

FINAL

**Supplemental Environmental Assessment / Environmental Impact Report
American River Watershed Common Features
Water Resources Development Act of 2016 Project
Sacramento River East Levee Contract 2**



OCTOBER 2020

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Sacramento District
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Abbreviations and Acronyms

AB	Assembly Bill
APE	Area of Potential Effects
ARB	California Air Resources Board
ARCF GRR	American River Watershed Common Features General Reevaluation Report
BACT	Best Available Control Technology
Basin Plan	Sacramento River Basin and the San Joaquin River Basin
BMPs	Best Management Practices
BSLMS	Beach/Stone Lakes Mitigation Site
BSSCP	Bentonite Slurry Spill Contingency Plan
BWFS	Basin-Wide Feasibility Studies
CAA	Clean Air Act
CAS	Climate Adaptation Strategy
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CB	cement-bentonite
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Sacramento
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
County	County of Sacramento
CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
CVFMP	Central Valley Flood Management Planning
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
cy	cubic yards
dB	decibels
dBA	A-weighted decibels

DEIS/DEIR	Draft EIS/EIR
Delta	Sacramento-San Joaquin Delta
DMM	deep soil mixing
DWR	California Department of Water Resources
EA/EIR	Environmental Assessment/Environmental Impact Report
EFH	Essential Fish Habitat
EIP	early implementation project
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EM	Engineering Manual
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Endangered Species Act
ESUs	evolutionarily significant units
ETL	Engineering Technical Letter
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FCR	fire-cracked rock
FEIS/FEIR	Final EIS/EIR
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
FWARG	Far Western Anthropological Research Group
GEI	GEI Consultants, Inc.
GHG	Greenhouse gas
HPTP	Historic Properties Treatment Plan
I-5	Interstate 5
IDM	investigation-derived material
ITE	Institute of Transportation Engineers
L _{eq}	equivalent sound level
L _{eq[h]}	1-hour equivalent sound level
LOS	level of service
MIAD	Mormon Island Auxiliary Dam
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards

NCIC	North Central Information Center
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	operations and maintenance
OHWM	ordinary high water mark
OPT	one pass trench
PA	Programmatic Agreement
PAR	PAR Environmental Services
PCE	passenger car equivalent
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
PM	particulate matter
PM ₁₀	PM equal to or less than 10 micrometers in diameter
PM _{2.5}	PM equal to or less than 2.5 micrometers in diameter
PPV	peak particle velocity
RECs	Recognized Environmental Conditions
Reclamation	U.S. Bureau of Reclamation
RPA	Registered Professional Archaeologist
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SB	soil-bentonite
SCB	soil-cement-bentonite
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SPRR	Southern Pacific Railroad Company
SR	State Route
SRA	shaded riverine aquatic
SRBPP	Sacramento River Bank Protection Project
SRCSD	Sacramento Regional County Sanitation District
SRFCP	Sacramento River Flood Control Project
SSHCP	South Sacramento Habitat Conservation Plan

SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
UAIC	United Auburn Indian Community of the Auburn Rancheria
UCB	University of California, Berkeley
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WCM	Water Control Manual
WRDA	Water Resources Development Act
WSAFCA	West Sacramento Area Flood Control Agency
WSLIP	West Sacramento Levee Improvements Program

Executive Summary

Summary of the Proposed Action

The Proposed Action includes the installation of levee improvements to meet embankment and foundation stability requirements. Most of the levee improvements included in the Proposed Action were analyzed in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This Supplemental Environmental Assessment/ Environmental Impact Report (EA/EIR) supplements the ARCF GRR Final EIS/EIR. Some elements of the Proposed Action (staging areas, haul routes, borrow site, and spoils disposal) were not analyzed in the ARCF GRR Final EIS/EIR, because project design had not been conducted to provide the specificity required for project implementation. Through project design and refinement, the U.S. Army Corps of Engineers (USACE) has identified potential staging areas, haul routes, a borrow site, and potential spoils disposal area, as well as identifying specific seepage and stability improvements and locations.

Summary of Environmental Consequences

Table ES-1 summarizes the effects analysis, provided in detail in Sections 3.2 through 3.14 of this Supplemental EA/EIR. Effect titles, significance conclusions before and after mitigation implementation, and mitigation measures are provided in this summary.

Areas of Controversy and Issues to be Resolved

The ARCF GRR Final EIS/EIR identified several areas of controversy based on the comments received during the public scoping period and the history of the NEPA and CEQA processes undertaken by USACE, the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency. Several of these areas of controversy are applicable to the Proposed Action, including:

- Construction-related effects on residents and businesses adjacent to the project levees.
- Construction related impacts on biological resources.
- Vegetation and tree removal.
- Effects to cultural resources and resources significant to Native American tribes.
- Impacts to recreation facilities.
- Impacts to endangered species and their habitat.

Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Visual Resources			
Damage to Scenic Resources within State- or County-Designated Scenic Highways	LTS	None	LTS
Changes in Scenic Vistas and Existing Visual Character	S	None feasible	SU
Create New Sources of Substantial Light or Glare	S	LIGHT-1: Minimize Disturbance to Wildlife at Night	LTS
Air Quality			
Potential Conflict with Air Quality Plan or Contribute Substantially to Air Quality Violation	S	Mitigation Measure AIR-1: Implement the Sacramento Metropolitan Air Quality Management District’s Basic Construction Emission Control Practices; Mitigation Measure AIR-2: Implement the Sacramento Metropolitan Air Quality Management District’s Enhanced Fugitive PM Dust Control Practices; Mitigation Measure AIR-3: Require Lower Exhaust Emissions for Construction Equipment; Mitigation Measure AIR-4: Use the Sacramento Metropolitan Air Quality Management District’s Off-site Mitigation Fee to Reduce NOx Emissions; Mitigation Measure AIR-5: Use the Sacramento Metropolitan Air Quality Management District’s Off-site Mitigation Fee to Reduce PM10 Emissions	LTS

NI = No Impact

LTS = Less than Significant

S = Significant

PS = Potentially Significant

SU = Significant and Unavoidable

Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Vegetation and Wildlife			
Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Compensate for Riparian Habitat Removal; Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices	LTS long term, SU short term
Adverse Effects to Wildlife at Night	LTS	LIGHT-1: Minimize Disturbance to Wildlife at Night	LTS
Conflict with Tree Preservation Policies or Ordinances or Provisions of an Adopted Habitat Conservation Plan or Natural Community Conservation Plan	LTS	None	LTS
Special-Status Species			
Adverse Effect on Special-status Species: Plants	LTS	None	LTS
Adverse Effect on Special-status Species: Valley Elderberry Longhorn Beetle	PS	Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle	LTS
Adverse Effect on Special-status Species: Burrowing Owl	PS	Mitigation Measure BUOW-1: Implement Measures to Protect Burrowing Owl	LTS
Adverse Effect on Special-status Species: Swainson’s Hawk and Other Special-status Birds	PS	Mitigation Measure BIRD-1: Implement Measures to Protect Nesting Migratory Birds	LTS
Adverse Effect on Special-status Species: Special-status Bats (CEQA only)	PS (CEQA)	Mitigation Measure BAT-1: Implement Measures to Protect Maternity Roosts of Special-Status Bats	LTS (CEQA)

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Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Climate Change			
Temporary, Short-term Generation of Greenhouse Gas Emissions	S	Mitigation Measure GHG-1: Implement GHG Reduction Measures	LTS
Conflict with an Applicable GHG Emissions Reduction Plan and Effects of Climate Change	LTS	None	LTS
Cultural Resources			
Damage to or Destruction of Built-environment Historic Properties	NI	None	NI
Damage to or Destruction of Known Prehistoric-period Archaeological Sites and Tribal Cultural Resources	S	Mitigation Measure CR-1: Resolve Adverse Effects through Programmatic Agreement and Historic Properties Treatment Plan	LTS (NEPA) SU (CEQA)
Potential Damage to or Destruction of Previously Undiscovered Archaeological Sites or Tribal Cultural Resources	PS	Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan; Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training; Mitigation Measure CR-4: Implement Procedures for Inadvertent Discovery of Cultural Material; Mitigation Measure CR-5: In the Event that Tribal Cultural Resources are Discovered Prior to or During Construction, Implement Procedures to Evaluate Tribal Cultural Resources and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects	LTS
Damage to or Destruction of Human Remains during Construction	PS	Mitigation Measure CR-6: Implement Procedures	LTS

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Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Geological Resources			
Potential Temporary, Short-term Construction-related Erosion	PS	Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices	LTS
Potential to Directly or Indirectly Destroy a Unique Paleontological Resource or Site	LTS	None	LTS
Hazardous Wastes and Materials			
Handling of Hazardous Materials within 0.25 Mile of a School	LTS	None	LTS
Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites	PS	Mitigation Measure HAZ-1: Conduct Phase II Investigations as Needed	LTS
Interfere with Emergency Response or Evacuation	LTS	None	LTS
Possible Creation of Wildland Fire Hazards	LTS	None	LTS
Water Quality and Groundwater Resources			
Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Groundwater Quality, Result in Substantial Erosion or Siltation On- or Offsite, or Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	PS	Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices; Mitigation Measure HWQ-1: Obtain Appropriate Discharge and Dewatering Permit and Implement Provisions for Dewatering	LTS

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Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Substantially Decrease Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin	LTS	None	LTS
Create or Contribute Runoff Water Which Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluter Runoff	LTS	None	LTS
Risk Release of Pollutants Due to Project Inundation in Flood Hazard, Tsunami, or Seiche Zones	LTS	None	LTS
Noise			
Potential Increase in Ambient Noise Levels or Exposure of Sensitive Receptors to Excessive Noise or Vibration	S	Mitigation Measure NOI-1: Implement Measures to Reduce Construction Noise and Vibration Effects	LTS
Recreation			
Temporary and Short-term Changes in Recreational Opportunities during Project Construction Activities	S	Mitigation Measure REC-1: Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordinate with the City of Sacramento to Repair of Damage to Bicycle Facilities	SU
Transportation and Circulation			
Conflict with a Program, Plan, or Ordinance: Exceed Level of Service or Conflict with Vehicle-Miles-Traveled Standards	NI	None	NI

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Table ES-1. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Increase in Traffic Volumes or Decrease in Capacity along Designated Roadways in the Project Area	PS	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan	SU
Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation	S	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan	LTS
Increased Hazards Due to a Design Feature or Incompatible Uses	PS	Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan	LTS
Public Utilities and Service Systems			
Potential Disruption of Utility Service	PS	Mitigation Measure UTL-1: Verify Utility Locations, Coordinate with Affected Utility Owners/Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage	LTS
Source: GEI Consultants, Inc. 2019			

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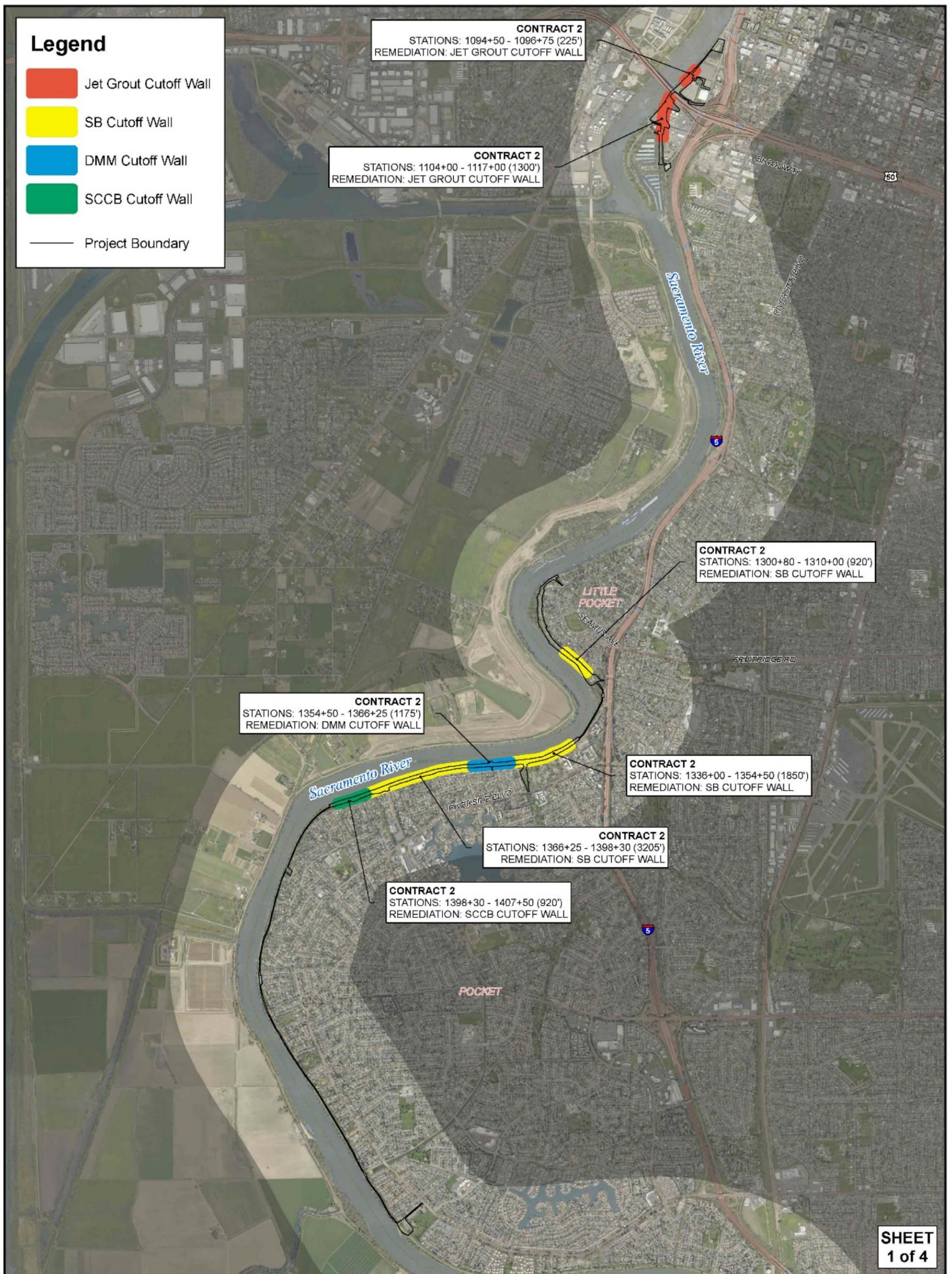
1.0 INTRODUCTION

1.1 Proposed Action

The U.S. Army Corps of Engineers, Sacramento District (USACE), Sacramento Area Flood Control Agency (SAFCA), and the Central Valley Flood Protection Board (CVFPB) propose to construct, as a part of the American River Watershed Common Features (ARCF) 2016 Project, a levee improvement consisting of an approximately 9,540 cumulative feet (1.8 miles) of cut off wall along the Sacramento River's east levee in Sacramento, California. Construction is planned to start in April 2021 and conclude in October 2021. The Proposed Action is the second of four contracts on the Sacramento River being constructed from 2020 to 2024 to address seepage, stability, and overtopping concerns along the Sacramento River east levee.

