. A representative sampling and analysis program will be prepared as part of the PPMP and implemented by the applicant, along with record keeping and quarterly reporting requirements during dewatering activities.	Environmental Commitment	Prior to construction	City	Ch 2, p13
HAZARDOUS MATERIALS				
A written description of reportable releases must be submitted to the Central Valley RWQCB. This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled; the date of the release; an explanation of why the spill occurred; and a description of the steps taken to prevent and control future releases. The releases shall be documented on a spill report form. If an appreciable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis shall be performed to identify the likely cause of contamination, and recommendations shall be made for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the City and its contractors will select and implement measures to control contamination, with a performance standard that surface water and/or groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City. Implementation of measures to avoid or minimize the effects of increased sediment input will also avoid and minimize increased input of pollutants associated with	Environmental Commitment	Prior to, during, after construction	Unknown	Ch 2, p14

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
sediments (e.g., mercury) and the potential for subsequent effects on biological and human resources.				
Spill Prevention, Control, and Countermeasure Plan The City will minimize the potential for a hazardous materials release into the proposed project area by preparing or requiring the construction contractor to prepare a Spill Prevention, Control, and Countermeasures Plan (SPCCP) prior to the start of construction. The SPCCP will require approval from the State Water Board prior to implementation of the proposed project and require trained staff who are familiar with implementation of the plan requirements in case of a spill. With the implementation of the plan, the City will anticipate a less-than-significant impact from the accidental release of hazardous materials. Additionally, the SPCCP will require gas-powered generators a minimum of 100 feet from water sources to minimize the potential for spills into the Feather River. The SPCCP will be completed before any construction activities begin, and the City will review and approve the SPCCP before the onset of construction activities. The City will routinely inspect the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained. The City will notify its contractors immediately if there is a noncompliance issue and will require compliance. The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that • violates applicable water quality standards; • causes a film or sheen on, or discoloration of, the water surface or adjoining shoreline; or • causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. If a spill is reportable, the contractor's superintendent will notify the City, and the City will take action to contact the appropriate safety and cleanup crews to ensure that the SPCCP is followed.	Environmental Commitment			
ENVIRONMENTAL TRAINING				
Environmental Training Program for Project Personnel The City will inform field management and construction personnel of the need to avoid and protect resources. Communication efforts will occur at preconstruction meetings so that construction personnel are aware of their responsibilities and the	Environmental Commitment	Prior to construction	City	Ch 2, p15

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
importance of compliance. Construction personnel will be educated on the types of sensitive resources located in the project area and the measures required to avoid impacts on these resources. They will attend an environmental training program before groundbreaking activities associated with the proposed project are initiated. Materials covered in the training program will include environmental rules and regulations for the proposed project and requirements for limiting activities to the construction right-of-way/footprint and avoiding demarcated sensitive resources areas. Training seminars will be held to educate construction supervisors and managers on • the need for resource avoidance and protection, • construction drawing format and interpretation, • staking methods to protect resources, • the construction process, • roles and responsibilities, • project management structure and contacts, • environmental commitments, and • emergency procedures.				
Traffic Control Plan See Traffic Control Plan above.		Prior to construction	City	Ch 2, p12

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
GEOLOGY				
Erosion and sediment control plan The City would prepare and implement an erosion and sediment control plan as part of a SWPPP to address erosion, stormwater runoff, sediment, and other construction-related pollutants during project construction and until all areas disturbed during construction have been permanently stabilized. The specific BMPs that would be incorporated into the erosion and sediment control plan and SWPPP would be determined during the final design phase and would be prepared in accordance with the RWQCB Field Manual.	Environmental commitment	Prior to, during, after construction	City	Ch. 3: 30
VEGETATION				
Avoid and Minimize Disturbance of Valley Riverine Aquatic Habitat To the extent possible, the City will avoid and minimize impacts on the valley riverine aquatic habitat by minimizing the size of the in-water work areas, minimizing the removal or pruning of riparian vegetation, and by implementing the environmental commitments listed in Chapter 2.	Environmental Commitment	Prior to, during, after construction	City	Ch. 3: 59
Compensate for loss of Valley Riverine Aquatic Habitat The City will compensate for the permanent loss of up to 0.05 acre of valley riverine aquatic habitat caused by construction of the project at a ratio of 2 acres for each acre affected, for a total of up to 0.1 acres. The City will purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site.	CEQA-triggered mitigation measure	After construction	City	Ch. 3: 59
Avoid and minimize disturbance of riparian habitat The following measures in the project construction conditions to minimize indirect impacts on riparian habitat and on special-status plants that may occur in this community. • The City will provide a biologist/environmental monitor. • The biologist/environmental monitor will determine the location of environmentally sensitive areas in and adjacent to the project area. • The biologist/environmental monitor will ensure the avoidance of all sensitive habitat areas during construction operations. • The City will provide a worker environmental training program for all construction personnel prior to the start of construction activities.	CEQA-triggered mitigation measure	Prior to, after, during construction	City	Ch. 3: 60

Description of Measure	Type of Action	Implementation Schedule	Party Responsible for Implementation/Verification	Location
• Where feasible, construction will avoid removal of woody vegetation. • Following construction, the construction contractor will remove all trash and construction debris and implement a revegetation plan for temporarily disturbed vegetation in the construction zones.				
Compensate for temporary and permanent loss of riparian habitats The City will compensate for the permanent loss of up to 0.05 acre of riparian habitat associated with LLPS construction. The City will purchase the valley foothill riparian habitat as mitigation credits from an approved mitigation bank in the project vicinity or restore or enhance in-kind riparian habitat at a ratio of 2 acres for each acre affected. Revegetation will be planned and implemented prior to the removal of existing riparian vegetation.	CEQA-triggered mitigation measure	Post construction	City	Ch. 3: 61
Impacts to upland cropland The City will design and construct the project to minimize impacts to upland cropland according to Environmental Commitment BIO-1 and will provide monetary compensation to the land owner which may be used to restore upland cropland.	Environmental Commitment		City	Ch. 3: 61

CEQA Addendum
Yuba City Feather River Fish Screen

Prepared for:

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Prepared by:

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Summary of this document

This addendum assesses the environmental impact of refinements to the City of Yuba City Feather River Fish Screen (Project) under consideration as required by the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] 21000 et seq.) and in compliance with the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.).

The fundamental conclusion of this addendum is that the revised project will not result in new significant impacts beyond those already identified in the 2010 adopted Negative Declaration ("ND") for the original project and will not result in substantially more severe impacts than disclosed in the ND. Thus, a subsequent or supplemental EIR or ND need not be prepared.

The City of Yuba City ("City"), as the lead agency under CEQA, will consider the potential environmental impacts of the revised project when it considers whether or not to approve changes to the originally proposed project. This Addendum is an informational document to be used in the local planning and decision-making process. The Addendum does not recommend approval or denial of the proposed project or the proposed project refinements.

California Environmental Quality Act (CEQA)

Under CEQA Guidelines Section 15164, an addendum to an adopted negative declaration shall be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent negative declaration or Environmental Impact Report (EIR) have occurred. Under Section 15162, the lead agency shall prepare an EIR if there are any new significant environmental effects associated with the refined project. With respect to the Project, the refinements are only minor technical changes and do not result in any new significant environmental effect(s); therefore, the refined Project does not require an EIR. This addendum analyzes the Project refinements as required under the CEQA Guidelines, Sections 15162 and 15164.

Background

The Yuba City Feather River Fish Screen Negative Declaration (State Clearinghouse number 2009112013) was drafted to analyze the potential environmental impacts of replacing an existing unscreened intake on the Feather River with a new screened intake, and modifying the associated Low-Lift Pump Station (LLPS) to include a new manifold and façade. The ND was also drafted to analyze modification of piping between the new intake structure and existing LLPS to accommodate the new intake structure design, as

well as improvement of a road that runs east/west from the project site through an orchard that would enable access during winter months and storm events.

Project Description

The adopted ND stated that the proposed project would cause the permanent loss of 0.05 acre of open water because of the construction of permanent structures in the river, as detailed in *Impact BIO-1: Loss of Valley Riverine Aquatic Habitat.* (City of Yuba City, 2010) The ND stated that these impacts would be significant, and mitigation was detailed in *Mitigation Measure VRAQ-2: Compensate for Loss of Valley Riverine Aquatic (Open Water) Habitat* whereby the City would compensate for the permanent loss of the valley riverine aquatic habitat caused by construction of the project at a ratio of 2 acres for each acre affected, for a total of up to 0.1 acre. The ND stated the City would purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site.

During preparation of the *Restoration and Long Term Management Plan for the Yuba City Feather River Fish Screen Project* (City of Yuba City, 2012), it was determined that permanent disturbance of waters of the United States (i.e., valley riverine aquatic habitat) due to the proposed project would in fact include the permanent loss of 0.132 acre of valley riverine aquatic habitat, due to construction of permanent structures in the river and the placement of riprap and cofferdams or sheet piles during the construction period. Therefore, the revised project includes the permanent loss of an additional 0.082 acres of valley riverine aquatic habitat as compared to the proposed project.

While the ND stated that the City would compensate for a total of up to 0.1 acre for the permanent loss of riverine aquatic habitat caused by construction of the proposed project, the revised project would compensate for a total of up to 0.264 acre of riparian habitat for such losses. In addition, while the original mitigation plan intended that all mitigation occur within the project site, the revised project will include a downstream mitigation site, as shown in Figure 4, "Intake Facility Impact Area and Mitigation Site Locations Overview," as depicted in the *Restoration and Long Term Management Plan for the Yuba City Feather River Fish Screen Project.* (City of Yuba City, 2012)

Project Impacts

A summary of project specific, potentially significant impacts are as follows:

Biological Resources

The ND identified the following relevant project-specific impacts to Biological Resources. Please refer to page 3-76 of the ND for more detailed information.

- **Loss of Valley Riverine Aquatic Habitat: Permanent and temporary disturbance of valley riverine aquatic habitat would occur during construction of the project.**

The refined project would result in effects to biological resources more severe than those described in the ND (a permanent loss of 0.082 acre more of valley riverine aquatic habitat than the proposed project). This would remain a significant impact, as determined in the ND. However, the mitigation measures contained in the Biological Resources section of the ND would be adequate to mitigate potentially significant biological resources impacts associated with the proposed project to a less than significant level.

The refined project would utilize the same mitigation ratio of 2 acres of mitigation for each acre affected detailed in the ND. In addition, as in *Mitigation Measure VRAQ-2: Compensate for Loss of Valley Riverine Aquatic (Open Water) Habitat* in the ND, the City may purchase the valley riverine aquatic habitat as mitigation credits from an approved mitigation bank in the project vicinity or compensate on site. While the mitigation plan had originally stated the compensation would occur on site, compensation in the project vicinity would occur with the revised project both on site and off site and would be considered adequate to reduce project impacts associated with biological resources to a less than significant level.

Regarding offsite impacts associated with the revised project mitigation, there would be no additional impacts associated with offsite creation of compensatory riverine aquatic habitat, as the creation of such habitat would result in a net environmental benefit to the affected areas. All impacts as a result of the offsite compensatory mitigation plantings are consistent with the ND findings.

Conclusion

It is the finding of the City of Yuba City that the previous environmental document as herein amended may be used to fulfill the environmental review requirements of the revised project. Because the revised project meets the conditions for the application of State CEQA Guidelines Section 15164, preparation of a new EIR or Negative Declaration is not required for the issue areas discussed above.

Discretionary processing of the Yuba City Feather River Fish Screen may now proceed with the understanding that any substantial changes in the proposal may be subject to further environmental review.

References

City of Yuba City, 2010. Yuba City Feather River Fish Screen Environmental Assessment. Yuba City, California.

City of Yuba City, 2012. Restoration and Long Term Management Plan for the Yuba City Feather River Fish Screen Project. Yuba City, California.

Notice of Determination

Form C

To: ☐ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street
Sacramento, CA 95814

☒ County Clerk
County of: Sutter
Address: 1160 Civic Center Blvd
Yuba City, CA 95993

From: Public Agency
Agency: City of Yuba City
Utilities Department
Address: 302 Burns Drive
Yuba City, CA 95991
Contact: William P. Lewis
Telephone: (530) 822-4639

Lead Agency (if different from above)
Agency:
Address:
Contact:
Telephone:

FILED
JAN 14 2010
BOARD OF SUPERVISORS
DONNA M. JOHNSTON
Clerk of the Board
By Deputy

SUBJECT: **Filing of Notice of Determination in Compliance with Section 21108 or 21152 of the Public Resources Code**

State Clearinghouse Number (if submitted to State Clearinghouse): 2009112013

Project Title: Yuba City Feather River Fish Screen Project

Project Location (include county): Yuba City, Sutter County, Cross Streets: Sumner St, Hwy 20, 10th Street Bridge

Project Description: See attached.

This is to advise that The City of Yuba City
☒ *Lead Agency* or ☐ *Responsible Agency* has approved the above-described project on 12/15/09
and has made the following determinations regarding the above-described project:

1. The project ☐ *will* ☒ *will not* have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures ☒ *were* ☐ *were not* made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan ☒ *was* ☐ *was not* adopted for this project.
5. A Statement of Overriding Considerations ☐ *was* ☒ *was not* adopted for this project.
6. Findings ☐ *were* ☒ *were not* made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the Negative Declaration, is available to the General Public at: City of Yuba City, Utilities Department, 302 Burns Drive, Yuba City, CA 95991

William P. Lewis — *Signature* (Public Agency)
Utilities Director — *Title*
1/12/10 — *Date*

Date received for filing at OPR: 1/12/10

Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21000–21174, Public Resources Code.

Revised 2004

COUNTY of SUTTER
STATE OF CALIFORNIA

OFFICIAL RECEIPT

№ 221777

Clerk of The Board
Issuing Office or Department

1/14/10
DATE

RECEIVED FROM City of Yuba City

THE SUM OF Two thousand Sixty + 25/100 $ 2,060.25

FOR MND - Neg. Dec - Yuba City Feather River Fish Screen Project

PAID BY CASH ☐

CK./M.O. ☒ BK. NO. 11-24

RECEIVED BY Lisa Bush

TITLE Deputy

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME
2010 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 392204

STATE CLEARING HOUSE # (If applicable) 2009112013

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY: City of Yuba City - Utilities Department — DATE 1-14-10

COUNTY/STATE AGENCY OF FILING: Sutter County / CA — DOCUMENT NUMBER —

PROJECT TITLE: Yuba City Feather River Fish Screen Project

PROJECT APPLICANT NAME: Same as (Lead) — PHONE NUMBER 530 822-4639

PROJECT APPLICANT ADDRESS: 302 Burns Drive — CITY: Yuba City — STATE: CA — ZIP CODE: 95991

PROJECT APPLICANT *(Check appropriate box)*:
☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$2,792.25	$
☒ Mitigated/Negative Declaration (ND)(MND)	$2,010.25	$ 2,010.25
☐ Application Fee Water Diversion *(State Water Resources Control Board Only)*	$850.00	$
☐ Projects Subject to Certified Regulatory Programs (CRP)	$949.50	$
☒ County Administrative Fee	$50.00	$ 50.00
☒ Project that is exempt from fees		
☐ Notice of Exemption		
☐ DFG No Effect Determination (Form Attached)		
☐ Other		$

PAYMENT METHOD:
☐ Cash ☐ Credit ☒ Check ☐ Other

TOTAL RECEIVED $ 2,060.25

SIGNATURE X Lisa Bush

TITLE Deputy

WHITE - PROJECT APPLICANT YELLOW - DFG/ASB PINK - LEAD AGENCY GOLDEN ROD - COUNTY CLERK FG 753.5a (Rev. 11/09)

DRAFT

MINUTES
REGULAR MEETING
CITY COUNCIL & REDEVELOPMENT AGENCY
CITY OF YUBA CITY
DECEMBER 15, 2009
5:30 p.m.—Closed Session
7:00 p.m.—Regular Meeting

Closed Session 5:30 p.m.—Butte Room

Conferred with legal counsel regarding potential litigation pursuant to Government Code Section 54956.9 (c)-one potential case.

Conferred with labor negotiators Steven Jepsen and Steve Kroeger regarding negotiations with the following associations: Yuba City Police Officers, Police Sergeants, Yuba City Firefighters Local 3793, Yuba City Fire Management, Confidential Employees, Executive Services Employees, First Level Managers, Mid Managers, and Yuba City Employees, pursuant to Section 54957.6 of the Government Code.

Regular Meeting 7:00 p.m.—Council Chambers

Call To Order

The City Council of the City of Yuba City was called to order by Mayor Gill at 7:00 p.m.

Roll Call

Present: Councilmembers Dukes, Maan, McBride, and Mayor Gill
Absent: Councilmember Miller

Invocation

Councilmember Dukes gave the invocation.

Pledge of Allegiance to the Flag

Councilmember McBride led the Pledge of Allegiance to the Flag.

Presentations and Proclamations

1. Presentation of Star Bend Levee Realignment Project by Levee District 1

Levee District I Director Francis Silva thanked Councilmembers and the City for their contributions to the Star Bend Project and presented the Mayor with a photograph of the project.

Public Hearings

2. Proposed Levy of the 2010 Annual Assessment of the Downtown Yuba City Business Improvement District

Assistant City Manager Steve Kroeger stated that at the December 1, 2009 City Council meeting, Council approved setting the public hearing to address the levy of the annual assessments for the Downtown Business Improvement District.