1.2 Project Location

The project is located in the City of Sacramento (City), California along the east bank of the Sacramento River. Figure 1-1 illustrates the project vicinity. The Proposed Action includes cutoff wall installation work immediately to the north and south of the Pioneer Bridge on US Highway 50, and from the southern end of Little Pocket through the northern end of Pocket. The Project Area includes the levee prism, where the cutoff wall installation will occur and material will be hauled, and several parking areas, parks, and vacant lots that will be utilized for staging areas.



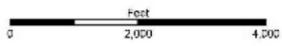


SREL
CONTRACT 2
ARCF 2016





1 in = 1,208 ft



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Figure 1-1. Project vicinity and overview of proposed improvements

1.3 Background and Need for Action

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

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

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

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

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

underseepage was a significant concern in this area, a conclusion later confirmed by the Levee Seepage Task Force in 2003.

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

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

In July 2018, Congress granted USACE construction funding to complete urgent flood control projects under the Bipartisan Budget Act of 2018. ARCF 2016 was identified for urgent implementation, and Congress supplied full funding to allow USACE to implement the much-needed levee improvements as quickly as possible. Although most environmental effects were addressed in the ARCF GRR EIS/EIR, impacts associated with some of the work, such as staging areas, haul routes, borrow site, and spoils disposal, were identified as a part of SAFCA's later assessment, and therefore were not assessed in the ARCF GRR EIS/EIR. Supplemental NEPA and CEQA analyses would be conducted, as needed, for any actions or effects that were not previously addressed in the ARCF GRR EIS/EIR. At this time this includes this document and the SREL Contract 1 SEA/EIR.

The Proposed Action is one of four contracts planned to address seepage, stability, and overtopping concerns along the SREL that will take place over subsequent years. Improvements were originally developed prior to ARCF authorization. When ARCF received full funding the design package was transferred to USACE and a panel of subject matter experts reviewed the design for compliance with USACE requirements and meeting the intent of the authorization. The first package, SREL Contract 1, is the portion of the design that was in full compliance. The second package, SREL Contract 2, is the portion of the design that needed minor improvements and additional data collection to support recommendation. SREL Contract 3 includes the designs that were determined to need significant revision or data gathering. SREL Contract 4 includes the levee raises that were authorized; however, not included in the non-federal sponsor's design.

1.4 Project Purpose

The purpose of the Proposed Action is to reduce the flood risk associated with through and under-seepage of water from the Sacramento River near Broadway, Pioneer Reservoir, and the Pocket and Little Pocket neighborhoods in the City. The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States. There is a high probability that flows in the Sacramento River will stress the network of levees protecting central and southern Sacramento to the point that levees could fail. The consequences of such a levee failure would be severe in the Pocket area since the inundated area is highly urbanized and the flooding could be up to 20 feet deep.

USACE has determined that the levee system along the Sacramento River does not meet the current federal standards for flood protection due to seepage, slope stability, and erosion. Seepage is occurring beneath and through segments of the levee system, creating a significant risk to the stability and reliability of the levee system throughout the Sacramento area. Stream bank erosion issues in the project area are exacerbated by the lack of floodplain adjacent to the river.

1.5 Project Need

The proposed project is needed to reduce risks of levee failure, especially related to seepage and underseepage, and levee stability. While the crown of the Sacramento River east levee along the reaches identified in **Figure 1-1** accommodates a maintenance roadway and/or a paved bike trail, the slope is steep, typically measuring a ratio of 1.8 Horizontal:1 Vertical (1.8H:1V) on the landside and 1.6H:1V on the waterside. This steepness, particularly in the case of a levee constructed with unsuitable materials over a porous foundation, significantly increases the risk of instability. Through-seepage also increases the instability of the levee. Constructing cutoff walls would fill this gap and strengthen the levee in the Project Area. If these levee reaches are not improved, the Sacramento River east levee would remain at heightened risk of failure from through-seepage, and much of Sacramento, including Interstate 5 (I-5) and the California State Capitol, could be significantly damaged during a future flood event.

1.6 Authority

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

The Proposed Action will address seepage and stability risks to the Sacramento River east levee identified in the interim general reevaluation study of the American River Watershed Common Features Project, which was authorized by WRDA 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707.

1.7 Purpose of the Supplemental Environmental Assessment / Environmental Impact Report

This Supplemental Environmental Assessment/Environmental Impact Report (EA/EIR) describes the existing environmental conditions in the proposed SREL Contract 2 project area, evaluates the anticipated environmental effects of the alternatives on these conditions, and identifies measures to avoid

or reduce any adverse environmental effects to a less-than-significant level where practicable. This EA/EIR has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) and the guidelines for implementation of the California Environmental Quality Act (CEQA). This EA/EIR, in combination with the ARCF GRR EIS/EIR (USACE 2016), which it supplements, fully discloses the potential environmental effects of the Proposed Action to the public and provided an opportunity for the public to review and comment on the proposed action. A 45-day public review period took place from July 8 to August 22, 2020. Public comments and responses to their comments are incorporated as part of the Final EA/EIR in Appendix C entitled ‘Public Comments and Responses’.

Section 15162 of the State CEQA guidelines provides that when an EIR has been certified for a project, a subsequent EIR need not be prepared unless a substantial change in the project, a substantial change in the surrounding circumstances, or new information of substantial importance comes to light which reveals the project would have one or more significant environmental effects not discussed in the certified EIR. A lead agency may choose to prepare a supplement to an EIR, rather than a subsequent EIR, when conditions that require preparation of a subsequent EIR are met, but “only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation” (State CEQA Guidelines, California Code of Regulations [CCR] Section 15163). This Supplemental EA/EIR supplements (not replaces) the previously certified ARCF GRR EIS/EIR and addresses project modifications, changed circumstances, and new information that could not have been known with the exercise of reasonable diligence at the time the prior document was certified, as required under State CEQA Guidelines (CCR Section 15163).

Pursuant to the State CEQA Guidelines and NEPA requirements, the Supplemental EA/EIR need contain only the information necessary to analyze the project modifications, changed circumstances, and new information that triggered the need for additional environmental review. This Supplemental EA/EIR is intended to:

- Address new or substantially more severe significant environmental effects related to any project modifications;
- Recommend mitigation measures to avoid any new or more severe significant environmental effects or reduce them to a less-than-significant level;
- Update impact analyses and mitigation measures where conditions have changed since the publication of the ARCF GRR EIS/EIR; and
- Provide minor additions and changes to the ARCF GRR EIS/EIR warranting a Supplemental EA/EIR for the following reasons
 - There would be no new potentially significant and unavoidable or significant and unavoidable impacts from the Proposed Action
 - The few new impacts from the Proposed Action can be mitigated to a less-than-significant level with implementation of measures; and
 - Applicable measures in the existing Mitigation Monitoring and Reporting Program (MMRP) continue to apply to the Proposed Action

As the CEQA lead agency, the CVFPB will consider the information presented in this Supplemental EA/EIR, comments received on this Supplemental EA/EIR, and responses to those comments, along with the entire administrative record (including the administrative record for the ARCF GRR EIS/EIR), when determining whether to approve the proposed project modifications. This Supplemental EA/EIR (SEA/EIR) has been prepared in accordance with the requirements of CEQA.

This SEA/EIR is designed to fulfill the environmental requirements for the Corps, CVFPB, California Department of Water Resources (DWR), and SAFCA. It tiers from the ARCF GRR EIS/EIR, which discusses the environmental impacts associated with the larger ARCF 2016 Project. The Proposed Action will reduce the risk of a levee failure in the project reach from flooding the city of Sacramento.

This SEA/EIR has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) and the guidelines for implementation of the California Environmental Quality Act (CEQA). This SEA/EIR, in combination with the ARCF GRR EIS/EIR, fully discloses the potential environmental effects of the project to the public and provides an opportunity for the public to comment on the proposed action.

1.8 Related Documents

The Proposed Action is a component of a larger effort in the Sacramento region. USACE and the Central Valley Flood Protection Board (CVFPB) jointly published the ARCF GRR Draft EIS/EIR in March 2015, in accordance with the requirements of NEPA and CEQA (SCH No. 2005072046). The Draft EIS/EIR analyzes the impacts of the ARCF GRR to reduce the overall flood risk within the delineated study area. The study area includes the City of Sacramento and surrounding areas. A Final EIS/EIR was issued in January 2016, and comments were received between January 22 and February 22, 2016. A revised Final EIS/EIR was issued in May 2016. The Record of Decision for the ARCF GRR was signed by the Assistant Secretary of the Army (Civil Works) on August 29, 2016. The ARCF GRR was authorized by Congress in December 2016. This Supplemental EA/EIR supplements the ARCF GRR Final EIS/EIR.

The documents which relate to the environmental review of the Proposed Action include:

- May 1988, Sacramento River Flood Control System Evaluation, Initial Appraisal Report – Sacramento Urban Area. Phase I. U.S. Army Corps of Engineers, Sacramento District.
- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—Environmental Impact Statement/Environmental Impact Report
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental Environmental Impact Statement (FSEIS)/Environmental Impact Report
- June 27, 1996, Chief's Report on FSEIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, ROD on FSEIS, signed by Director of Civil Works, Major General Russell L. Furman
- November 2008, Final Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento CA. Prepared by EDAW/AECOM, Sacramento, CA

- October 2010, Final Environmental Impact Statement on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento CA, prepared by AECOM, Sacramento, CA
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River east levee, Lower American River, and Related Flood Improvements Project. Prepared for SAFCA by GEI Consultants.
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy
- February 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1
- June 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site.
- November 2019, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 1. Prepared by GEI Consultants.

1.9 Decision Needed

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed levee work and related actions constituting the Proposed Action qualify for a Finding of No Significant Impact (FONSI) under NEPA, or whether a Supplemental EIS must be prepared due to potentially significant environmental impacts not previously disclosed. The CVFPB must decide whether to certify the Supplemental EIR under CEQA. CVFPB must consider the information presented in the ARCF GRR Final EIS/EIR, comments received on this Supplemental EA/EIR, and responses to those comments, along with the entire administrative record (including the administrative record for the ARCF GRR EIS/EIR), when determining whether to certify the Supplemental EIR under CEQA.

This SEA/EIR is also intended to be used by SAFCA, CVFPB, and the California State Lands Commission (SLC) as responsible agencies under CEQA. CVFPB and SAFCA are non-federal partners to the project will provide project funds and oversight. A state lands commission lease may be required prior to constructing the project, in which case SLC will consider this SEA/EIR prior to issuing the lease.

2.0 ALTERNATIVES

2.1 Alternatives Considered and Not Carried Forward

During preparation of the ARCF GRR Final EIS/EIR, some measures that could contribute to addressing Sacramento's flood problems and needs were reviewed and dropped from further consideration. These measures, which were described in detail in the ARCF GRR Final EIS/EIR, included upstream transitory storage, Yolo Bypass improvements, reoperation of upstream reservoirs, a diversion structure on the Sacramento River, and non-structural measures. The downstream levee repairs are the common element between all alternatives and remained the primary focus of the alternatives considered in the ARCF GRR Final EIS/EIR.

During selection of the proposed improvements for each levee reach along the Sacramento River east levee in the Project Area, a range of potential engineering alternatives was evaluated for each of the improvement locations. These alternatives included centerline cement-bentonite (CB) or soil-bentonite (SB) cutoff walls, waterside toe CB cutoff walls, waterside steel sheet pile walls, waterside cutoff trenches, compaction grouting, and landside seepage berms. For each levee reach, an improvement was selected for the Proposed Action based on considerations including cost-effectiveness, disturbance area, and/or right-of-way availability. Other proposed improvements were considered and rejected based on their inadequacy to meet the purpose and need of reducing flood risk and bringing the flood system of levees located within the Project Area into compliance with applicable engineering standards established under the National Flood Insurance Program (NFIP).

2.2 No Action Alternative

NEPA requires the analysis of a "no action" alternative that illustrates project conditions if the proposed action is not taken. Under the No Action Alternative, the SREL Contract 2 levee improvements would not be constructed. As a result, the Sacramento East Levee would remain susceptible to through-seepage and instability and would continue to be a weak spot in the system. The Sacramento metropolitan area would continue to be subject to an unacceptably high risk of levee failure and subsequent catastrophic flooding. A flood in the Sacramento metropolitan area would have substantial repercussions that would affect the entire State; the national economy; and Federal, State, and local government operations and infrastructure.

2.3 Proposed Action

This section describes the features of levee improvements, borrow areas, staging areas, haul routes, and spoils disposal sites that comprise the levee improvement alternative (Proposed Action). Although the ARCF GRR EIS/EIR analyzed the general design and impacts of the Proposed Action, design specifics were not available until the SREL Contract 2 design was complete. For clarity, the entirety of SREL Contract 2, including those components described in the ARCF GRR EIS/EIR, are described below. The proposed levee improvement areas are located in Reaches D, E, and F as defined in the ARCF GRR; Reaches 4-1, 5-2, 6-1, 13b, 15, 16, and 17 in this contract. Figure 2-1 through Figure 2-4 illustrates the overall project boundary and potential staging areas. The proposed types of improvements are described in detail in Section 2.3.1. The specific types of levee improvements considered for individual levee improvement sites (along with preferred improvements for each site) are discussed in detail in Section

2.3.2; and the proposed improvements are illustrated in Figure 2-5 through Figure 2-7. Table 2-1 provides a summary of the proposed improvements by station.