Mayor Gill opened the public hearing. Tim McKenna, 668 Plumas Street, spoke in favor of the levy for the annual assessments.

Hearing no further comment, Mayor Gill closed the public hearing.

Councilmember Maan moved to adopt Resolution No. 09-117 confirming the Annual Report for the Yuba City Downtown Business Association and levying the assessment for the Downtown Business Improvement District for Calendar Year 2010. Councilmember McBride seconded the motion that passed with a unanimous vote.

Public Communication on Items Not on the Agenda

3. **Written Requests** - none

4. **Appearance of Interested Citizens** – none

Bid Openings

5. **Sewer Line to 211 South Walton Avenue – Former Fire Station #4 Site (Award of Contract)**

Public Works Director George Musallam said this item deals with the old Fire Station #4 on Walton Avenue. Council directed staff to look for other uses of this property. One of these is the homeless cold weather shelter established for this winter only. For this use and future uses, we must abandon the septic system and connect to the City's sewer system. Public Works bid the project and received four bids with the lowest bidder being Fletcher's Plumbing with a bid of $57,070. The engineer's estimate was $74,000. Mayor Gill stated there has been discussion about using this property as a youth center and asked if this system will support that use. Mr. Musallam replied it would.

Councilmember McBride moved to (a) Award Contract No. 09-31, Sewer Line to 211 South Walton Avenue, to Fletcher's Plumbing & Contracting, Inc., of Yuba City, CA in the amount of their bid of $57,070 with a contingency of $10,000; (b) Authorize the City Manager to execute the contract on behalf of the City, following approval by the City Attorney and (c) Authorize the Finance Director to make supplemental appropriations of reimbursement of extension fees collected from the benefiting properties from the Sewer Enterprise Fund to the Community Facilities Fund when these properties connect to City sewer. Councilmember Dukes seconded the motion that passed with a unanimous vote.

Consent Calendar

Councilmember Dukes moved to adopt the consent calendar as presented. Councilmember McBride seconded the motion that passed with a unanimous vote.

6. **City Council Approval of Minutes of October 20, November 3 and 17, and December 1, 2009**

Approved the City Council meeting minutes of October 20, November 3 and 17, and December 1, 2009.

7. Annual Boards and Commissions Local Appointment List

Directed staff to post the Annual City of Yuba City Boards and Commissions Appointment List according to the Maddy Act Requirements

8. Transportation Development Act (TDA) Claim for FY 2009-2010

Adopted Resolution No. 09-118 authorizing submission of the City's FY 2009-2010 TDA claim to the Sacramento Area Council of Governments (SACOG).

9. Submission of re-certification application for Tree City USA Designation

Adopted Resolution No. 09-119 authorizing the City to submit an application for re-certification to the National Arbor Day Foundation for consideration of the City continuing its designation as a Tree City USA community.

10. Reeves Avenue Parking Lot Improvements (Notice of Completion)

Adopted Resolution No. 09-120 accepting the subject project and authorizing the Public Works Director to file a Notice of Completion.

11. Garden Highway & Franklin Avenue Signal Project (Notice of Completion)

Adopted Resolution No. 09-121 accepting the subject project and authorizing the Public Works Director to file a Notice of Completion.

12. Yuba City Feather River Fish Screen Mitigated Negative Declaration Adoption

After consideration of the Mitigated Negative Declaration adopted the following: (a) the finding that following review and consideration of the Mitigated Negative Declaration and any comments received, there is no substantial evidence that the project will have a significant impact on the environment, and (b) the Mitigated Negative Declaration as contained in Exhibit A.

General

13. Discussion regarding potential allowances for (1) temporary banner signs during the current economic downturn; and (2) the potential for regulating "going out of business" sales and events

Community Development Director Aaron Busch said the first part of this item is to discuss possibly making an exception to the City's current sign standards to allow temporary banners during this depressed economic climate and to discuss regulation of going out of business sales. Earlier this year Council approved the corridor enhancement strategy. Sign enforcement was proactive on Highway 20 and Highway 99. Recently, a business owner has asked for relaxation of the temporary banner sign ordinance due to the current economy and until the economy improves. Staff looked at other jurisdictions to see if they have provisions for relaxing sign ordinances in a downturn in the economy. Only one jurisdiction has such an allowance. If Council is inclined to make allowances for temporary banners, staff asks for that direction.

The second part of this item is regarding going out of business sales. It has been a recurrent problem with several businesses going out of business for at least three years. Strict enforcement of the sign code would remedy this problem, which allows for 30 day periods of temporary signage. There appears to be no state law regulating this, but some local jurisdictions have ordinances. They issue a license or permit to ensure there isn't a steady stream of product coming from other stores.

Councilmember McBride said that while she supports the sign ordinance; now is not the time to handicap local businesses, and we should consider the economy.

Mayor Gill noted he has spoken to local businesses recently and apparently the banners do make a difference. In light of the current economy, Council has reduced impact fees, helped the businesses on Plumas Street with the loan forgiveness program, and backed the Shop Local Campaign. Perhaps we need to consider allowances for temporary banners with a review in about a year. On the second issue, Mayor Gill supports enforcement of the sign ordinance on going out of business banners or signs.

Mayor Gill asked if anyone from the public would like to speak on this item. Chris Swinney, 3078 Caminito Avenue, Yuba City, spoke in favor of allowing flexibility of the sign and banner ordinance. He gave Council photographs of violations of the sign ordinance he found today.

Councilmember Dukes noted it took two years to put the sign ordinance in place. At that time he stated that if we do not enforce it, then the effort would be in vain. As far as the going out of business banners, he agreed that is the marketing strategy for those businesses. He said he feels the going out of business sign ordinance should be enforced.

Councilmember Maan said it is deceitful to use going out of business sales, and we need to enforce the ordinance. On the issue of temporary banner signs, Councilmember Maan agreed with Councilmember Dukes that a lot of time and effort was spent on the sign ordinance. It was a thoughtful and thorough process. For the past six months we've been cleaning up the corridors from the proliferation of signs and now we're being asked to abandon that effort.

Mayor Gill said that, as previously stated, we have helped other businesses in a variety of programs and now we may need to reconsider our stance on signs and banners due to the slow economy. Councilmember McBride added that while she believes in the sign ordinance, it was put together under different economic times. She said she is opposed to enforcing the ordinance at this time. Councilmember Dukes asked Mr. Busch if we do a temporary change on the ordinance does that suspend the current ordinance. Mr. Busch replied he would advocate that we go forward with enforcing the special events. A temporary banner/sign permit could be added in addition to the existing ordinance. Councilmembers asked Mr. Busch to return to Council with (1) a temporary permit program for banners and signs, and (2) more restrictive regulations on going out of business sales and events.

Business from the City Council/Redevelopment Agency Board

14. Discuss Cancellation of January 5, 2010 Council Meeting

Mayor Gill asked if Councilmembers would support cancellation of the January 5, 2010 Council Meeting and Council agreed.

Councilmember McBride moved to cancel the January 5, 2010 Council Meeting. Councilmember Dukes seconded the motion that passed unanimously.

15. Boards and Commission Appointment Recommendations

Councilmember McBride moved to approve the boards and commission appointment recommendations. Councilmember Maan seconded the motion that passed with a unanimous vote.

DRAFT

13A. Support of the U.S. Postal Service Marysville Processing and Distribution Facility

Mayor Gill noted we have an urgent agenda item that needs to be added to the agenda. It is regarding the closure of the postal facility in Marysville. City Attorney Timothy Hayes said the Council needs to make two findings: (1) there is a need to take immediate action and (2) that it came to the attention of staff after the preparation and posting of the agenda. City Manager Steve Jepsen said the item came to his attention yesterday regarding the desire to have a resolution in support of the non-closure of the postal facility in Marysville. Councilmember Dukes asked why this is urgent. Mr. Jepsen replied it is for a meeting tomorrow.

Councilmember Maan moved to approve the finding that there is a need to take immediate action on the support of the U.S. Postal Service Marysville Processing and Distribution Facility and (2) that it came to the attention of staff after the preparation and posting of the agenda. Councilmember Dukes seconded the motion that passed with a unanimous vote.

Councilmember McBride moved to adopt Resolution No. 09-122 supporting the retention of the Marysville Processing and Distribution Facility. Councilmember Maan seconded the motion that passed with a unanimous vote.

16. City Council Reports

- Councilmember Maan visited a second grade class at Faith Christian School and was very impressed with the students.
- Councilmember McBride said she will be chairing SACOG in 2010 and invited Councilmembers to attend the swearing in on January 21, 2010. She asked staff to prepare a resolution in support of SACOG which brings our area great transportation funding.
- Councilmember Miller – absent
- Mayor Pro Tem Dukes said he attended the Christmas Stroll and Parade on December 4th which was well attended. He thanked everyone for their prayers during his recent surgery.
- Mayor Gill agreed the Christmas Stroll, Parade and Tree Lighting were dynamite. He was a judge at a speech contest held at St. Isidore's, which was a great opportunity. Mayor Gill wished everyone a Merry Christmas and Happy Holidays.