Table 2-1. Proposed Levee Improvements Summary

Feature	Reach	Stations	Stations	Length (feet)	Description of Works
Cutoff Wall	4-1	1092+50	1099+50	500	Jet grout cutoff wall to El. -75 feet (about 115 feet below existing ground) and lowering the elevation of three (3) existing relief wells
Cutoff Wall	5-2	1104+50	1112+50	800	Jet grout cutoff wall to El. -15 feet (about 55 feet below existing ground)
Cutoff Wall	6-1	1113+80	1116+20	240	Jet grout cutoff wall to El. -15 feet (about 55 feet below existing ground)
Cutoff Wall	13b	1300+50	1310+00	950	Conventional cutoff wall to El. -30 feet (about 70 feet below degrade surface)
Cutoff Wall	15	1336+00	1348+00	1,200	Conventional cutoff wall to El. -45 feet (about 82 feet below degrade surface)
Cutoff Wall	15	1348+00	1366+50	2,150	Mix-in-place cutoff wall to El. -88 feet (about 120 feet below degrade surface)
Cutoff Wall	15, 16, & 17	1366+50	1407+50	3,800	Conventional cutoff wall to El. -25 feet from Station 1369+50 to Station 1381+00, El. -15 feet from Station 1381+00 to 1400+00, and El. -10 feet from Station 1400+00 to 1407+50 (about 40 to 55 feet below degrade surface)

Source: GEI Consultants 2020

Note: All elevations in North American Vertical Datum of 1988 (NAVD88)

One potential borrow site could be located at the Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant, southeast of the Sacramento River east levee improvements area. Material excavated for the treatment plant expansion is being stockpiled on or adjacent to the SRCSD site and made available to construct the levee improvements. Other commercial sources of borrow could also be used in addition to or instead of the SRCSD stockpile. All borrow material will be tested for contamination prior to use.

Potential staging areas have been identified adjacent to and primarily landside of the levee to maximize the efficient use and distribution of materials and equipment. Staging areas will be located along the landside and waterside toe of the levee where available, parallel to roads at the levee toe, and in nearby City parks and empty parcels. USACE will acquire temporary, or possibly permanent, access rights from

landowners, in coordination with the City, as discussed and analyzed in the ARCF GRR Final EIS/EIR. The proposed levee improvement areas, potential staging areas, borrow site, and haul routes are hereinafter referred to as the Project Area.





US Army Corps of Engineers
Sacramento District



SREL C2

STAGING/HAUL ROUTE

1080+00 - 1125+00

ARCF 2016



1 in = 250 ft



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Figure 2-1. Project Site with Potential Staging Areas and Haul Routes (Map 1 of 4)



US Army Corps of Engineers
Sacramento District

EGIS

SREL C2
STAGING/HAUL ROUTE
1275+00 - 1325+00
ARCF 2016

North Arrow

Scale: 1 in = 150 ft

Date Saved: 9/29/2020 4:06:29 PM

Figure 2-2. Project Site with Potential Staging Areas and Haul Routes (Map 2 of 4)





**US Army Corps
of Engineers**
Sacramento District



SREL C2 STAGING/HAUL ROUTE

1320+00 - 1415+00
ARCF 2016



Feet
0 400 800
Date Servd: 6/29/2020 4:08:17 PM



Figure 2-3. Project Site with Potential Staging Areas and Haul Routes (Map 3 of 4)



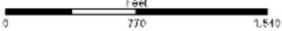


SREL C2
STAGING/HAUL ROUTE
1407+50 - 1555+00
ARCF 2016





1 in = 450 ft



Data Source: 6/30/2020 8:14:30 AM

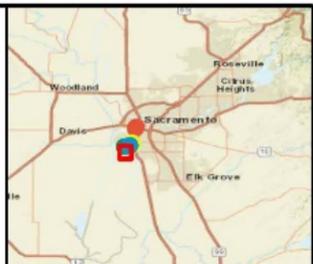


Figure 2-4. Project Site with Potential Staging Areas and Haul Routes (Map 4 of 4)



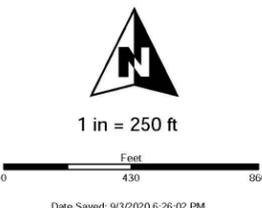


US Army Corps of Engineers
Sacramento District



SREL C2

1094+50 - 1096+75
1104+00 - 1117+00
ARCF 2016



1 in = 250 ft

0 430 860

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Figure 2-5. Proposed Improvements (Map 1 of 3)





US Army Corps of Engineers
Sacramento District



SREL C2

1300+80 - 1310+00

ARCF 2016



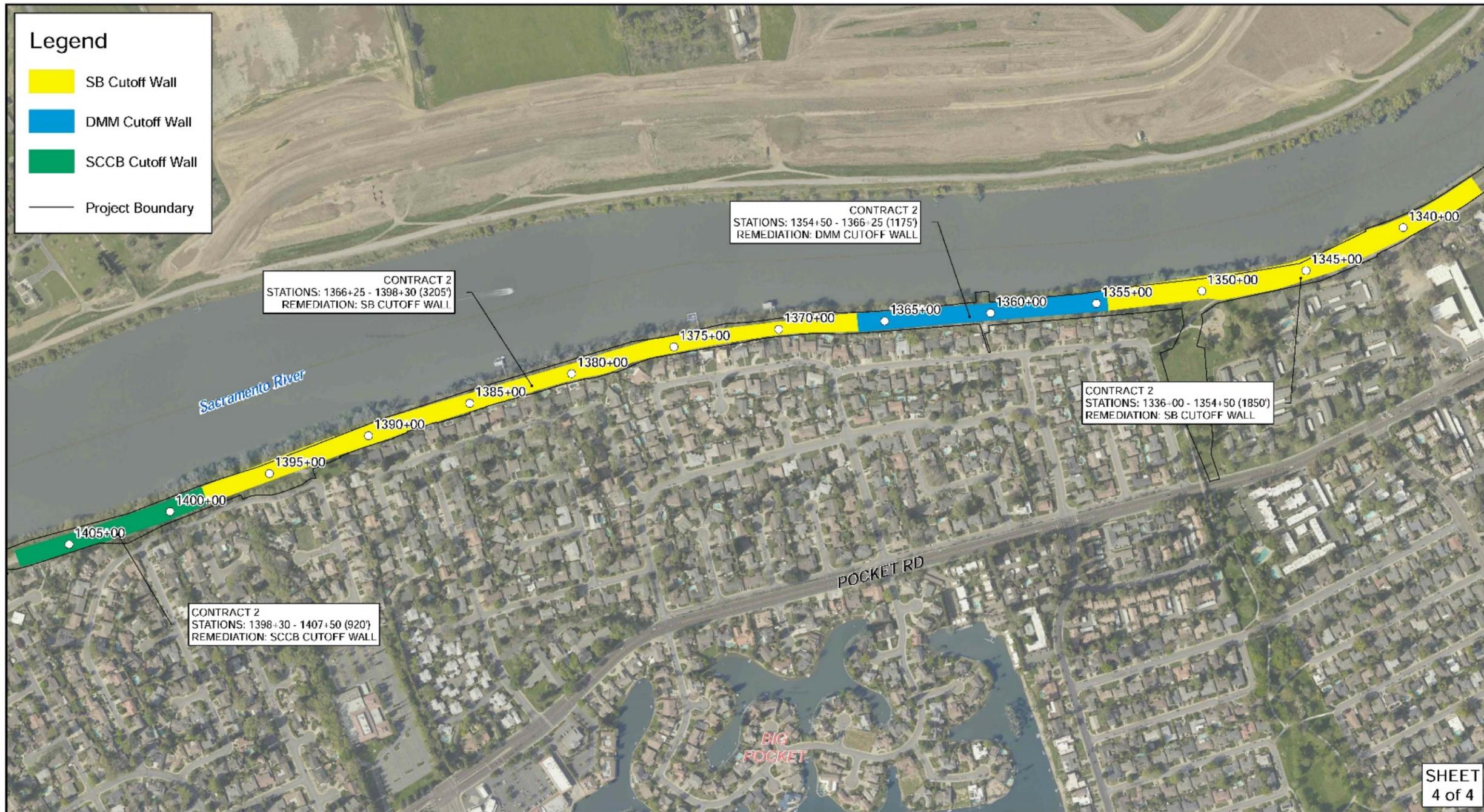
1 in = 100 ft



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Figure 2-6. Proposed Improvements (Map 2 of 3)





US Army Corps of Engineers
Sacramento District



SREL CONTRACT 2

1336+00 - 1407+50

ARCF 2016



0 500 1000 Feet

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Figure 2-7. Proposed Improvements (Map 3 of 3)

2.3.1 Proposed Types of Levee Improvements

Cutoff Walls

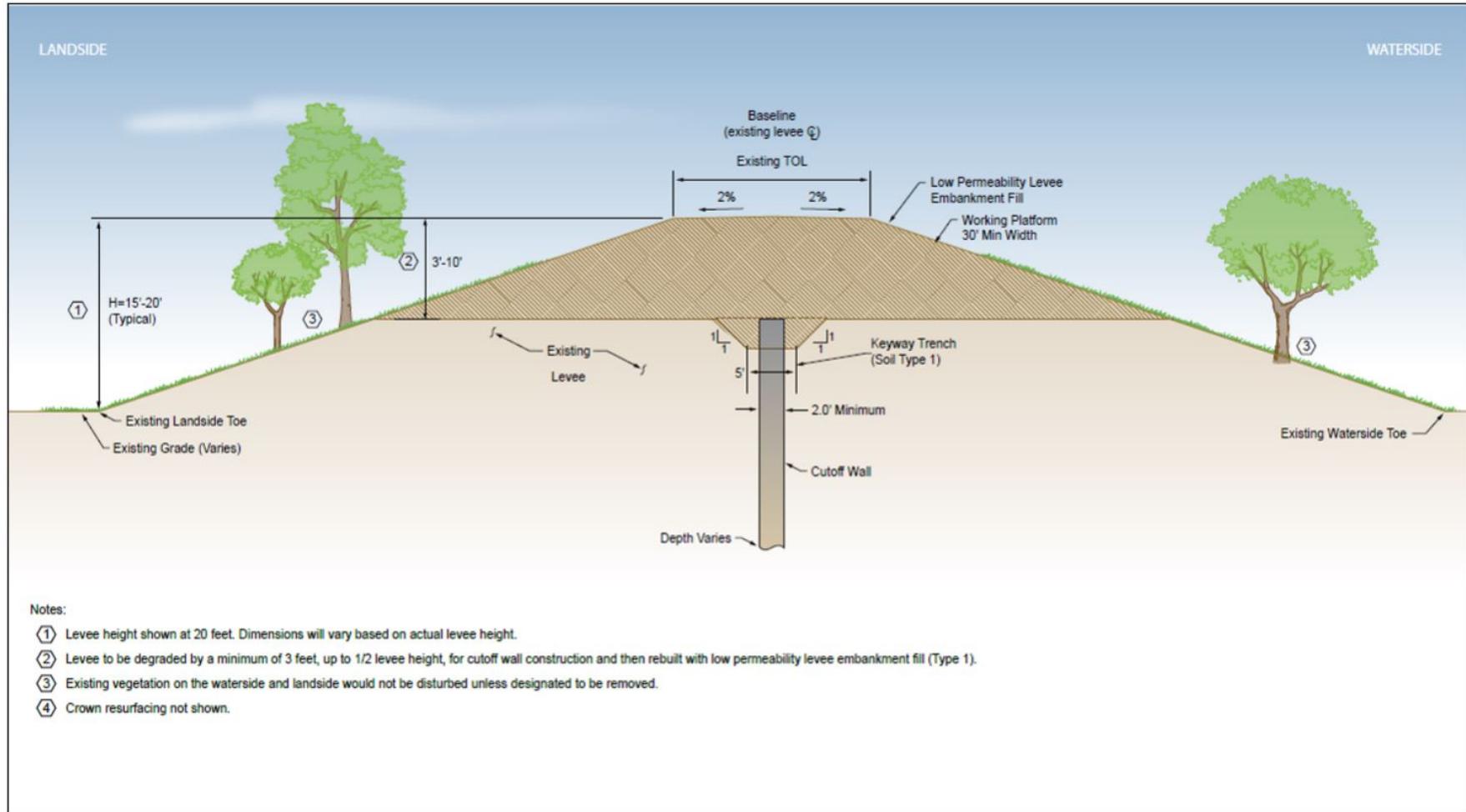
Sandy or gravelly soils of higher permeability in the levee or levee foundation can transmit water via seepage during high-water stages. Cutoff walls are designed to reduce levee through-seepage and underseepage by providing a barrier of low-permeability material within the higher permeability materials in the levee and levee foundation. Cutoff walls are installed to depths sufficient to minimize seepage both through the levee and beneath it to meet or exceed USACE and State of California levee design criteria. The depths for cutoff walls necessary to limit underseepage at the design water surface elevation to gradients specified by USACE and the State are determined by geotechnical modeling and analyses. Cutoff walls for underseepage are generally installed to depths that tie into existing lower permeability soil layers in the levee foundation below the permeable material. A sample design schematic of a cutoff wall installed along the levee centerline is shown in Figure 2-8.

Cutoff walls can be constructed by a number of methods to suit specific site conditions, required depth of treatment, and schedule requirements. The methods chosen for this project include: conventional soil-bentonite (SB) mix; slag-cement-bentonite (SCCB), deep soil mixing (DMM); and jet grouting techniques. For this project, cutoff walls will be constructed at the levee centerline. The required working area for construction depends on the method used. For conventional SB trench methods, the working platform must be at least 30–40 feet wide for shallow cutoff walls, with deeper walls requiring a wider platform.