Adjournment

At 7:57 p.m. Mayor Gill adjourned the regular City Council meeting of the City of Yuba City in memory of Bill Monahan.

_____
Kash Gill
Mayor

/cw

12/15/09

DRAFT

ATTEST:

_____
Terrel Locke
City Clerk

/cw

12/15/09

CITY OF YUBA CITY
STAFF REPORT

Date:	December 15, 2009
To:	Honorable Mayor & Members of the City Council
From:	Utilities Department
Presented by:	Maria C. Solis, Assistant Utilities Director

Summary

Subject:	Yuba City Feather River Fish Screen Mitigated Negative Declaration Adoption
Recommendation:	After consideration of the Mitigated Negative Declaration adopt the following: a) Adopt the finding that following review and consideration of the Mitigated Negative Declaration and any comments received, there is no substantial evidence that the project will have a significant impact on the environment. b) Adopt the Mitigated Negative Declaration as contained in Exhibit A.
Fiscal Impact:	There is no fiscal impact at this time. $6,000,000 total project cost, $900,000 funded through a grant with the remaining funded through a State Revolving Fund Loan. Council approval will be requested prior to any funding process. Staff is continuing to pursue other grant opportunities to fund the final cost of the project.

Background:

December 2001 the City petitioned the State Water Resource Control Board for an extension of two water right permits. These permits serve as the main water supply during non summer months. September 2006 the City Council approved an environmental document related to the time extension. The environmental document concludes that the City's current diversions may have a significant adverse impact on the Spring-run and Fall-run Chinook salmon and Steelhead trout. In order to mitigate this potential impact the City has initiated a project to install fish screens on its Feather River Intake Structure.

The final alternative selected to meet the mitigation measure includes a new water intake structure that will be constructed 50 feet upstream from the existing water intake structure.

Current water demands plus planned growth during the next 15 to 20 years will utilize the screens constructed as part of this project. When a new pump station is constructed near the levee the same fish screen will be utilized. The screen is designed to be expanded in the future to meet the needs of the entire sphere of influence water demands.

Analysis:

Per the requirements of the California Environmental Quality Act (CEQA), an Initial Study/Mitigated Negative Declaration was prepared for this project. This environmental document assesses the impacts of the construction and operation of the proposed project on the environment and wildlife. The results of the study indicate that mitigation measures would reduce all potential, adverse impacts to less-than-significant levels.

On November 4, 2009 staff filed a Notice of Intent to Adopt a Mitigated Negative Declaration with the Sutter County Clerk. This notice was also published in the Appeal-Democrat and provided to the State Clearing House. The study and all associated documents were available for public review at the Department of Utilities administrative offices, the Sutter County Library, and online at www.yubacity.net between November 4 and December 3, 2009. The public comment period ended on December 3, 2009.

Staff has reviewed the two regulatory agency comments received and have concluded that responses to these comments do not change the conclusions of the Mitigated Negative Declaration. No other public comments were received.

Staff anticipates that approval of the plans and specifications for the project will occur once financing has been secured.

Fiscal Impact:

There is no fiscal impact at this time. It is anticipated that the project will be funded with grant funds and a State Revolving Fund Loan. The loan will be repaid with a combination of rates and future impact fees. Council approval will be requested prior to any funding process.

The United States Fish and Wildlife Service allocated $900,000 in grant funds for the project that has an estimated cost of $6,000,000. Staff is continuing to pursue other grant opportunities to fund the final cost of the project.

Alternatives:

Do not adopt the Mitigated Negative Declaration and provide direction to staff.

Recommendation:

After consideration of the Mitigated Negative Declaration adopt the following:

a) Adopt the finding that following review and consideration of the Mitigated Negative Declaration and any comments received, there is no substantial evidence that the project will have a significant impact on the environment.

b) Adopt the Mitigated Negative Declaration as contained in Exhibit A.

Exhibit: Mitigated Negative Declaration is available for review electronically online at http://www.yubacity.net/utilities/water-treatment.htm or at the City Clerk's office, located at 1201 Civic Center Blvd., Yuba City, CA 95991.

Prepared By:

Ashley M. Rico
Administrative Assistant

Submitted By:

Steven R. Jepsen
City Manager

Reviewed By:

Department Head _____

City Attorney OK VIA E-MAIL

RESTORATION AND LONG TERM MANAGEMENT PLAN FOR THE YUBA CITY FEATHER RIVER FISH SCREEN PROJECT

PREPARED FOR:

City of Yuba City
1201 Civic Center Boulevard
Yuba City, CA 95993
Contact: Kevin Bradford
(530) 822-4626

PREPARED BY:

ICF International
630 K Street, Suite 400
Sacramento, CA 95814
Contact: Kristin Lantz
(916) 737-3000

January 2012

ICF INTERNATIONAL

ICF International. 2012. Restoration and Long Term Management Plan for the Yuba City Feather River Fish Screen Project. November. (ICF 00714.11.) Sacramento, CA. Prepared for the City of Yuba City.

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Acronyms and Abbreviations

CISS	cast in steel shell
City	City of West Sacramento
CWA	Clean Water Act
dbh	diameter at breast height
DFG	California Department of Fish and Game
EA	environmental assessment
fps	feet per second
LLPS	Low Level Pumping Station
mm	millimeter
MMRP	Mitigation Monitoring Reporting Program
msl	mean sea level
NMFS	National Marine Fisheries Service
OHWM	ordinary high water mark
Project	Yuba City Feather River Fish Screen Project
psi	pounds per square inch
SAA	Streambed Alteration Agreement
SRA	shaded riverine aquatic
USACE	U.S. Army Corps of Engineers

Restoration Plan for the Yuba City Feather River Fish Screen Project

Introduction

The City of Yuba City (City) is in the process of implementing the Yuba City Feather River Fish Screen Project (Project) along the west bank of the Feather River in Yuba City, western Sutter County, California (Figures 1 and 2). The Project is located at the site of an unscreened intake and low level pumping station (LLPS) and consists of the following components.

- A 48-mgd-capacity intake structure (screened intake structure) on the Feather River just upstream of the current unscreened intake.
- A 54-inch-diameter underground pipeline from the new intake structure to the LLPS.
- Removal of the traveling screen inside the existing LLPS structure.
- Improvements to the existing LLPS to support auxiliary equipment (e.g., air receivers and control panels for the air-burst cleaning system, manifold piping, etc.) for the new fish screen and an updated façade to protect equipment from the elements and vandalism.
- Removal of the existing unscreened intake.
- Improvements to the existing road to enable access during winter months and storm events.

Equipment involved in construction of the Project would consist of an excavator, backhoe, dump trucks, concrete mixer truck, crane, roller, compactor, and impact and vibratory pile drivers. Flat bed trucks would be used to deliver sheet piling, cast in steel shell (CISS) piles, fish screens, LLPS siding and equipment to the project site. Pickup trucks would be used to deliver 12-inch and 36-inch culverts, geotextile fabric, and other supplies to the project site. (ICF 2009)

The purpose of this document is to describe the Project, Project-related vegetation mitigation requirements, mitigation monitoring and reporting, and mitigation long-term management at the mitigation sites. This Restoration and Long-Term Management Plan (RLMP) specifically describes revegetation that will be implemented, plant establishment, monitoring and reporting, and long-term management activities at the mitigation sites implemented to address riparian and SRA impacts associated with the construction of the Project.

Project Description

Intake Structure

The intake structure would be located on the west bank of the Feather River, approximately 60 feet upstream from the current intake (Figure 3), on property owned by the City. Approximately 0.012 acre of the intake structure would be constructed on pilings and foundation material placed in the Feather River. An additional 0.12 acre of riprap erosion protection would be placed on the river bottom around the intake facility to protect against scour and erosion. The riprap would be 2.5 feet thick and would extend approximately 35 feet into the river from the ordinary high water mark

(OHWM). Riprap also would extend approximately 25 feet upstream and 20 feet downstream beyond the intake facility. The intake structure/fish screen will contain four submersible pumps (three 15-horsepower [hp] pumps, and one 30-hp pump). The intake structure is designed to accommodate the pumping of up to 48 million gallons per day of water from the Feather River. (ICF 2009)

Access to the intake structure would be via concrete steps that would be installed from the top of the riverbank (elevation 60 feet above mean sea level [msl]) to the intake structure (elevation 41 feet msl). (ICF 2009)

Fish Screen

The intake structure would include a fish exclusionary system designed to meet the applicable screening requirements of California Department of Fish and Game (DFG) and National Marine Fisheries Service (NMFS). The species of concern in this reach of the Feather River include anadromous salmonids and green sturgeon. Protection of these species was included in the design of the fish screen. (ICF 2009)

A 1.75-millimeter (mm) fish screen with a maximum approach velocity of 0.33 feet per second (fps) is included in the intake structure. The fish screens are located flush on the face of the structure between approximately elevations 26 and 34 feet above msl. The fish screens are installed from the top of the structure through guide slots for screen bays. Solid panels are installed in the guide slots above the fish screens to the top of the structure. (ICF 2009)

A screen cleaning mechanism will be installed to allow continuous cleaning of the fish screens for regulatory and operational needs. An air-burst cleaning system is proposed. This system includes air compressors, air receivers, and control panels. The air compressors would be located at the Water Treatment Plant site. The air receivers and control panels would be located in the existing LLPS pump room. The air compressor proposed is a 28-hp rotary screw compressor that is rated for 53 standard cubic feet per minute at 125 pounds per square inch (psi). A 1,500-gallon, 200 psi–rated air receiver is recommended. (ICF 2009)

Access Road

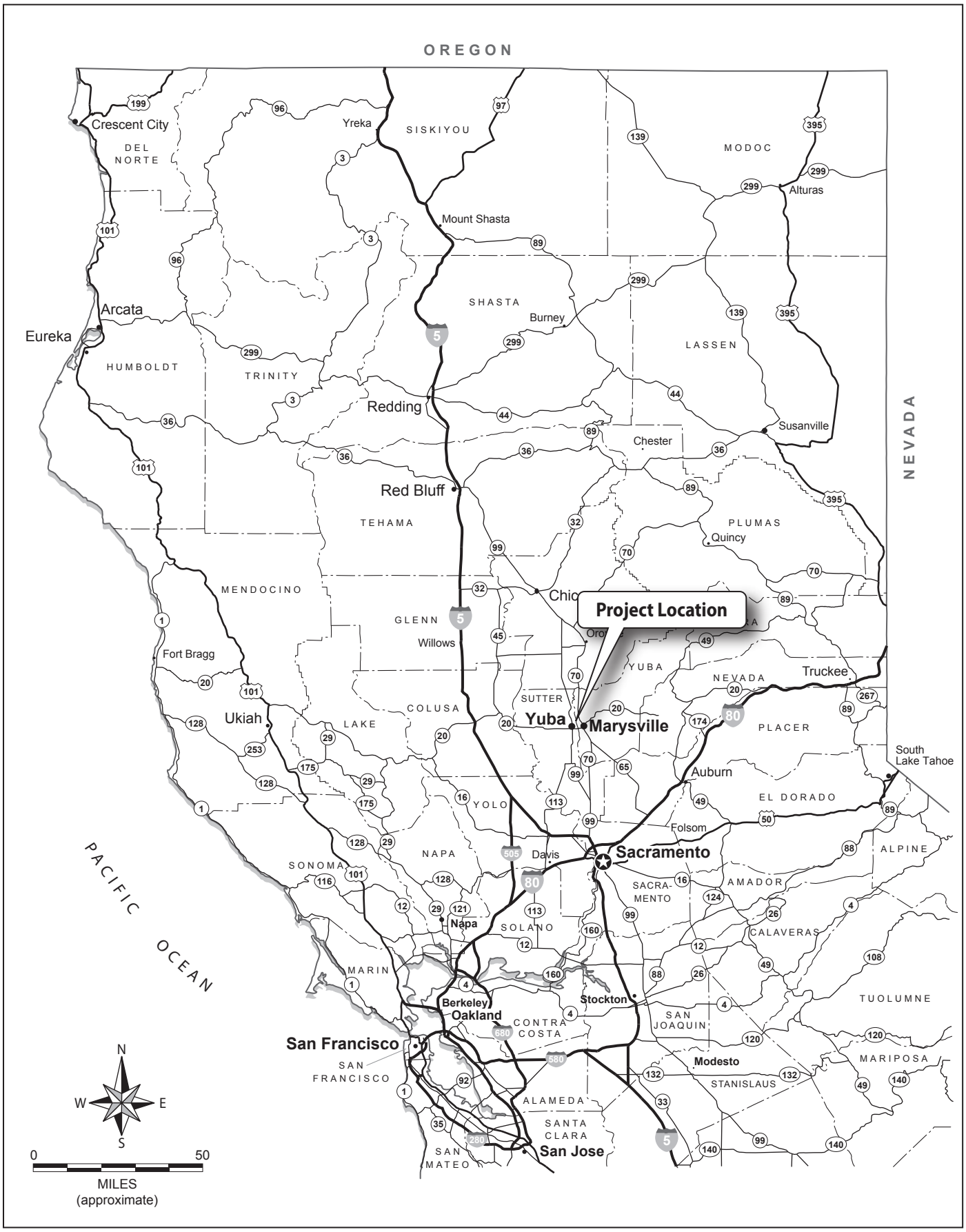
Improvements to the access road would consist of these elements.

- Removing the upper 12 inches of dirt road.
- Scarifying and recompacting an additional 12 inches of native material.
- Installing filter fabric and 12 inches of Class 2 aggregate base.

The existing road profile would remain the same (no fill will be added to the floodway). The volume of aggregate base to be added would be 1,820 cubic yards and the area of filter fabric to be added would be 5,450 square yards. (ICF 2009)

Construction Staging

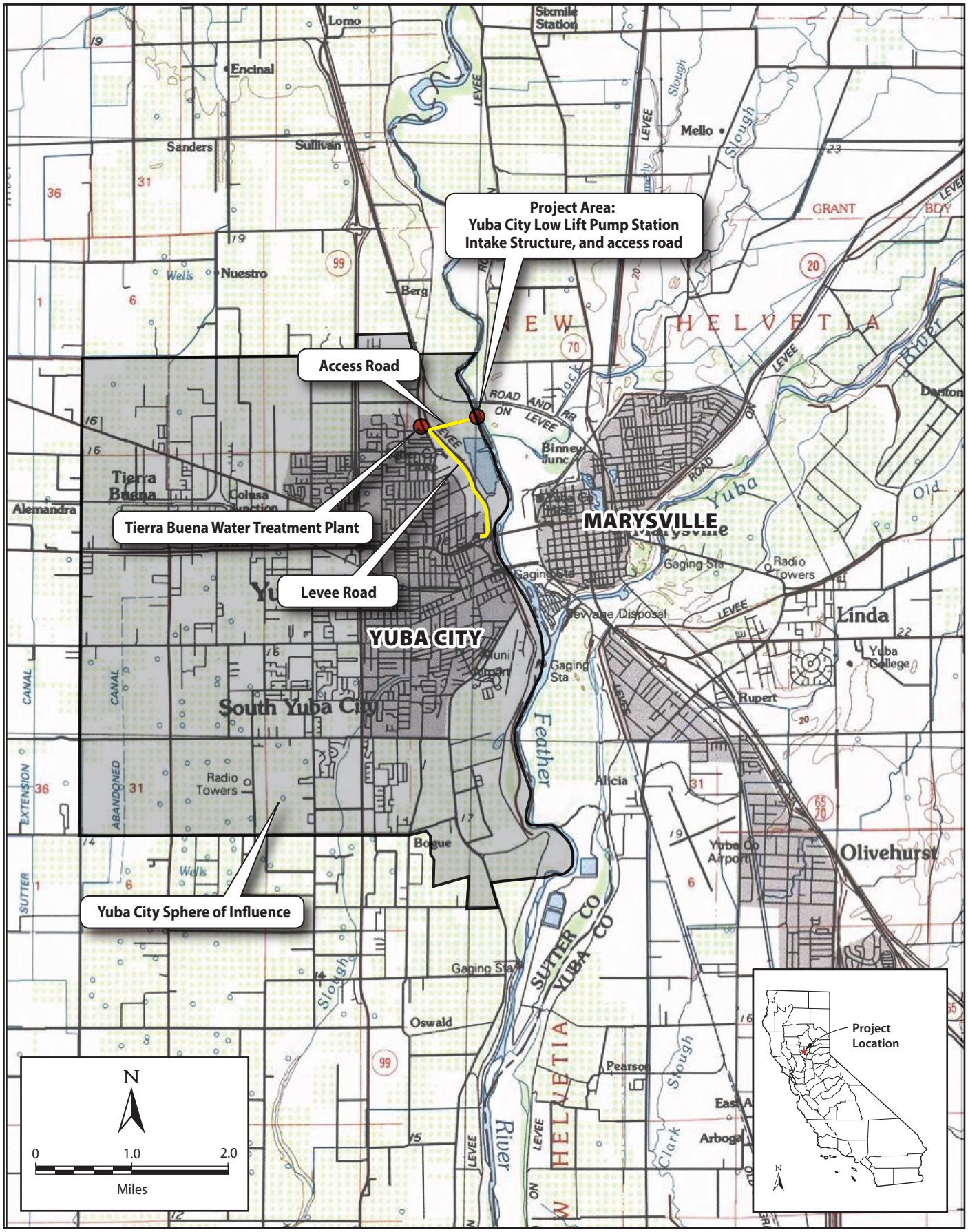
The construction staging area would be located immediately northwest of the LLPS and would occupy approximately 0.07 acre (Figure 3). (ICF 2009)



06813.06 Encroachment Permit (10-09)

Jones & Stokes

Figure 1
Regional Location



06813.06 Encroachment Permit (10-09) JD

ICF Jones & Stokes
an ICF International Company

Figure 2
Project Vicinity

Graphics:/Projects/06813.06 (10-09) JD

ICF Jones & Stokes
an ICF International Company

Figure 3
Intake Construction Zone

Site Characteristics

The Project would be within the floodplain of the Feather River. A narrow riparian corridor is present along the west bank of the Feather River, but the riverbank immediately downstream of the proposed new intake structure location has been riprapped and currently is unvegetated. Orchards are immediately north, south, and west of the project area.