Conventional slurry cutoff walls are typically constructed using an excavator with a long-stick boom capable of digging a trench to a maximum depth of approximately 85 feet. Bentonite slurry is placed in the trench during trench excavation to prevent caving while the backfill material is mixed and placed. Excavated soil is then mixed with bentonite clay (and cement for SCCB wall) to achieve the required cutoff wall strength and permeability properties and is backfilled into the trench. In the case of CB walls, the CB slurry that is placed in the trench during trench excavation to prevent caving hardens in place to form the permanent low-permeability backfill, and all of the soil excavated from the trench is taken to an appropriate disposal site or reused elsewhere.

The DMM and jet grout methods of slurry wall construction differ from the conventional trench method in that the existing subsurface soils are mixed in place with cement and bentonite injected through augers, drill rods with nozzles, or cutting chain equipment used to construct the wall and provide the low-permeability barrier. These in-place methods of mixing do not require bentonite slurry to maintain open trench stability while backfill is being mixed and placed. Excess soil displaced from the trench by the addition of cement and bentonite is taken to an appropriate disposal site or reused elsewhere.

Figure 2-8. Typical Conventional Slurry Wall. Specifications may vary.



Source: GEI & HDR 2014, adapted by GEI 2019

Jet grout construction is a method of cutoff wall construction that was not included in the ARCF GRR Final EIS/EIR, but is necessary in Reaches 4-2, 5-2, 6-1 due to the existence of a large number of underground utilities. Jet grouting is unique in that it involves injecting grout into the soil at very high pressures. The grout is a mixture of cement and water that is mixed in a batch plant located in the staging area and transported through high-pressure hoses to the location of construction. The jet grout process involves drilling a hole straight down into the levee to a depth of up to approximately 130 feet, then injecting grout into the hole through a high-pressure nozzle. As the grout is injected from the bottom to the top of the hole, the high pressure excavates the soil around the nozzle to a radius of 3 to 4 feet, mixing the soil within the levee with grout. The grout injection may be accompanied with air and water to assist the excavation of soil. The nozzle is rotated and lifted at a slow, smooth, constant speed to achieve thorough mixing and consistent quality. The grout then solidifies to create a column of low permeability. Multiple columns constructed together create a wall through the levee that prevents seepage.

Soil that is displaced from the injection site will be piped into drying beds or containment cells located in the staging area for later disposal. Drying beds are pits excavated into the existing soil; raised berms will be created with the excavated soil to increase the containment level available in the drying beds. Alternatively, containment cells could be placed in the staging area in order to create above ground drying beds. Containment cells will be constructed with K-rails with earth fill around the outer perimeter of the K-rail. The drying ponds/containment cells will be lined with a landfill-grade liner to prevent any materials from seeping into the surrounding soil. Material that is piped into the drying beds/containment cells will be allowed to dry thoroughly before being removed from the staging area and transported to an appropriate disposal facility. Although jet grouting is more expensive than other techniques, it allows cutoff walls to be constructed in places where important utility lines intersect the levee as the grout can be placed while leaving the utilities in place.

Footprint and Impact Zone for Cutoff Walls

Construction of a conventional slurry cutoff wall through the center of the levee typically requires that the existing levee be degraded by at least one third of the levee height to provide for a working platform of sufficient width to accommodate equipment, and to reduce potential for developing cracks in the levee during cutoff wall installation. Such cracking of the levee is not a problem for DMM cutoff wall installations; levee degradation for DMM or jet grout cutoff wall installations is only required as needed to develop the working platform necessary to operate the cranes and supporting equipment, typically a width of 20–40 feet.

USACE will make every feasible attempt to minimize the footprint and impact zone to the upper third of the levee for cutoff wall construction. However, depending on levee geometry and available work area, it is possible that in some locations up to half of the levee may be degraded. Therefore, to provide flexibility in the event that a half levee degrade is needed in some locations, a half levee degrade is also assumed in the supplemental environmental assessment (SEA/EIR) for all levee improvements. Construction impacts may be less where a smaller levee degrade is feasible to complete levee upgrades. A half levee degrade will still be above the ordinary high water mark (OHWM). The lateral design boundary (i.e., limit of work) assumed in the SEA/EIR is as follows:

- assumed average levee height above natural grade: varies 16–20 feet high
- assumed average levee degrade excavation depth from top-of-levee: 8–10 feet deep (equal to half levee height)

- assumed average waterside levee slope: varies from 2.5:1 to 3:1
- assumed average landside levee slope: 2:1

The impact corridor boundaries were calculated as follows:

- levee crown width: varies 20–24 feet on average
- projected horizontal width of waterside slope removal to 10-foot vertical depth: +25 feet (or 30 feet)
- projected horizontal width of landside slope removal to 10-foot depth: +20 feet
- total width of the top of degraded levee: $25+20+20$ (or 24) = 65–69 feet wide

Trimming and removal of trees was determined based on their location relative to the impact corridor. If a tree could be trimmed while providing the necessary clearance for construction activities, trimming is recommended. Otherwise, trees within the impact corridor boundaries were identified for removal. The Proposed Action will include removal of up to 60 trees, including approximately 57 trees from within the impact corridor and three trees to meet staging and access requirements.

Cutoff wall construction to depths of up to 85 feet along the existing levee will be accomplished primarily with large modified excavators. This equipment and the associated sequence of excavation, backfill preparation, and placement of backfill into the slurry cutoff wall trench will require a work platform near the trench. A work platform will be established adjacent to the trench by partially degrading (cutting down) the top of the existing levee to provide adequate working width. Excavated soil will be hauled to a nearby area for mixing with bentonite and reintroduction in the trench. The cutoff wall backfill will likely consist of a SB mixture, although alternative materials such as SCCB may be considered.

After cutoff wall construction, properly selected and moisture-conditioned embankment materials will be transported to the site and placed in accordance with accepted levee construction standards for lift thickness and compaction to restore the levee height. Each lift will be moisture-conditioned and compacted to the specified density using a suitable compactor, such as a tamping-foot or smooth-drum roller. The levee reconstruction will either include an imported low permeability core and reuse of the degraded levee material in the waterside and landside shells or a homogeneous section of imported low permeability material. Restoring the levee height with a uniform fill section may be more economical, depending on site physical constraints. After the levee is reconstructed, aggregate base or asphalt concrete will be placed on the levee crown patrol road, similar to existing conditions, and the disturbed slopes will be planted with approved vegetation.

Relief Wells

Relief wells are used adjacent to levees to safely release seepage pressures caused by the differential water surface elevations during flood conditions between the riverside and landside of the levee and thus to prevent the collapse of the levee. Higher water elevations in the river during a flood creates a pressure gradient, causing water to infiltrate the soil of the levee and its foundation. Water may then flow through the soil towards the dry side of the levee and can result in the formation of boils, piping, and ultimately the failure of the levee. Relief wells act like valves to relieve the water pressure before boils form and allow excess water to be diverted safely to a canal or other drainage feature.

2.3.2 Proposed Levee Improvements

The following sections describe the proposed improvements in specific portions of the project site. Individual improvement locations are identified as sites or segments.

Station 1092+50 to Station 1099+50: Jet Grout Cutoff Wall

The levee at the upstream portion of this segment is buttressed on the landside by a landfill that was constructed to close an adjacent Pacific Gas & Electric former industrial property. The downstream portion of this segment is adjacent to Pioneer Reservoir, which is a detention facility for temporary storage of combined sewage and storm water from Old Sacramento and surrounding areas. The reservoir extends below existing adjacent site grades. There are two railroad tracks and a paved bicycle and pedestrian trail along the top of the levee. USACE installed four fully penetrating relief wells and associated discharge piping in 2006 to reduce elevated seepage pressures for the then-defined 100-year design water surface elevation.

The identified improvement in this segment is a jet grout cutoff wall installed through the levee crown from Station 1093+50 to Station 1098+50. The purpose of the jet grout cutoff wall is to prevent through-seepage and underseepage in the portion of the reach between the landfill and the Pioneer Reservoir inlet and outlet pipes. The wall is proposed to extend to Elevation -73 feet, which is about 110 feet below the existing levee crown. Additionally, to reduce the length of the jet grout cutoff wall feature, improvements in this segment will also include modification of three of the four existing relief wells, allowing them to relieve seepage pressures sooner. The modification entails lowering the elevation of each of the relief well discharge pipes by approximately three feet.

Station 1105+00 to Station 1112+40: Jet Grout Cutoff Wall

This segment of the levee is adjacent to an oil and gas industrial facility between the Highway 50 Pioneer Bridge at the north end and the Broadway levee crossing at the south end. There is one railroad track and a paved bicycle and pedestrian trail along the top of the levee in this segment. The downstream end of the segment is just north of the Broadway crossing.

The identified improvement in this segment is a jet grout cutoff wall installed through the levee crown from Station 1105+00 to Station 1112+40. The purpose of the jet grout cutoff wall is to prevent through-seepage and stitch the upper blanket to reduce underseepage through shallow sand layers within the levee foundation. The wall is proposed to extend to Elevation -15 feet, which is about 55 feet below the existing levee crest.

This reach also includes the re-grading of a low spot located near the landside levee toe at Station 1107+00 within the Chevron petroleum storage tanks containment basin. Re-grading would be performed with existing onsite material only within the containment basin and will be focused on balancing the cut and fill such that there is no net gain or loss of material on the site, only shifting the low spot further landward.

Station 1114+00 to Station 1116+15: Jet Grout Cutoff Wall

This segment of the levee is adjacent to an oil and gas industrial facility. There is one railroad track along the top of the levee in this segment, but no bicycle or pedestrian trail. The upstream end of the segment is just south of the Broadway crossing and the downstream end is at the north end of the Sacramento Marina parking lot on Miller Park Circle, where the new cutoff wall will tie to a cutoff wall constructed under Contract 1.

The identified improvement in this segment is a jet grout cutoff wall installed through the levee crown from Station 1114+00 to Station 1116+15. The purpose of the jet grout cutoff wall is to prevent through-seepage and stitch the upper blanket to reduce underseepage through shallow sand layers within the levee foundation. The wall is proposed to extend to Elevation -15 feet, which is about 55 feet below the existing levee crest.

Station 1300+30 to Station 1310+00: Cutoff Wall

This segment of the levee is adjacent to a residential neighborhood along the south end of the Little Pocket. Residential development abuts the landside toe and a riparian bench is located waterside of the levee. This segment is located just downstream of a segment of levee where a deep cutoff wall will be installed under Contract 1. The USACE previously installed a shallow seepage cutoff wall at this location, thus the new cutoff wall will be installed parallel to this with a minimum distance of 1 foot between the edge of the existing shallow wall and the edge of the new wall.

The identified improvement in this segment is a conventional cutoff wall installed through the levee crown from Station 1300+30 to Station 1310+00 to control underseepage. The wall is proposed to extend to Elevation -30 feet, which is about 70 feet below the existing levee crown.

Station 1336+00 to Station 1354+80: Cutoff Wall

This levee segment is adjacent to a residential area, school, and the City of Sacramento's Ellsworth Zacharias Park along the northeast side of the Pocket. The levee is paralleled by residences, a short length of road, and the park, a portion of which will be used as a staging area during construction. The levee crown includes a bicycle and pedestrian trail. The trail is paved over most of the length of the segment. The USACE previously installed a shallow seepage cutoff wall at this location.

The identified improvement in this segment is a conventional cutoff wall installed through the levee crown from Station 1336+00 to Station 1354+50 to control underseepage. The wall is proposed to extend to Elevations between -25 feet and -45 feet, which is about 60 to 82 feet below the existing levee crest.

Station 1354+50 to Station 1366+25: Cutoff Wall

This levee segment is adjacent to a residential neighborhood consisting of single-family homes along the north side of the Pocket. Some of the residences have swimming pools near the landside toe. The USACE previously installed a shallow seepage cutoff wall at this location.

The identified improvement in this segment is a deep cutoff wall to be installed through the levee crown by either the deep mixing method or soil-bentonite method from Station 1354+50 to Station 1366+25. The wall is proposed to extend to depths ranging to a maximum of Elevation -62 feet, which is about 98 feet below the existing levee crest. Its purpose is to control underseepage. A half levee degrade may be required for this segment.

A City of Sacramento drainage pump station, Sump 63, is located adjacent to the levee between Stations 1360+00 and 1361+00. The pump station discharges through four 24-inch diameter steel buried pipelines, which run up and over the levee and have the outlets at the riverbank at about El. 5.5' NAVD 88 datum, (approximately 30 vertical feet below the levee crown). A 25'x25' sloping concrete

slab revetment provides erosion protection for the riverbank at the pipe outlets. On the waterside edge of the levee crown there is a buried concrete vault that houses a siphon breaker valve for each of the pipelines.

The degrade of the levee needed for construction of the deep cutoff wall will require the removal of the four discharge pipes and valve vault (which are located within the levee degrade prism), and subsequent reconstruction of the pipelines and vault once the cutoff wall has been installed. The work will include excavation of a trench to uncover the pipelines, removal of the pipelines from just outside the Sump 63 wall at the levee landside toe to just above the waterside toe of the levee at about El. 22', and installation of new pipelines of the same diameter and material (welded steel). A new vault structure will be constructed at the levee crown to house new rapid closure valves (knife gate valves) and anti-siphon and air release valves.

While the pipelines are out of commission during construction, the Contractor will be required to provide temporary bypass pumping of drainage waters collecting at the sump. Drainage flows are expected to be minor during the summer construction season.

Station 1365+95 to Station 1407+50: Cutoff Wall

This segment of the levee is adjacent to a residential neighborhood consisting of single-family homes along the north side of the Pocket. Some of the residences have swimming pools near the landside toe. A residential street borders the levee in the downstream portion of the segment. The USACE previously installed a shallow seepage cutoff wall along this segment. The following known utilities/structures have been identified to be protected in place or not disturbed during construction:

- Existing waterside concrete structures, decks, and boat docks
- Existing waterside stairways and catwalks used for dock access

Utilities that have been identified for removal during construction along this segment include:

- Small diameter irrigation pipe and 1-inch electrical conduit
- 5-inch diameter pipeline
- Electrical conduit
- 1-inch water pipe and electrical conduit
- 6-inch pipeline

The identified improvement in this segment is a conventional cutoff wall from Station 1365+95 to Station 1407+50 installed through the levee crown to control underseepage. The wall is proposed to extend to Elevations between -10 feet and -50 feet, which is about 46 to 86 feet below the existing levee crest.