The project area contains three types of natural vegetation communities that could provide or enhance habitat for wildlife species, including special-status terrestrial wildlife species and special-status fish. These three natural vegetation communities are valley riverine aquatic habitat, valley/foothill riparian community, and upland cropland.

Valley Riverine Aquatic

Valley riverine aquatic habitat, as defined by the CALFED Bay-Delta Program, includes:

> The water column of flowing streams and rivers in low-gradient channel reaches below an elevation of approximately 300 feet that are not tidally influenced. This includes associated shaded riverine aquatic (SRA) [cover]. Valley riverine aquatic habitat includes portions of the ERP [Ecosystem Restoration Program] riparian and riverine aquatic habitat. (CALFED 2003)

Valley riverine aquatic habitat in the project area consists of the Feather River and associated SRA habitat. Approximately 0.10 acre of valley riverine aquatic habitat occurs in the project area. Valley riverine aquatic habitat is considered jurisdictional waters of the United States under Section 404 of the Clean Water Act (CWA).

Valley riverine aquatic habitat in the project area provides habitat for anadromous and other fish species and western pond turtle (*Clemmys marmorata*), which is a State species of concern. The river also provides foraging habitat for numerous other fish and wildlife species. The associated overhead SRA habitat (i.e., riparian habitat) is described below under "Valley/Foothill Riparian Community."

Valley/Foothill Riparian Community

The valley/foothill riparian community in the project area consists of riparian woodland and riparian scrub. Valley/foothill riparian communities are assumed to be nonjurisdictional (i.e., not regulated under Section 404 of the CWA). Riparian habitat has been designated by DFG as a habitat of special concern in California because of its limited abundance and high value to wildlife.

Riparian habitat in the study area occurs on the banks and floodplain of the Feather River. The section of riverbank within the project footprint is lined with a layer of rock revetment. Approximately 0.05 acre of riparian habitat occurs on the riverbank in the project area. This riparian habitat is composed of two mature cottonwood trees and riparian scrub vegetation along the riverbank.

Riparian habitat also occurs on adjacent sections of the riverbank and on the floodplain terrace immediately south of the project area. Riparian vegetation includes Fremont's cottonwood (*Populus fremontii*), Gooding's willow (*Salix gooddingii*), valley oak (*Quercus lobata*), and box elder (*Acer negundo*). Elderberry shrubs occur in the riparian habitat.

Overstory trees may be used for nesting and roosting by raptors and also provide suitable habitat for other birds, such as herons, egrets, and numerous songbirds. Riparian habitat provides important nesting and foraging cover for resident, migratory, and wintering songbirds. In addition, riparian vegetation provides habitat for several species of mammals, along with SRA overhead and instream cover.

Upland Cropland

Upland cropland habitat is made up of agricultural lands that are not seasonally flooded. Upland cropland in the project area consists of a walnut orchard on the north, south, and west side of the project area.

No special-status plant species are known to occur in upland cropland habitat because of the soil disturbance inherent in the agricultural practices. Special-status wildlife species, such as raptors, and other common wildlife species may forage in the orchard.

Project Impacts

Impacts on Waters of the United States

Permanent disturbance of waters of the United States (i.e., valley riverine aquatic habitat) would occur during construction of the project. Permanent impacts include the permanent loss of 0.132 acre of valley riverine aquatic habitat because of the construction of permanent structures in the river and the placement of riprap and cofferdams or sheet piles during the construction period.

The Project also would result in the permanent loss of approximately 35 linear feet of SRA overhead cover habitat due to the removal of riparian vegetation in the project area.

Impacts to Riparian Habitat

The Project was designed to minimize and avoid impacts on vegetation. The Project will result in removal of riparian habitat that provides overhead SRA cover. Specifically, it would result in the removal of two trees in the Project area, both of which are native cottonwood trees. The diameter at breast height (dbh) range of the two cottonwood trees is 25–30 inches. The two trees have a combined canopy area of 0.02 acre (900 square feet [sq ft]).

Mitigation Requirements

Mitigation for Impacts on Waters of the United States

The Project's environmental assessment (EA) included a mitigation measure for the loss of waters of the United States. Mitigation Measure VRAQ-3 requires that compensation be provided at a minimum ratio of 2:1 (i.e., 2 acre restored/created/enhanced or credits purchased for every 1 acre removed) for the loss of valley riverine aquatic habitat.

Permanent disturbance of valley riverine aquatic habitat would occur during construction of the project. The loss of 0.132 acre of valley riverine aquatic habitat will be mitigated at a ratio of 2 acres for each acre affected.

Mitigation for Impacts on Riparian Tree Resources

The Project's EA included a mitigation measure to compensate for the loss of riparian habitat. Mitigation Measure VFRC-2 and Compensatory Measure 3.2 in the Streambed Alteration Agreement (SAA) (No. 1600-2010-0015-R2) issued by DFG require that compensation be provided at a minimum ratio of 2:1 (i.e., 2 acres restored/created/enhanced or credits purchased for every 1 acre removed) for the loss of riparian habitat.

Riparian habitat is provided by two cottonwood trees. The two affected trees have a combined canopy area of 0.02 acre (900 sq ft). Therefore, up to 0.04 acre (1,800 sq ft) must be planted.

Summary

To compensate for valley riverine aquatic and riparian habitat losses resulting from the Project, a total of 0.264 acre of riparian habitat is required to be planted at the mitigation sites.

Mitigation Implementation Plan

This RLMP is designed to satisfy various commitments made in the Project's numerous environmental documents as specified above; Conservation and Minimization Measure 9 in the Biological Opinion issued by NMFS (2009/06267); and requirements of Sections 401 and 404 of the CWA.

Responsible Party

The City will be responsible for implementation and maintenance of the mitigation sites as well as the 3-year monitoring and reporting and all associated funding.

Mitigation Site Selection

Mitigation will occur both directly adjacent to the intake structure and 0.5 mile downstream.

Mitigation site selection focused on sites close to the impact area. Sites considered were those that do not currently support riparian vegetation and do not substantially contribute to SRA habitat. Sites considered needed to provide the necessary site resources (e.g., soil texture, proximity to water or groundwater) to support riparian vegetation and SRA habitat.

The selected sites will provide compensatory mitigation adjacent to the intake structure and approximately 0.5 mile downstream on the western bank of the Feather River, as this is the nearest location with adequate space/canopy gap and suitable substrate for planting. The site adjacent to the intake structure currently does not support any vegetation, as it is riprapped. The site will support woody vegetation once portions of the riprap are removed to allow for planting pits.

The selected downstream site currently supports scattered woody vegetation but has the necessary elements to readily support site enhancement. Both sites are considered to be on site. Figure 4

shows the intake facility impact area in relation to the mitigation (riparian restoration) sites. Figures 5 and 6 specifically show each mitigation site.

Implementation Schedule

The Project is in the final compliance documentation phase, and construction is expected to begin in summer 2012. Tree planting will occur in the fall of the year construction begins (i.e., fall 2012).

Riparian Planting Plan

Riparian habitat mitigation will be provided by planting six cottonwood cuttings adjacent to the intake structure and planting 0.24 acre of riparian habitat, consisting of 36 container plants, at the downstream site (Figures 5, 6, and 7). Both sites will be planted with native species that occur naturally on site or in local riparian corridors. Refer to Appendix A for detailed construction drawings of the Riparian Planting Plan. The SRA and riparian mitigation will increase the current value and function of the mitigation sites and replicate and/or exceed the conditions present at the project area.

Cuttings

Cottonwoods at the intake structure site will be planted as cuttings. Cuttings will be collected in the immediate project vicinity by City landscape staff or a qualified landscape contractor. Cuttings will be ½ to ¾-inch-diameter and 4½ feet long. Cuttings will be planted by City landscape staff or a qualified landscape contractor in a single, linear row parallel to streamflow approximately 5 feet above summer flow. Riprap will be removed to facilitate installation of each cutting. Cuttings will be placed in a planting hole that is a minimum of 6 inches diameter and 4½ feet deep. Planting holes will be hand-excavated or augered. If planting holes are augered, the sides will be scarified to allow roots to more easily penetrate the surrounding soil. Cuttings will be placed in the planting hole with 3 feet of the cutting below finish grade and 1½ feet above finish grade. After installation of cuttings and backfilling of the planting hole, one layer of riprap will be placed on the disturbed soil to prevent erosion. Riprap will be kept 2 to 3 inches away from cuttings.

Cuttings will be watered immediately after planting and will be inspected after initial watering to ensure that the surrounding soil has not settled. If soil settles after watering, soil will be added to the planting holes.

Container Plants

All plants at the downstream site will be planted as container material. The City will obtain the container plant material from a plant nursery experienced with the propagation of native species. The plants will be planted by City landscape staff or a qualified landscape contractor during construction of the Project. All plants will be planted in fall/winter to minimize planting shock and allow optimal establishment.

Container plants will be placed in a planting hole that is twice the width of, and one and one half times deeper than, the container. Planting holes will be hand-excavated or augered. If planting holes are augered, the sides will be scarified to allow roots to more easily penetrate the surrounding soil. Soil removed when the planting hole is created will be used as backfill and to construct a watering basin.

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Figure 4
Intake Facility Impact Area and Mitigation Site Locations Overview

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Figure 5
Intake Structure Mitigation Site

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Figure 6
Downstream Mitigation Site

Downstream Mitigation Site Plant Palette

Species Name		Average Zone Plant Spacing	Container Plant	
Botanical Name	**Common Name**		**Size**	**Quantity**
Acer negundo	Box elder	15' O.C.	Treepot 4	14
Baccharis salicifolia	Mulefat	15' O.C.	Treepot 4	7
Populus fremontii	Fremont cottonwood	20' O.C.	Treepot 4	2
Quercus lobata	Valley Oak	20' O.C.	Treepot 4	2
Rhamnus californica	Coffeberry	20' O.C.	Treepot 4	3
Salix gooddingii	Black Willow	20' O.C.	Treepot 4	8

Notes:
1. Area to be planted is approximately 0.266 acre and 250 feet in length.

Intake Structure Mitigation Site Plant Palette

Species Name		Average Zone Plant Spacing	Cutting
Botanical Name	**Common Name**		**Quantity**
Populus fremontii	Fremont cottonwood	6' O.C.	6

Notes:
1. Area to be planted is approximately 180 sf and 40 feet in length.
2. Place cuttings in a linear band between elevations 40 and 45, approximately 5 feet above the summer flow.

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Figure 7
Plant Palettes

Before planting, the container plant's root mass will be inspected, and any matted, dead, diseased, or twisted roots will be pruned. Inspection and pruning will be done quickly because exposure to the air results in loss of root hairs. Care will be taken not to prune excessively, to avoid excessive loss of root mass.

Container plants will be placed in the planting hole after an appropriate amount of backfill has been placed and compacted so that the root collar is slightly above the desired final grade with the top of the first major root barely visible at the surface. Fertilizer will not be applied during container plant installation. As soil is backfilled, it will be worked around the roots so that the roots are not compressed into a tight mass, but spread out and supported by the new soil beneath them. After each 3 to 4 inches of soil have been placed in the hole, the soil will be tamped around the roots with foot or hand pressure, with care taken not to damage the roots.

Container plants will be watered immediately after planting and will be inspected after initial watering to ensure that they have not settled. Any container plants that have settled will be adjusted so the appropriate root collar is exposed aboveground.

Watering Basins

Watering basins will be constructed around all container plants. A 3-inch layer of bark mulch will be placed in each watering basin to reduce soil evaporation rates and help suppress weed growth. Watering basins will be used for as-needed supplemental irrigation.

Maintenance Guidelines

To ensure that the mitigation plantings meet the prescribed survival and growth criteria, plants will be monitored and maintained as needed. City staff members or their landscape contractor will provide the following maintenance for the mitigation plantings.

Plant Watering

A permanent irrigation system will not be installed at either mitigation site. The planting locations were selected intentionally because they are directly adjacent to or near the low-flow channel of the Feather River, with adequate groundwater to support the planted species. Supplemental watering will be provided only if the success criterion described below is not met as a result of inadequate water available to establish plantings. Should supplemental watering be needed, it will be provided by handwatering with a hose supplied by a water truck.

Weed Control

Weeds will be removed from the immediate area around each plant as well as within the planting basin as needed.

Replacement Planting

The plantings will be inspected during the performance monitoring visits to determine whether replacement plantings will be necessary to meet the success criterion discussed below.

Required replacement plantings, based on the results of the annual vegetation monitoring surveys, will be provided, installed, and maintained by the City during each year of the maintenance period. The annual monitoring reports will identify the causes of plant mortality and any remedial measures that may be required. For example, if a particular species has a high mortality rate, a determination will be made regarding the cause of plant mortality and whether replacement by another species is warranted.

Replacement will include planting a sufficient number of plants that the total number of living plants meets or exceeds the success criterion. Replacement plants will be installed according to the original plant installation methods.

Monitoring Program

This section describes the MMRP for the mitigation plantings, including the success criterion, monitoring schedule, monitoring methods, remedial measures, and reporting/documentation requirements.

Although plant survival is the only information necessary to verify compliance with the stated mitigation criterion, other factors will be monitored annually to provide information to the City during plant establishment. Annual monitoring reports will provide timely summaries of important growth information, allowing project managers to address any irrigation needs, weed control activities, or other factors that affect tree health and productivity.

The mitigation plantings will be monitored for a 3-year period after the initial mitigation planting. The City has agreed to monitor the plantings for a specified time period; however, the monitoring could be shortened, following consultation with and approval by NMFS, DFG, and U.S. Army Corps of Engineers (USACE) (Agencies), if monitoring results indicate that either site has achieved or is likely to achieve the success criterion. The planting areas will be evaluated based on both quantitative and qualitative criteria. Annual monitoring reports will provide the Agencies with information to determine whether the planted area is progressing toward project success.

Monitoring Schedule

The mitigation sites will be monitored during years 1 through 3 in August or September. Monitoring results from years 1 and 2 will be used to determine whether the mitigation sites are likely to meet the success criterion. Year 3 monitoring results will be used to determine whether the mitigation sites have met the success criterion. If the planting areas achieve the success criterion in year 3, no further monitoring will be required. If the planting areas do not achieve the success criterion, remedial actions, as discussed under “Remedial Measures,” below, will be implemented, as necessary.

Success Criterion

Success will be achieved if there is 100% survival of the six cottonwood trees at the mitigation site adjacent to the intake structure and 75% survival of the 34 plants at the downstream site required to mitigate project effects by the end of the 3-year monitoring period.

If at any time the native plantings fail to meet the prescribed survival criterion, remedial measures, such as replanting, will be implemented, and monitoring of the newly planted vegetation will

continue for an additional 3-year period or less if the site has achieved or is likely to achieve the success criterion.

Monitoring Methods

The mitigation sites will be monitored annually by a qualified biologist, ecologist, arborist, or landscape architect according to the monitoring schedule stated above.

Survival

Survival rates will be determined based on the total number of plants originally planted. Plants will be recorded as dead if there is no viable aboveground growth visible. For example, if all the leaves on a tree are brown, but an examination of the stems and branches shows viable stem vigor, the plant will be considered alive, although it will be given a poor vigor rating.

Plant Vigor

The determination of vigor will account for the following conditions.

- Disease symptoms.
- Low-density foliage.
- Atypical leaf color.
- Stem and foliar vigor (e.g., signs of desiccation, leaf curl).
- Browsing or other wildlife-related damage.
- Vandalism.

A vigor rating of *good*, *fair*, or *poor* (values of 3.0, 2.0, and 1.0, respectively) will be assigned to each plant. Dead plants will not be assigned a vigor rating. The ratings are defined below.

- **Good (3.0):** a seedling with less than 25% of its aboveground growth exhibiting one or more of the factors listed above.
- **Fair (2.0):** a seedling with 25%–75% of its aboveground growth exhibiting one or more of the factors listed above.
- **Poor (1.0):** a seedling with more than 75% of its aboveground growth exhibiting one or more of the factors listed above.
- **Dead:** a seedling that is no longer visible or that does not appear capable of growth.

If the average plant vigor score for a given species is less than 1.0, the field monitor will evaluate the reasons the particular species received a low rating and determine whether remedial measures are required. If necessary, corrective action will be taken.

Plant Height

Tree height will be measured to the nearest 0.5 foot using a stadia rod or visual estimation. No quantitative criteria have been established for plant height. Instead, plant height will be recorded annually to determine trends in plant growth during the monitoring period.

Annual Reports

Annual reports describing the results of the performance monitoring will be submitted to the Agencies by November 30 of each monitoring year to allow time to implement any necessary corrective measures identified in the report. Annual reports will quantify conditions at the mitigation sites to demonstrate progress toward meeting the success criteria. Each monitoring report will include these components.