2.3.3 Proposed Borrow Site, Disposal Site, Haul Routes, and Material

Borrow material can be obtained from the SRCSD Wastewater Treatment Plant, southeast of the Sacramento River east levee Improvements area, or from a permitted source within 30 miles of the Project Area at the contractor's discretion. If the SRCSD Wastewater Treatment Plant is used, borrow material will be transported to the project site via developed roads such as via Dwight Road, Laguna Boulevard, and I-5, possibly augmented by locally developed access roads through agricultural parcels. Figure 2-1 through

Figure 2-4 illustrates potential haul routes. Not all the routes shown will necessarily be used; final routes will be determined in coordination with the City, based on project construction schedules. Borrow site restoration requirements, if any, will be coordinated with SRCSD and may include grading and revegetating slopes. Other commercial sources of borrow could also be used in addition to or instead of the SRCSD stockpile.

The design does not preclude temporary stockpiling of earthen material on site. However, material excavated from the levee embankment degrade will likely not meet levee fill specifications and will be disposed of offsite. The aggregate surfacing from the levee crown may be reused if it meets specification and if it is more cost effective for the Contractor to stockpile on site rather than disposing of it and buying new material. This could result in a relatively small stockpile of gravelly material and will be determined by the contractor.

The preliminary estimated borrow material and excess soil disposal requirements for construction of the proposed levee improvements are provided in Table 2-2.

Table 2-2. Preliminary Estimated Borrow Material and Excess Soil Disposal Requirements

Material Type	Quantity	Borrow/Disposal Source
Type 1 Levee Fill – Low Permeable	85,000 cy	SRCSD Stockpile or Commercial Source
Aggregate Base	7,500 tons	Commercial Quarry
Asphalt Concrete	700 tons	Commercial Plant
Excess Soils	85,000 cy	Approved Off-site Disposal

Notes: cy = cubic yards; SRCSD = Sacramento Regional County Sanitation District
Source: GEI Consultants, Inc. 2020

The Sacramento Railyards, north of the Project Area, has been preliminarily identified for disposal of excess soil. In lieu of the Railyards, materials not used onsite will be disposed of at an approved off-site disposal location. The Railyards Specific Plan Update, KP Medical Center, MLS Stadium, & Stormwater Outfall Subsequent EIR, SCH #2006032058 (Railyards SEIR), which analyzed soil hauling to the Railyards, is hereby incorporated by reference, and analysis from the Railyards SEIR is discussed in relevant topic sections related to spoil disposal. Some excavated material may be temporarily sidecast on the landside slope of the levee for the purpose of widening the working platform for cutoff wall installation. After the cutoff wall is constructed, the sidecast material will be disposed of off-site.

2.3.4 Potential Staging Areas

Staging areas are used to store and transfer construction materials, equipment, and bentonite hydration and mixing facilities. Staging area opportunities are relatively limited along most of the Sacramento River east levee, due to the constraining nature of adjacent urban development. It is anticipated that several staging areas will be developed adjacent to and primarily landside of the levee to maximize the efficient use and distribution of materials and equipment, along parallel roads at the levee toe, and in nearby City parks and empty parcels. Due to space limitations in the Project Area, some staging areas located on the waterside will be located above the ordinary high water mark (OHWM) and will be subject to strict containment and spill prevention BMPs. For many cases, USACE will need to acquire temporary, and possibly permanent, access rights from landowners. Final selection of staging areas will be based on

environmental and land use constraints, negotiations and coordination with the City and other landowners, acquisition of access rights, construction sequencing and schedules at each potential staging area, and contractor preferences. Because much of the area adjacent to the levee is developed, a large centrally located staging area may be required at a greater distance from the sites to store material and stockpile soil, in addition to smaller staging areas closer to the work areas. Staging areas will be returned to pre-project conditions following construction activities. The effects of using staging areas of variable size and variable distance from the work areas will not change the intensity or severity of the impacts analyzed in this Supplemental EA/EIR.

Bulk material silos, bentonite hydration facilities, and mixing facilities will be required for DMM, jet grouting, and conventional slurry wall construction. These facilities will be located near the landside or waterside toe of slope (if a waterside bench is present), ideally within 2,000 feet but no farther than 5,000 feet from the point of use (5,000 feet is the maximum distance to pump slurry to the excavation or mixing equipment). These staging areas may be separate from material and equipment staging areas. Figure 2-1 through Figure 2-4 illustrate potential staging areas including, but not limited to, the following locations:

- Front Street south of R Street;
- north of Broadway, waterside of the levee
- north end of Miller Park Circle, just east of Marina View Drive, in Miller Park;
- overflow parking area south of Front Street, in Miller Park;
- waterside levee toe at the south end of Little Pocket;
- a portion or all of Ellsworth Zacharias Park;
- landside levee toe along North Point Way, east of Grangers Dairy Drive (locally known as Wounded Warrior Park);
- a vacant lot at 6534 Benham Way;
- a portion of Garcia Bend Park, including the boat ramp.

As indicated previously, CVFPB and USACE may not need to use all of the identified potential staging areas. Also, given the linear nature of construction, the staging areas will not all be used simultaneously throughout the entire 1-year construction period.

Portions of three City parks (Ellsworth C. Zacharias Park, Garcia Bend Park, and Miller Park) could be closed simultaneously during portions of the construction period. CVFPB and USACE will coordinate with the City of Sacramento Parks and Recreation Department to ensure that construction is staged in a way to minimize adverse effects to the communities to the greatest extent practicable. Effects will include:

- A portion of the parking lot at the northern end of Miller Park Circle, between approximate levee Stations 1115+00 and 1116+30, will be closed for construction of a jet grout cutoff wall. The closure will be scheduled for after Labor Day and will be expected to last up to two months. No impacts to the Miller Park boat ramp or other portions of the Miller Park Marina are anticipated.
- Impacts to Garcia Bend Park may include the use of the driveway between Pocket Road and the boat ramp parking lot and use of a portion of the boat ramp parking lot for Contractor access and potential use as a staging area. The boat ramp may be closed for the construction season.

- Ellsworth C. Zacharias Park will potentially be fully closed.

CVFPB and USACE will return all City parks to pre-project conditions. Other recreational resources that will be affected during project construction include the Sacramento excursion train, the Sacramento River Parkway bike trail, and a City of Sacramento parcel (APN 030-0041-046) that abuts the levee on North Point Way at Stations 1392+00 to 1393+00, and is adjacent to a levee ramp at Station 1394+00. It is not a City park and has no amenities; a sign posted says “Wounded Warrior Park.”

2.3.5 Utility Relocations and Removals

The Proposed Action will affect a number of existing utilities through the levee, primarily small-diameter electrical, communications, and irrigation conduits. Electrical and communication conduits are not considered high-hazard and will either be protected in place or replaced by the utility owner. No closures are required for conduits, so the conduits only need to comply with elevation and age criteria. All conduits identified in the design drawings to be replaced due to interference with project construction will be replaced by the contractor. Conductors and communication lines will be installed by the utility owners after conduits have been modified. Irrigation lines located within the levee will be capped beyond the landside toe and removed within the levee prism during clearing and grubbing activities. Table 2-3 summarizes utility modifications that will occur with the Proposed Action.

Utilities not being removed will be protected during construction. Utility owners will then replace their utilities to comply with levee design criteria and other standards after project construction is complete.

Levee improvements will include removal and disposal of utilities that are encountered during construction and are not permitted or were previously abandoned. A total of 30 individual utilities and utility groupings have been identified for removal. However, additional undocumented utilities may need to be addressed during construction. These utilities will be removed to the waterside toe and to 10 feet beyond the landside toe where feasible; in some cases, landside structures or right-of-way restrictions prevent removal to 10 feet beyond the levee toe.

Table 2-3. Summary of Utility Modifications and Removals

STATION	UTILITY	ACTION
1093+54	6" STEEL WATER PIPE -ABANDONED	REMOVE AND DISPOSE
1093+58	6" STEEL WATER PIPE - ABANDONED	REMOVE AND DISPOSE
1093+60	4" WATER PIPE - ABANDONED	REMOVE AND DISPOSE
1093+64	2" CONDUIT - ABANDONED	REMOVE AND DISPOSE
1093+68	10" STEEL PIPE - ABANDONED	REMOVE AND DISPOSE
1094+49	ABANDONED 12" GAS PIPELINE - ABANDONED	REMOVE AND DISPOSE
1094+59	6" GAS PIPELINE	REMOVE AND DISPOSE
1094+59	6" GAS PIPELINE	REMOVE AND DISPOSE
1094+59	6" GAS PIPELINE	REMOVE AND DISPOSE
1309+40	UNKNOWN PIPELINE	REMOVE AND DISPOSE
1313+35	.75" WATER PIPELINE	REMOVE AND DISPOSE
1345+25	2" PVC WATER PIPELINE & ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1345+30	ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1354+84	12" STEEL IRRIGATION PIPELINE - ABANDONED	REMOVE AND DISPOSE
1357+24	6" STEEL IRRIGATION PIPELINE - ABANDONED	REMOVE AND DISPOSE
1360+24	24" STEEL PIPELINE	REMOVE AND REPLACE
1360+28	24" STEEL PIPELINE	REMOVE AND REPLACE
1360+33	24" STEEL PIPELINE	REMOVE AND REPLACE
1360+37	24" STEEL PIPELINE	REMOVE AND REPLACE
1360+39	2" STEEL PIPELINE	REMOVE AND REPLACE
1370+09	ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1370+11	IRRIGATION PIPELINE	REMOVE AND DISPOSE
1370+12	1" ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1373+56	(2) 2" ELECTRICAL CONDUITS	REMOVE AND DISPOSE
1377+13	5" PIPELINE	REMOVE AND DISPOSE
1382+98	ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1383+53	ELECTRICAL CONDUIT	REMOVE AND DISPOSE
1383+53	1" PVC WATER PIPELINE	REMOVE AND DISPOSE
1396+48	6" PIPELINE - ABANDONED	REMOVE AND DISPOSE
1408+63	4" PIPELINE	REMOVE AND DISPOSE

2.3.6 Construction

General construction requirements, equipment, schedule, and details are provided below.

Levee repair construction work is planned to be completed in 2021, after receipt of all environmental clearances, permits, authorizations, and permissions. Construction will occur during daytime hours, generally between 7 a.m. and 7 p.m., Monday through Sunday. No construction is planned outside these hours in residential areas, and in the event that construction schedules were changed to include work outside these hours, construction will only be permitted at the distance required to reduce exterior noise levels below the threshold designated by city code. Night work, 24 hours per day 7 days per week, is limited to the non-residential, industrial area surrounding the City of Sacramento's Pioneer Reservoir (from levee stations 1093+50 to 1098+50) and the Chevron and Phillips 66 oil tank facilities

(from levee stations 1105+00 to 1116+15). Night work in this area will only be used if needed to meet the construction schedule. Night work is subject to all city ordinances and will use the minimal amount of lighting necessary to safely and effectively illuminate the work areas. Temporary lighting will include shielding and focusing lights on work areas and away from the water surface of the Sacramento River. Temporary and permanent lighting will have correlated color temperatures and under 3000K to minimize disturbance to nocturnal wildlife

Levee repairs will only be done during the non-flood season when river flows are substantially controlled by upstream releases at major reservoirs (Shasta, Oroville, New Bullards Bar, Folsom), and the river stages generally known. Furthermore, the contractor is required to complete a Flood Contingency Plan. This Plan includes the requirement that the Contractor must monitor forecasted river levels and partially reconstruct the levee to provide freeboard above a forecasted high-water stage if the river stage will approach or exceed the degraded top-of-levee surface. In addition, the height of degrade is limited (at least two thirds of the levee height is to remain in place at all times unless otherwise approved by the USACE), and the limited degrade does not significantly reduce the level of flood protection during the non-flood season.

Improvements are anticipated to be implemented in a single construction season from April 2021 through November 2021, with vegetation and tree removal occurring over an approximately 3-week period between December 2020 and February 2021. Levee repair construction work will commence after receipt of all environmental clearances, permits, authorizations, and permissions. The anticipated construction sequence will include:

- *Vegetation and Encroachment Removal:* Trees and other encroachments that affect improvement areas will be trimmed or removed. These activities will take approximately 3 weeks and be completed between November 2020 and February 2021.
- *Mobilization:* Mobilization will include setting up construction offices and the slurry batch plant and transporting heavy earthmoving and mixing equipment to the site. These activities will take approximately 1 month and begin in April 2021, or potentially earlier if weather permits.
- *Levee Degradation for Cutoff Wall Installation:* Levee degradation will begin after vegetation and encroachment removal and precede cutoff wall installation. Degradation will take approximately 2 months but is unlikely to be conducted in one operation. Rather, levee reaches will be degraded for a specific length of cutoff wall, to minimize the total length of degraded levee at any one time.
- *Cutoff Wall Installation:* This activity will begin with constructing the work pad after a sufficient length of levee has been degraded and is available for construction. Assuming five simultaneous work areas (one conventional, two jet grout, and two DMM), construction will take approximately 4 months.
- *Utility Relocation:* Any required utility relocation will be conducted concurrently with levee degradation and reconstruction, and will take approximately 3 months. Additional scheduling consideration will be made to important regional sewer and gasoline pipelines in Reach 4.

- *Levee Reconstruction:* Levee reconstruction will begin after a sufficient length of cutoff wall has been completed to allow efficient reconstruction. Total time estimated for levee reconstruction is approximately 2 months.
- *Site Restoration and Demobilization:* Upon completion of the main construction activities, the contractor will resurface the levee patrol road, revegetate disturbed areas, restore staging and borrow areas, and demobilize from the site(s). Restoration activities are expected to take up to 4 months and will be completed by December 2021. Privately-owned encroachments removed during construction will not be replaced.

To the greatest extent practical to minimize impacts and effects on the community, construction will be staged and sequenced in consideration of the appropriate stakeholders and applicable constraints: the City, utility and service providers, biological resource construction work windows, and other environmental and land use/real estate constraints.

Erosion Control and Site Restoration

Temporary erosion/runoff best management control measures will be implemented during construction to minimize stormwater pollution resulting from potential erosion and sediment migration from the construction, borrow, and staging areas. These temporary control measures may include implementing construction staging in a manner that minimizes the amount of area disturbed at any one time; secondary containment for storage of fuel and oil; and the management of stockpiles and disturbed areas by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers, as appropriate. Erosion and stormwater pollution control measures will be consistent with the Construction General Permit (National Pollution Discharge Elimination System (NPDES) permit)) requirements and will be included in a Stormwater Pollution Prevention Plan (SWPPP).

After completion of construction activities, the temporary facilities will be demobilized and the site will be restored to pre-project conditions. Site restoration activities for areas disturbed during construction, including borrow areas and staging areas, may include regrading, reseeding, constructing permanent diversion ditches, using straw wattles and bales, applying straw mulch, and other measures deemed appropriate.

Construction Equipment

Contractor plant equipment could include construction office and equipment trailers, warehousing and equipment maintenance facilities, batch plant, grout pumps, and fuel pumps and fuel storage tanks. The construction office area will include security fencing and gates, double wide trailers for Contractor office and storage, Engineer's field office, portable toilets, likely a generator, parking areas, and laydown areas for miscellaneous construction equipment and supplies (piping, BMP supplies). Likely locations for the construction office include the staging area off of Front Street at the north end of the project (Station 1084) or at Zacharias Park (Station 1351). Mobile construction equipment will depend on the selected contractor's planned operations. Typical equipment that may be used throughout the project is shown in Table 2-4.

Additional equipment will likely include utility equipment to install power lines, an air compressor, welding equipment, pumps and piping, communications and safety equipment, erosion control materials, miscellaneous equipment customary to the mechanical and electrical crafts, and vehicles used to deliver equipment and bulk materials (including soil, bentonite, and cement). It is expected that any concrete will be shipped to the site in ready-mix trucks.

Construction-related Traffic

Personnel, equipment, and imported materials will reach the site via I-5 and numerous City streets such as Broadway, Sutterville Road, Riverside Boulevard, Pocket Road, and other City and residential streets. The construction labor force is estimated to average approximately 50–60 persons over the approximately 1-year construction period. Peak staffing could be close to 100 depending on the contractor's schedule.

Approximately 60 to 70 trailer ("low-boy") truck round trips are anticipated to be required to transport the contractor's plant and equipment to the site during mobilization. A similar number of round trips will be needed to remove the equipment from the site as the work is completed.

Necessary aggregate base rock material will be obtained from a commercial sand and gravel operation, most likely in the Sacramento area. Rip rap material, which may be used in a small section of Reach 4-1 after abandoned utilities are recovered, will be obtained from quarries located within approximately 30 miles of the Project Area. The construction contractor will select the specific supplier, based on suitability and pricing. Approximately 10,000 highway truck trips will be needed to bring the levee fill to the site from the borrow area. Approximately 1,000 highway truck trips will be needed to bring the aggregate and asphalt material to the site from the supplier. Approximately 400 truckloads will be needed to bring dry bentonite to the site. Another 50 to 100 trailer truckloads will be required to bring other permanent materials to the site, such as geotextile fabric, erosion control materials, piping, and ancillary equipment. In addition, approximately 2,000 highway truck loads will be required to dispose of surplus material from levee excavation (if hauled offsite), and 200 highway truckloads may be needed to carry demolition debris, construction debris, and other materials to a suitable landfill.

Table 2-4. Typical Construction Equipment that May Be Used

Equipment Type	Construction Activity	
	Vegetation Encroachment Removal; Utility Removal	Mobilization; Cutoff Wall; Site Restoration and Demobilization
Equipment Transport Trucks	0	5
Hydraulic Excavator	1	2
Long-Stick Excavator	1	3
Front-end Loader	1	3
Bulldozer	1	5
Highway Dump Truck	5	20
Grader	1	2
Water Truck	0	2
Tamping Roller	0	2
Vibratory Smooth Wheel Compactor	0	1
Forklift	0	5
DMM Rig	0	2
Bulk Material and Hydration Silos	0	5
Truck-Mounted Crane	1	4
Concrete Transit Truck	1	0
Lubricating Truck	1	1
Drill Rig (jet grouting, truck-mounted)	0	2
Hydro-seed Truck	0	1

Source: GEI Consultants, Inc. 2020

The primary construction corridor will include the existing levee corridor and local City and residential roads. Within the construction areas, the main sources of construction traffic will be hauling levee degrade material to and from a local staging area, installing the slurry cutoff walls, transporting material for the slurry cutoff walls (including borrow from borrow site), and transporting borrow material for levee embankment reconstruction. An estimated 85,000 cubic yards (cy) of levee degrade material will be transported to and from the temporary stockpiles, requiring approximately 10,000 haul trips each way (assuming highway haul units).

The need for temporary stockpiles will be reduced if the levee embankment is reconstructed using low permeable levee fill from the borrow area. Under this scenario, the estimated 85,000 cy of levee degrade material will be taken to the Railyards, or another disposal site, in approximately 10,000 haul trips. A similar number of highway truck trips will be needed to bring the low permeable levee fill to the work sites from the borrow area.

Only some of the routes and access points will likely be used. Once the trucks access the levee, they will travel along the levee to conduct repair/improvement work. Trips will not necessarily be round-trip, because trucks may access the levee at one location and exit at another.

Access to the Little Pocket and Pocket areas from the south (from the borrow site) will likely be via Dwight Road, Laguna Boulevard, and I-5. The primary access point into the Pocket area will likely be at Florin Road. From there trucks will travel west on Florin Road to Riverside Boulevard. Other access to the Pocket will be southbound via 43rd Avenue to Riverside Boulevard and northbound via Pocket Road. Construction equipment could also access work areas in the Pocket via Greenhaven Drive. To access work areas in the Little Pocket, trucks will enter at Seamas Avenue, Riverside Boulevard, and Piedmont Drive. To access the Miller Park area, trucks will use Q Street, 3rd Street, 5th Street, Front Street, and Broadway, or will exit I-5 at Sutterville Road and use the levee top.

If haul trucks transport levee degrade materials to the Railyards for deposit and later use in backfill operations associated with the Railyards (City of Sacramento 2016), they will exit at I-5 north onto Richards Boulevard, travel east to 7th Street, and then south to Railyards Boulevard, where the Railyards site is located.

2.3.7 Operations and Maintenance

Agencies and organizations that currently have management responsibility for the Sacramento River east levee will continue to provide operations and maintenance (O&M) after the Proposed Action is completed. At the end of the project construction period, all project lands will be in public ownership and/or will be under a flood control easement. The City and DWR Maintenance Area 9, will continue their routine O&M responsibilities, as under existing conditions.

Regular O&M activities under the Proposed Action will consist of inspections, weed abatement, and removal of encroachments and high-hazard vegetation to ensure levee integrity and adequate levee access along the levee toe road. The patrol road will be used, as it is currently used, to access the length of the levee during these activities and during high-flow events for flood-fighting purposes. O&M activities will not require heavier or noisier equipment than under current conditions. O&M inspections will consist of a patrol vehicle traveling along the levee and small machinery for weed abatement such as mowers and weed whackers/trimmers. These activities will only occur periodically, as under existing conditions. O&M activities will not introduce substantial new land uses into the area.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

3.1.1 Approach to Analysis

For NEPA purposes, the assessment of potential effects takes into consideration the significance of the Proposed Action in terms of its context and its intensity (40 CFR 1508.27). To aid in the evaluation of context, USACE has determined that the affected region is the Project Area, including the borrow site, staging areas, haul routes, and the potential Railyards soil disposal site. Intensity refers to the severity of the potential effect. The intensity of the potential effects for each resource element is addressed under “Environmental Consequences.”

Each resource topic section includes a brief summary of the analysis of this topic in the ARCF GRR Final EIS/EIR. Supplemental information on existing conditions (environmental and regulatory setting under CEQA) is provided for particular resource topics, where necessary to support the supplemental impact analysis. Thresholds used to evaluate the significance of impacts are carried forward from the GRR Final EIS/EIR, with additional thresholds identified where necessary. Only those thresholds requiring an updated analysis due to new information are discussed. Under each resource, any significance criteria lacking an evaluation section remains unchanged from the GRR Final EIS/EIR, and previous analyses remain sufficient. For some impacts, mitigation described in the GRR Final EIS/EIR may not apply to the proposed action. For other impacts, additional or different mitigation actions are required to reduce effects of the project refinements described in the Proposed Action. In either case, the proposed change to mitigation from the ARCF GRR Final EIS/EIR is identified. Overall, environmental impacts are not more severe than those addressed in the ARCF GRR EIR/EIR.

As described in Section 2.0, “Alternatives,” O&M activities will be unchanged from those that currently occur under pre-project conditions. Therefore, O&M activities will have no adverse effects to any environmental resource area, and will not increase the intensity or severity of effects analyzed for the Proposed Action. Thus, O&M effects are not discussed separately in this Supplemental EA/EIR.

3.1.2 Resource Topics Not Discussed in Detail

Some resources were eliminated from further analysis in this Supplemental EA/EIR, because effects are negligible or the project refinements described in the Proposed Action will not create additional impacts to the resources beyond the scope of those addressed regionally within the ARCF GRR Final EIS/EIR. These resource topics are briefly described and dismissed in the following discussion.

Fisheries

Fisheries-related impact identified in the ARCF GRR Final EIS/EIR are primarily associated with erosion protection and the resulting temporal loss of shaded riverine aquatic (SRA) habitat. Levee

improvements to address seepage and stability issues (i.e., cutoff walls) were determined to have no direct effect on native fish, because these measures will be constructed outside of the natural river channel. However, ground-disturbing activities associated with construction of levee improvements could cause erosion and soil disturbance, subsequently resulting in sediment transport and delivery to aquatic habitats, thereby adversely affecting fish physiology, behavior, and habitat. Impacts could also result from accidental spill of hazardous materials, if water contamination occurs. These effects were determined to be significant, but will be reduced to less than significant with implementation of water quality BMPs.

Direct injury or mortality of individual fish will not occur as a result of the Proposed Action because there will be no in-water activity. Because construction activities are primarily limited to the levee and other areas away from the river, noise and vibration generated by construction activities are unlikely to disrupt essential behaviors (e.g., feeding, escape from predators, migration) to the extent that individuals will be displaced from preferred habitat and made more susceptible to mortality by predation. The Proposed Action will not affect SRA habitat; tree removal and trimming required to implement the Proposed Action will occur only on the top ½ to ⅓ of the water side, or on the landside of the levee. The Proposed Action includes implementation of water quality BMPs as specified in the ARCF GRR Final EIS/EIR. Therefore, impacts related to fisheries will not differ from those described in the ARCF GRR Final EIS/EIR.

Hydrology and Hydraulics

The ARCF GRR Final EIS/EIR concluded that because the project primarily includes landside levee repairs that will not change in-channel geometry or characteristics, river hydraulics will not change. As a result, it was determined that the project will not substantially alter erosion or siltation in the system or increase the rate of surface runoff in a manner that will result in any flooding. It was also determined that the project will not affect storm water drainage systems or create additional sources of runoff. Because the project involves fix-in-place improvements only, the footprint of the levee system will not substantially change. As a result, it was determined that the project will not add new structures or increase the flood risk to structures now located within a 100-year flood hazard area. Therefore, all effects on hydrology were determined to be less than significant.

The Proposed Action will not change the footprint of the levee system or affect in-channel geometry or characteristics, and does not include new impervious areas or structures that will impede or redirect flood flows. Therefore, hydrology and hydraulics impacts will not differ from those identified in the ARCF GRR Final EIS/EIR.

Land Use

The ARCF GRR Final EIS/EIR analysis found that many homes in the Little Pocket and Pocket areas back up to the levee with little or no land between the levee toe and the fence or backyard, and it was assumed that some acquisition of private property will be required for flood protection levee easements. All property acquisitions will be conducted in compliance with Federal and State relocation law requiring appropriate compensation. Therefore, this effect was determined to be less than significant in the ARCF GRR Final EIS/EIR.

The proposed land uses at the SRCSD borrow site, levee improvement areas, and Sacramento Railyards will be consistent with adopted County and City General Plan policies related to flood risk reduction, land use designations, and zoning codes that apply to each of these sites. The levee improvements and staging areas will be located near residential areas along the Sacramento River east levee, including areas in the Pocket and Little Pocket areas, where residential land uses are generally located along the landside toe of the levee. Construction of levee improvements will occur within the existing levee corridor, and there are no proposed activities that will create a physical barrier within an established community. Lands where staging and levee improvements will occur and part of the SRCSD borrow site are designated as Urban and Built-Up Land and Other Land. Although a portion of the SRCSD borrow site is classified as Farmland of Local Importance, the Proposed Action will reduce or remove existing soil stockpiles from the borrow site. There are no agricultural land uses within or in the vicinity of the SRCSD borrow site. Therefore, the SRCSD borrow site does not meet the Sacramento County criteria for mitigation of Farmland of Local Importance, and agricultural and land use impacts will not differ from those identified in the ARCF GRR Final EIS/EIR.

Mineral Resources

The ARCF GRR Final EIS/EIR study area was classified as either Mineral Resource Zone (MRZ)-1 or MRZ-3, classifications which the ARCF GRR determined were not affected by State policies pertaining to the maintenance of access to regionally significant mineral deposits under the California Surface Mining and Reclamation Act. Therefore, the ARCF GRR Final EIS/EIR determined that no effect will occur.

For the Proposed Action, the work areas, SRCSD borrow site, and Railyards disposal area are classified as MRZ-1a (Dupras 1999). This classification is not considered to be a regionally important mineral resource extraction zone. The Sacramento County General Plan indicates there are no locally designated important mineral resources at any of the locations where project-related activities will occur (Sacramento County 2011). Therefore, mineral resources impacts will not differ from those described in the ARCF GRR Final EIS/EIR.