- A summary of the project location and description.
- A summary of the monitoring methods.
- A list of the City personnel, or their contractor, who prepared the content of the annual report and/or participated in monitoring activities that year.
- A summary and analysis of the monitoring results, including an evaluation of site conditions in the context of the success criteria.
- A discussion of the monitoring results.
- Management recommendations, including discussion of areas with inadequate performance and recommendations for remedial action.
- A discussion of any modifications made to the monitoring methods.
- A discussion of the previous year's maintenance efforts, including, but not limited to, replacement planting and weed control.
- Photo documentation of the mitigation sites.

Remedial Measures

The purpose of the RLMP is to ensure that the targeted mitigation requirements are achieved. Remedial measures provide a mechanism for modifying the mitigation program if the mitigation sites do not achieve the success criterion in year 3.

The City will seek approval from the Agencies for the most suitable remedial measures based on site conditions. Remedial actions must be approved by the Agencies prior to implementation. Remedial measures will be developed based on the qualitative and quantitative monitoring results. To develop remedial measures, the City will evaluate why the success criterion was not achieved and determine the most effective remedy. Remedial measures may include, but are not limited to, the actions listed below.

- Replant plants using the same species if it is determined that plant survival or vigor was influenced by human-related factors, such as vandalism or inadequate irrigation, based on the quantitative and qualitative site observations made during monitoring.
- Replant plants using alternative species if monitoring results and site conditions indicate that the original plant species is not suited to the mitigation site or to a particular location within the mitigation site.
- Implement a plant protection program if wildlife damage is affecting plant survival and vigor. If wildlife damage is threatening the successful establishment of woody vegetation, some types of deterrents (e.g., repellents, plant protection cages) might be necessary.

- Implement and/or adjust irrigation applications if the plant material continually exhibits low survivorship or vigor. These conditions also might indicate that the target plant species are not suitable for the mitigation site and that alternative species may be required.

Financing

The City will finance implementation of the RLMP. A cost estimate for implementation of restoration measures stipulated in this RLMP is provided below. The City will obtain approval from the Agencies of the cost estimate and, once they are approved, will provide the financial commitment instrument (e.g., letter of credit, letter of security) to DFG prior to commencement of project activities.

Cost Estimate

The RLMP is based on the need to plant 0.264 acre of riparian plantings. The cost to implement this RLMP is approximately $48,000. Table 1 provides a breakdown of associated costs, including those for site preparation, vegetation planting, general maintenance activities such as weeding for the 3-year establishment period, and monitoring and reporting. Supplemental irrigation is not anticipated to be needed; however, six irrigation applications per year for the 3-year establishment period are included in the cost for estimating purposes.

Table 1. Riparian and SRA Mitigation Cost Estimate

Implementation Phase				
Item/Description	**Quantity**	**Units**	**Unit Cost**	**Total Item Cost**
Mobilization and demobilization	1	Lump sum	$1,500	$1,500
Clearing and grubbing	0.25	Acre	$8,500	$2,125
Soil preparation	0.25	Acre	$2,000	$500
Container plant—treepot 4	34	Each	$30	$1,020
Cutting—placed in riprap	6	Each	$100	$600
Bark mulch (3cf/basin)	4	Cubic yard	$25	$100
Maintenance (180 days)	0.25	Acre	$6,000	$1,500
Subtotal				**$7,345**
10% Contingency				$735
Total Cost				**$8,080**

Plant Establishment Phase				
Item/Description	**Quantity**	**Units**	**Unit Cost**	**Total Item Cost**
Year 1—6 months (contractor maintains for first half of year)				
Weed management	0.5	Year	$1,250	$625
Plant replacement	0.5	Year	$172	$86
Supplemental irrigation (6 waterings/year)	0.5	Year	$3,000	$1,500
Years 2 and 3				
Weed management	2	Year	#1,250	$2,500
Plant replacement	2	Year	$172	$344
Supplemental irrigation (6 waterings/year)	2	Year	$3,000	$6,000
Monitoring & reporting				
Monitoring surveys	3	Year	$3,000	$9,000
Report preparation	3	Year	$3,000	$9,000
Agency coordination	3	Year	$2,500	$7,500
Subtotal				**$36,555**
10% Contingency				$3,656
Total Cost				**$40,211**
Total Mitigation Planting Cost				**$48,291**

There are several other costs in addition to those associated with the RLMP. Table 2 provides a cost estimate showing an overview of estimated costs to implement the minimization and mitigation measures, including those that are incorporated into the construction specifications.

Table 2. Minimization and Mitigation Measures Estimated Costs

Task	Duration	Staff	Hourly Rate	Equipment/ Misc. Cost	Notes	Total Cost
Cofferdam construction and dewatering		Project Contractor	Various	Included	Included in construction contract	$292,000
Best management practice implementation	Throughout construction: initial implementation and subsequent maintenance	Various	Various	N/A	Carried out periodically throughout construction	$10,000
Fish rescue	3 days	2 biologists	$125/hour	$2,500	10 hr/day	$10,000
Pile driving monitoring	10 days	2 noise specialists	$150/hour	$5,000	10 hr/day	$35,000
General monitoring	3 years	Various biologists	$100/hour		Pre-construction, construction, post-construction monitoring	$40,000
Total cost						$387,000

The cofferdam construction and dewatering and the BMP implementation are included in, and requirements of, the plans and specifications that will be carried out as a part of the daily construction activities. As a result, it is not necessary to include these costs ($302,000) in the financial commitment instrument previously mentioned. It is anticipated that the financial commitment instrument will include costs up to $125,000.

Long-Term Operation and Maintenance

This section addresses specific site operation and maintenance activities during the post–3-year mitigation and monitoring period. The long-term operation and maintenance plan associated with this RLMP serves to satisfy the Central Valley Flood Control Board (CVFCB) Encroachment Permit (No. 18570 BD).

Responsible Party

The City will continue to be responsible for long-term maintenance, and all associated funding, of the mitigation features during post–3-year mitigation and monitoring requirement period.

Implementation Schedule

Operation and maintenance will occur on an infrequent but regular basis and should be relatively minor in scope. At minimum, the mitigation sites will be checked annually for maintenance activities listed below.

Post–Plant Establishment Guidelines

It is anticipate that during the first 3 years, a sufficient and healthy plant community will be established and that after this period, no plant replacement will be required. Operation and maintenance activities that will occur in perpetuity are described below.

Tree Preservation

Existing trees and other native vegetation will be preserved. Only those large trees that interfere with levee maintenance or threaten public safety should be removed by the City. If a tree is removed, each tree would be replaced as required by the City Tree Preservation Ordinance.

Elderberry Preservation

Elderberry shrubs occur in the vicinity of the mitigation sites. When maintaining the sites, no herbicides will be used in the mitigation areas that are not approved for use near water, and no herbicides will be sprayed on or within 100 feet of elderberry shrub canopies. Weed infestations will be controlled as early as possible to prevent establishment and to minimize weed control efforts and pesticide usage.

Volunteer Growth

Volunteer seedlings of native species are expected to naturally colonize the mitigation sites. Volunteer seedlings will be preserved unless they are competing with installed plants or are threatening public safety or the integrity of the levee.

Selective Clearing and Pruning

Downed trees and branches, dead limbs, and dead trees provide habitat for numerous wildlife species. Therefore, clearing and pruning will not occur unless such materials restrict site access for maintenance activities, prove to be detrimental to the integrity of the levee, present a risk to public safety, or overhang firebreaks. Any debris required to be removed for the above mentioned reasons will be removed prior to the beginning of the flood season (November 1) each year. Any debris removed will be properly disposed of outside of the limits of the project right-of-way.

Weed Control

Weeds targeted for control on the mitigation sites during the long-term operation and maintenance period include invasive nonnative species that can dominate the sites and reduce the desired vegetation to below the performance standards. The City will determine which weed species will be targeted for control.

Rodent Control

Herbicide and bait station application will be conducted by the City under county permits by experts licensed with the state for pest control. Monthly herbicide application reports will be filed with the county.

Public Use

The public's impact on the mitigation sites will continue to be potentially disruptive to the vegetation. The City will ensure that recreational activities do not affect the plants. If public use becomes destructive, the City will take corrective measures to replace plants and to ensure their survival.

Printed References

CALFED Bay-Delta Program. 2003. Environmental Water Account Draft Environmental Impact Statement/Environmental Impact Report. Chapter 9. Available: <http://www.usbr.gov/mp/EWA/docs/DraftEIS-Vol1/Ch9.pdf>. Accessed: September 1, 2008.

ICF Jones & Stokes. 2009. *Yuba City Feather River Fish Screen Draft Environmental Assessment/Initial Study Report*. November. Sacramento, CA Prepared for City of Yuba City, CA