Socioeconomics, Population, and Environmental Justice Socioeconomics and Population

The ARCF GRR Final EIS/EIR analysis found that much of the Project Area is located immediately adjacent to established communities within the City of Sacramento, and the acquisition of some private properties in established communities will be required. Because the project is set in an urban area, no change in population is expected. Any disruptions to the community will be temporary and short-term during construction activities, and will be related to traffic congestion, noise, recreation, and leisure activities. Therefore, socioeconomic effects (including population and housing) were determined to be less than significant in the GRR Final EIS/EIR.

The Proposed Action will not include creation of any new developed land uses and will not remove any housing. The Proposed Action will include construction over a single construction season, with an average labor force estimated to be about 80-100 people. Existing residents in the region who are employed in the construction industry will be sufficient to meet the demand for construction workers that will be generated by the project without inducing population growth. Therefore, socioeconomic and population impacts will not differ from those described in the GRR Final EIS/EIR.

Environmental Justice

The GRR Final EIS/EIR determined that the Proposed Action will not have disproportionate adverse effects to any low-income or minority population. This individual action that is part of the larger project is also anticipated to not have disproportionate adverse effects. A small homeless population resides along the SREL and the Proposed Action may cause temporary displacement of people and their property. To ensure the safety of all those involved, if homeless encampments are present in areas where construction will occur as part of the project, USACE, CVFPB, and the construction contractor will work with the City and County of Sacramento and the City of Sacramento's Police Department to notify and remove these encampments while construction occurs. This action will not be disproportionate and will only be enacted in areas of active construction.

3.2 Visual Resources

3.2.1 Existing Conditions

Environmental and regulatory settings in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some site-specific conditions are described below.

Levee Improvements and Staging Areas

The northern portion of the levee improvements area consists primarily of industrial developments. Levee improvements and staging areas will take place in the vicinity of a City of Sacramento overflow wastewater treatment facility, rail lines, the California Automobile Museum, and above ground diesel and gasoline fuel storage tanks and associated pipelines operated by Chevron and Union 76. The visual quality in this area is low due to the presence of these industrial structures, including tall white fuel storage tanks, buildings, trains, pavement, fencing, overhead power lines, prominent night lighting, and other elements associated with industrial development that represent a lack of vividness, intactness, and unity. The viewer sensitivity is considered high, because this area is visible to recreational users of the Sacramento River Parkway bike trail and Miller Park.

Staging areas are proposed in Miller Park, Ellsworth Zacharias Park, and Garcia Bend Park. These parks are well-landscaped and maintained; they provide visual relief from the intensive nature of surrounding urban and industrial development. Because the human elements inside the parks, such as picnic tables, pathways, sports fields, and boat launch ramps, fit into a park-like setting, the elements considered as a whole provide a high degree of vividness, intactness, and unity. Therefore, the overall visual quality in the parks is high. As a viewer group, people engaged in recreational activities generally have heightened awareness of their surroundings, are familiar with the scenic resources in the area, and are generally seeking an experience in a natural setting. Therefore, the viewer sensitivity from within parks, residences immediately adjacent to the parks, and the Sacramento River adjacent to the parks is also high.

Additional staging areas and levee improvement areas will be located in the Little Pocket and Pocket areas, which are heavily urbanized with residential housing. Homes border the levee, but views of the Sacramento River are blocked by the intervening height of the levee. Residences adjacent to project-related work and staging areas have views of the local street, surrounding homes and associated landscaping, and the land side of the levee (which typically includes some mature shade trees and annual and perennial grasses). Although the vividness is moderate, the intactness and unity throughout the Little Pocket and Pocket areas are high; therefore, the visual quality is considered high.

Where the Sacramento River Parkway bike path has been officially designated and constructed, the levee crown is used by recreationists. Views from the crown consist of scenic images of the Sacramento River, tall green shade trees and other riparian vegetation on both sides of the river, and landscape trees and partial views of the backyards of residences landside of the levee. Boaters on the Sacramento River are also visible, as are scenic views of the boats docked on the west side of the river at Stan's Yolo Marina. A mosaic of green and brown agricultural fields is visible further to the west. Boaters on the Sacramento River have similar views of the green riparian vegetation lining both banks, the water itself, and the marinas. Although the intactness is moderate, these views present a high degree of vividness and unity, and therefore the visual quality for recreationists on the river as well as the levee crown is considered high. The recreationists are also considered a sensitive viewer group.

Haul Routes

In addition to the above, residents in the Little Pocket area along Piedmont Drive, and in the Pocket area along Riverside Boulevard, Florin Road, and Pocket Road, will have views of heavy-duty haul trucks along roadways that will be transporting borrow materials to the levee (see Figure 2-1 through Figure 2-4, in Chapter 2, "Alternatives"). All of these roadways contain extensive landscaping consisting of turf grass, shrubs, and mature shade trees, along with residences and their associated landscaping. The views along these roadways present a high degree of vividness, intactness, and unity, and therefore are considered to be of high visual quality. These roadways are primarily traveled by local residents, along with some recreationists, both of which are considered sensitive viewer groups.

Borrow Site

The SRCSO borrow site is an active stockpile and borrow site, covered with green (in the spring) and brown (in the summer and fall) annual and perennial grasses. The land immediately surrounding the borrow site to the west, south, and east is also flat, vacant land covered with grasses. To the north on Glacier Way, industrial buildings, paved parking lots, and facilities associated with the wastewater treatment plant are present. A hedge planted with green shrubs and trees is present between the building on Glacier Way and the borrow site. The nearest sensitive viewers (0.35 mile south) consist of a farm complex with an associated residence on the west side of Laguna Station Road and a residential housing development south of Big Horn Boulevard and east of the Union Pacific Railroad tracks. Views of the borrow site from the farm complex are blocked by vegetation along Laguna Station Road and at the western end of Big Horn Boulevard. Views from the residences along Big Horn Boulevard (east of the Union Pacific Railroad tracks) are blocked by a high wall separating the housing development from the road, along with mature shade trees planted along the south side of the road. However, this portion of Big Horn Road has been landscaped on the southern side with green turf grass, shrubs, and shade trees, and a

pedestrian path is present as well. Residents using this pedestrian path have expansive views to the north and northwest of vacant, rural land. The viewshed presents a low degree of intactness and unity, and a moderate degree of vividness. The overall visual quality is considered moderate.

Soil Disposal Site

Some of the levee soils that are removed as part of improvements may be deposited at the Railyards project area. The Railyards site has undergone extensive excavation and grading to remediate contaminated soil, and will be undergoing future grading as part of proposed approved development. At the present time, the Railyards site is essentially a barren brownfield with abandoned industrial buildings. In lieu of the Railyards, materials not used onsite will be disposed of at legal off-site disposal location.

3.2.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

Short-term visual effects during construction activities along the Sacramento River were determined to be significant and unavoidable, because the presence of construction crews and equipment will degrade the existing visual character and obstruct scenic vistas; no feasible mitigation measures were identified. Long-term visual effects from maintaining the new landside levee maintenance corridor were determined to be significant and unavoidable, because the corridor will be adjacent to existing residential backyards, and removal of landscaping from the maintenance corridor will degrade the current visual character of the individual properties; no feasible mitigation measures were identified. Construction of the Proposed Action, including the addition of night work that was not addressed in the ARCF GRR EIS/EIR, will not result in visual resources impacts that are more severe than stated in the ARCF GRR EIS/EIR.

Significance Criteria

The thresholds of significance encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and intensity. The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. A proposed alternative will result in a potentially significant impact to visual resources if it will:

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

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

As a result of this alternative, there would be no construction-related effects to visual resources or designated State- or County-designated scenic highways, and construction-related effects to visual resources or the existing visual character of the Project Area would not occur. However, if the project is not constructed, and a levee failure were to occur, there would be a significant amount of flooding, downed utility poles and trees, inundated housing and businesses, and potential damage to roadways as well. However, the potential for such an occurrence is uncertain, and the magnitude and duration of any scenic and visual character-related risks cannot be predicted. Because the effects of a levee failure are unpredictable, a precise determination of significance is not possible.

Proposed Action

Damage to Scenic Resources within State- or County-Designated Scenic Highways

The SRCSD borrow site is located approximately 1 mile east of the State- and County-designated portion of SR 160 south of Freeport; however, due to the distance, intervening vegetation, and the presence of I-5, the borrow site is indistinguishable from the surrounding background. Therefore, the SRCSD borrow site elements of the Proposed Action would cause a less-than-significant adverse visual effect.

Changes in Scenic Vistas and Existing Visual Character

Temporary impacts on visual character during construction will be significant due to the presence of equipment and activities including levee degrade and vegetation removal, as identified in the ARCF GRR Final EIS/EIR, with no feasible mitigation to reduce this effect. At the conclusion of construction, the levee crowns will be rebuilt to their current height using appropriately conditioned soils. After the levee is reconstructed, the levee crowns will be graded and aggregate base or asphalt paving will be placed on the levee crown patrol road to match preconstruction conditions. Following construction, all of the temporary access ramps will be removed and all disturbed levee slopes will be revegetated. All of the staging areas will be returned to preproject conditions. In the cases where parks are used as staging areas, all turf grass, other vegetation, and any equipment that is affected during construction staging will be replaced so that the park is restored to pre-project conditions.

Trees removal will primarily be limited to within the footprint for the cutoff wall installations in to allow for the levee to be degraded, with minimal additional removal. Approximately 2.51 acres of canopy (1.86 acres on the waterside of the levee and 0.65 acres on the landside) will be removed within the footprint of individual levee improvement locations from the approximately cumulative 5-mile-long segment Sacramento River east levee corridor. The trees that will be trimmed or removed are within or immediately adjacent to the levee degrade area (generally the top one third to one half of the levee, on either the land- or waterside of the levee). Trees proposed for removal are primarily valley oak (*Quercus lobata*), but also include interior live oak (*Q. wislizeni*), California black walnut (*Juglans Hindsii*), black locust (*Robinia pseudoacacia*), redwood (*Sequoia sempervirens*), apple (*Malus* sp.), and orange (*Citrus × sinensis*). Trees will be trimmed and removed within the impact footprint identified in Section 2.0,

“Alternatives,” with the bulk of the trimming and removal occurring between the south end of Little Pocket and the north side of the Pocket neighborhoods (Stations 1304 to 1410).

Trimmed trees will have a temporary visual effect. Trees that will be removed from within the top one third to one half of the levee will not be replaced, and this visual change will represent a significant impact on the visual resources of the project area. As noted in the ARCF GRR EIS/EIR, construction related visual resources impacts were analyzed and determined to be significant at the program level.

Haul trucks and equipment picking up borrow material at the SRCSD borrow site will operate approximately 0.35 mile north of residential housing on the south side of Bighorn Boulevard and approximately 0.75 mile west of residential housing on the east side of Franklin Boulevard. Views of the borrow site from both residential housing areas are blocked by high walls marking the boundaries of both housing developments and by trees planted along the median and on both the east and west sides of Franklin Boulevard and the south side of Big Horn Boulevard. Given the intervening distance and vegetation, borrow activities will also not be visible to motorists traveling on Franklin Boulevard.

Borrow activities will be visible, in the background, to residents using the pedestrian path on the south side of Big Horn Boulevard (east of the Union Pacific Railroad tracks), but this is consistent with existing operations at the SRCSD borrow site. Haul trucks will travel south on Dwight Road through a commercial area to Laguna Boulevard, and will then travel west on Laguna Boulevard to access I-5. The north side of Laguna Boulevard consists of commercial uses. The south side of Laguna Boulevard consists of mixed residential housing and professional offices, with commercial uses near I-5.

Residences are set back from the roadway by an intervening Class I pedestrian/bicycle path, tall shade trees, a hedge, and a concrete wall. Laguna Boulevard is a 6-lane arterial roadway that carries truck traffic. Haul trucks will also be present on I-5, which is designed to carry truck traffic. Other smaller local roadways will also experience haul truck trips to deliver levee soils from the SRCSD borrow site to levee segments where work will occur. Haul trucks on the smaller local roadways within individual residential neighborhoods will only be present on a short-term temporary basis, from a few weeks to a month, as construction proceeds in a linear fashion along the levee. Any project-related materials deposited at the Railyards site will be used for future site development already approved by the City of Sacramento. The Railyards site currently consists of barren soil, and additional soil deposition from this project will be consistent with the existing visual condition. Thus, the project borrow and hauling activities will have a less-than-significant effect on visual character.

Create New Sources of Substantial Light or Glare

None of the project-related activities will include buildings or other facilities that will require permanent lighting, and therefore no new long-term sources of light or glare will be introduced into viewsheds. Temporary 24-hour lighting for the night work related to the jet grout cut off wall installation, not addressed by the GRR EIS/EIR, is limited to the industrial area along the City of Sacramento’s Pioneer Reservoir (from levee stations 1093+50 to 1098+50) and the Chevron and Phillips 66 oil tank facilities (from levee stations 1105+00 to 1116+15). During construction of the Proposed Action, staging areas will have lighting for the purposes of security of construction equipment and stored materials resulting in new sources of nighttime light that will be visible by neighboring residences and vehicles passing near the staging areas, however these light sources will in some cases be adjacent to existing bright lights. However,

some lights will potentially illuminate adjacent residences. This will result in an unavoidable short-term temporary significant impact, however the impacts of the 24-hour night work fall within the visual resource impacts previously described and analyzed in the GRR EIS/EIR and do not represent a new significant impact related to the SREL Contract 2 work Mitigation Measure LIGHT-1 will reduce the impact of nighttime light sensitive fish species in the Sacramento River.

3.2.3 Avoidance, Minimization, and Mitigation Measures

The ARCF GRR Final EIS/EIR included visual resources mitigation (planting berms to replace understory vegetation) that will not apply to the impacts of the Proposed Action.

LIGHT-1: Minimize Disturbance to Wildlife at Night

The Corps will minimize or avoid the effects of nighttime lighting on special-status fish species by implementing the following actions in the area of 24-hour night work near Pioneer Bridge.

- Avoiding construction activities at night, to the maximum extent practicable.
- Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas.
- Shielding and focusing lights on work areas and away from the water surface of the Sacramento River, to the maximum extent practicable.
- Temporary and permanent lighting will have correlated color temperatures and under 3000K to minimize disturbance to wildlife at night.
- A qualified biologist will monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented. Mitigation Measure BIRD-1 (See Section 3.5) applies to night work as well.

3.3 Air Quality

3.3.1 Existing Conditions

The environmental and regulatory framework described in the ARCF GRR Final EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated. Some updated information is presented below.

Table 3-1 provides current Sacramento Valley Air Basin (SVAB) attainment status designated by U.S. Environmental Protection Agency (EPA) for six air pollutants of nationwide concern: particulate matter (PM), ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM₁₀) and PM equal to or less than 2.5 micrometers in diameter (PM_{2.5}). An “attainment” designation for an area signifies that pollutant concentrations did not exceed the established standard. In contrast to attainment, a “nonattainment” designation indicates that a pollutant concentration has exceeded

the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

Table 3-1. Sacramento Valley Air Basin Attainment Status

Pollutant	Federal Attainment Status	State Attainment Status
1-hour Ozone	Severe Non-attainment	Serious Non-attainment
8-hour Ozone	Severe Non-attainment	Serious Non-attainment
24-hour PM ₁₀	Attainment	Non-Attainment
Annual PM ₁₀	Not Applicable	Non-Attainment
24-hour PM _{2.5}	Moderate Non-attainment	Not Applicable
Annual PM _{2.5}	Attainment	Non-attainment
1-hour Carbon Monoxide	Attainment	Attainment
8-hour Carbon Monoxide	Attainment	Attainment
1-hour Nitrogen Dioxide	Not Applicable	Attainment
Annual Nitrogen Dioxide	Attainment	Not Applicable
3-hour Sulfur Dioxide	Attainment	Not Applicable
24-hour Sulfur Dioxide	Attainment	Attainment
Annual Sulfur Dioxide	Attainment	Not Applicable
30-day Lead	Not Applicable	Attainment
Quarter Lead	Attainment	Not Applicable

Notes: PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less

Source: Sacramento Metropolitan Air Quality Management District 2020

3.3.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR determined that construction emissions could exceed the Sacramento Metropolitan Air Quality Management District (SMAQMD) emission threshold for oxides of nitrogen (NO_x), depending on the method of material delivery, and that exceeding this threshold will be a significant effect. After accounting for a 20 percent reduction in NO_x from implementing mitigation in the form of SMAQMD Enhanced Exhaust Control Practices, construction-related emissions still could exceed the SMAQMD emission thresholds for NO_x. Therefore, USACE will obtain an off-site mitigation credit for project-related NO_x emissions in the Sacramento Valley Air Basin (SVAB), which will reduce the effect to a less-than-significant level.

Nearby land uses, especially residences and schools located downwind of the levee improvement sites, could be exposed to dust generated during construction activities and temporary and short-term diesel particulate emissions (i.e., toxic air contaminants [TACs]) from on-site heavy-duty equipment and on-road haul trucks; the potential effect was determined to be significant. Mitigation will be implemented in the

form of PM₁₀ and PM_{2.5} dust modeling; measures to control fugitive dust emissions if the project exceeds SMAQMD thresholds; and weekly and monthly surveys to ensure that emissions from all off-road diesel-powered equipment used at the improvement sites do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. These measures will reduce the effect to less than significant.

It was determined that although odors associated with diesel exhaust emissions from the use of on-site construction equipment may be noticeable from time to time by adjacent receptors, the odors will be intermittent and temporary and will dissipate rapidly from the source with an increase in distance. Furthermore, as required by California Air Resources Board (ARB) Regulation 13 CCR 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, this effect was determined to be less than significant, and implementation of the other air quality mitigation measures will further reduce odorous exhaust emissions.

Significance Criteria

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

- Conflict with, or obstruct implementation of, the applicable air quality plan;
- Violate any air quality standard or substantial contribution to existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards ;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Table 3-2 presents local air district significance thresholds used in this analysis, and Table 3-3 presents General Conformity *de minimis* thresholds that apply to the project. The ARCF GRR Final EIS/EIR indicated project construction would occur over a longer timeline (10 years, compared to 5 years as currently proposed). Therefore, annual air emissions will be greater for the ARCF GRR project as a whole, compared to the ARCF GRR Final EIS/EIR analysis. This document, therefore, includes a revised comparison to the General Conformity *de minimis* standards.

Table 3-2. Sacramento Metropolitan Air Quality Management District Thresholds of Significance for Construction

Pollutant	Threshold
Oxides of Nitrogen (NO _x)	85 pounds per day
Respirable Particulate Matter (PM ₁₀)	Fugitive dust BACT/BMPs and 80 pounds per day, 14.6 tons per year
Fine Particulate Matter (PM _{2.5})	Fugitive dust BACT/BMPs and 82 pounds per day, 15 tons per year

Notes: BACT = Best Available Control Technology; BMPs = Best Management Practices

Source: Sacramento Metropolitan Air Quality Management District 2015

Table 3-3. General Conformity *de minimis* Thresholds

Pollutant	Threshold (tons per year)
Carbon Monoxide (CO)	100
Oxides of Nitrogen (NO _x)	25
Volatile Organic Compounds (VOC)/ Reactive Organic Gases (ROG)	25
Respirable Particulate Matter (PM ₁₀)	100
Fine Particulate Matter (PM _{2.5})	100

Sources: 40 CFR 93 Section 153 (b)(1); Sacramento Metropolitan Air Quality Management District 2020

Effects Analysis

No-Action Alternative

Under this alternative, USACE would not construct the SREL Contract 2 project, therefore no air pollutant emissions would occur as a result of construction. The ambient air quality conditions in the project area would remain consistent with current conditions. However, if a high-water event were to occur and the levee were to fail, there would be impacts to air quality from flood fighting and emergency repair, as well as effects from odors and other toxins present in the floodwaters. All of these impacts could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore, a precise determination of significance is not possible.

Proposed Action

The 2016 ARCF GRR Final EIS/EIR analysis found less-than-significant impacts related to consistency with air quality plans, fugitive dust, exposure of sensitive receptors to toxic air contaminants, and odors. The analysis in the 2016 ARCF GRR Final EIS/EIR adequately addresses the SREL Contract 2 project's impacts related to these topics, and they are not discussed further in this Supplemental EA/EIR.

Construction Emissions

Air quality emissions will be generated by heavy equipment constructing the SREL Contract 2 project, hauling of material from the borrow source to the project area, construction worker trips, and other construction-related trips. There will be no change in O&M emissions associated with the Proposed Action. Air emissions were modeled using SMAQMD's Road Construction Emissions Model version 8.1.0 (please refer to Appendix A for modeling data). The total estimated air emissions for the Proposed Action are presented in Table 3-4. As shown in Table 3-4, the emissions resulting from the Proposed Action will potentially exceed the SMAQMD thresholds for NO_x and PM₁₀. Avoidance and minimization measures identified as Mitigation Measures AIR-1, AIR-2, and AIR-3 will substantially reduce emissions, but not below the thresholds of significance. Therefore, mitigation measures AIR-4 and AIR-5 will be implemented to reduce this impact to a less-than-significant level through payment of mitigation fees.

Table 3-4. Emissions Estimates for the Proposed Action

Pollutant	Unmitigated/ Mitigated (pounds per day)	Unmitigated/ Mitigated (tons per year)	Significance Threshold
ROG	47.9/24.9	2.9/1.5	N/A
CO	458.3/456.5	28.2/28.1	N/A
NO _x	511.6/116.1	31.3/7.0	85 pounds/day
PM ₁₀	154.6/71.5	6.8/3	80 pounds/day and 14.6 tons/year
PM _{2.5}	48.7/32.0	2.4/1.4	82 pounds/day and 15 tons/year

Notes: Bold numbers indicate concentrations above thresholds

CO = carbon monoxide; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; Sacramento Metropolitan Air Quality Management District (SMAQMD) considers construction activities unlikely to generate substantial quantities of CO (SMAQMD 2018)

CEQA significance thresholds for PM assume that fugitive dust Best Available Control Technology/Best Management Practices are implemented in accordance with SMAQMD guidance.

Table 3-5 presents combined emissions for the SREL Contract 2 project and the other components of the ARCF 2016 Project that are anticipated to be constructed during calendar year 2021, for comparison to General Conformity *de minimis* standards. For purposes of General Conformity¹, the entire ARCF 2016 Project is considered a single action. As shown in Table 3-5, implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3 will reduce emissions below the *de minimis* standards during the 2021 construction season, resulting in a less-than-significant impact.

Table 3-5. Emissions Estimates for the ARCF 2016 Project

Project	Tons per year (Unmitigated)	Tons per year (Unmitigated)	Tons per year (Unmitigated)	Tons per year (Unmitigated)	Tons per year (Mitigated)	Tons per year (Mitigated)
	ROG	NO_x	PM₁₀	PM_{2.5}	ROG	NO_x
American River Erosion Contract 1	0.26	2.34	0.49	0.14	0.20	0.90
RM 55.2L Project	0.27	1.98	0.37	0.13	0.27	1.98
Sacramento Weir	1.31	17.01	39.44	8.61	0.85	6.00
Sacramento River east levee Contract 2 (2.91	31.29	6.77	2.40	1.53	7.03
<i>Total ARCF 16 Project Emissions</i>	<i>4.8</i>	<i>52.6</i>	<i>47.1</i>	<i>11.3</i>	<i>2.8</i>	<i>15.9</i>

Notes: Bold numbers indicate concentrations above thresholds

CO = carbon monoxide; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases

Avoidance and minimization measures will be implemented to reduce criteria pollutant emissions, and mitigation measures (including payment of fees) will be implemented to reduce air quality impacts to a less-than-significant level. The measures described below will reduce criteria pollutant emissions, diesel particulate emissions, and fugitive dust associated with construction activities. As a result, there will be no significant impacts to air quality in the region due to construction of the SREL Contract 2 project. This

¹ A General Conformity Determination has been published for the entire ARCF 2016 project and can be accessed at: <http://cvfpb.ca.gov/>

action individually will not exceed federal General Conformity *de minimis* thresholds after mitigation, and when considered with other ARCF features being constructed in 2021, ARCF will not exceed General Conformity thresholds after implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3.

3.3.3 Avoidance, Minimization, and Mitigation Measures

The following measures are consistent with mitigation identified in the ARCF GRR Final EIS/EIR. Exhaust emission mitigation has been adjusted to reflect mitigation and offset requirements associated with the General Conformity determination for the ARCF projects. Marine engine standards identified in the ARCF GRR Final EIS/EIR do not apply to the activities included in the Proposed Action, because no in-water equipment will be used. (Mitigated construction-related emissions are shown in Tables 3-4 and 3-5.)

Mitigation Measure AIR-1: Implement the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices.

SMAQMD requires that all projects, regardless of their significance, implement the following measures to minimize the generation of fugitive PM dust. The Basic Construction Emission Control Practices shall include measures to control fugitive PM dust pursuant to SMAQMD Rule 403, as well as measures to reduce construction-related exhaust emissions. USACE shall require its contractors to comply with the basic construction emission control practices listed below for all construction-related activities occurring in SMAQMD jurisdiction.

- Water all exposed surfaces two times daily or more, as needed. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover, or suitably wet soils and other materials on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that travel along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speed on unpaved roads to 15 miles per hour.
- Complete pavement of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (required by CCR, Title 13, Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. Have the equipment checked by a certified mechanic and determined to be running in proper condition before it is operated.

Mitigation Measure AIR-2: Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices.

SMAQMD recommends that construction projects that will exceed or contribute to the mass

emissions threshold for PM₁₀ implement the Enhanced Fugitive PM Dust Control Practices, as applicable to the project. Because the construction activities will involve substantial material movement activities and will be located in proximity of residential receptors, USACE shall require its construction contractors to implement the Enhanced Fugitive PM Dust Control Practices listed below to help reduce potential fugitive PM dust emissions.

Soil Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Unpaved Roads (Entrained Road Dust)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at USACE regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of SMAQMD also will be visible to ensure compliance.

Mitigation Measure AIR-3: Require Lower Exhaust Emissions for Construction Equipment.

USACE shall require its contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment, and on-road haul trucks must be equipped with 2010 or newer engines. In order to demonstrate compliance with this requirement:

- The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
- The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and name and phone number of the project manager, and on-site foreman. This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. The SMAQMD Construction Mitigation Tool can be used to submit this information. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
- The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet average of 90 percent Tier 4 emissions vehicles. This plan shall be submitted in

conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

- SMAQMD's Construction Mitigation Tool can be used to identify an equipment fleet that achieves this reduction. The construction contractor shall ensure that emissions from all off-road diesel-powered equipment used in the project area do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided monthly to USACE and SMAQMD. A visual survey of all in-operation equipment shall be made at least weekly. A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey.
- Use the Construction Mitigation Tool to track PM₁₀ emissions and mileage traveled by on-road trucks, reporting results to USACE and SMAQMD on a monthly basis.

Mitigation Measure AIR-4: Use the Sacramento Metropolitan Air Quality Management District's Off-site Mitigation Fee to Reduce NO_x Emissions.

USACE shall implement the measures listed below to reduce NO_x construction-related emissions.

Pursuant to air district thresholds of significance, if the projected construction-related emissions exceed the NO_x threshold of significance, based on the equipment inventory and use, USACE shall contribute to SMAQMD's off-site mitigation fee program sufficiently to offset the amount by which the project's NO_x emissions exceed the threshold. If emissions for the ARCF 2016 Project in any given year will exceed the *de minimis* threshold of 25 tons per year, USACE will enter into an agreement with SMAQMD to purchase offsets for all NO_x emissions in any year that projected emissions will exceed the threshold. The determination of the estimated mitigation fees shall be conducted in coordination with SMAQMD before any ground disturbance occurs for any phase of project construction. (Estimated fees for the SREL Contract 2 project are \$73,500.) All mitigation fees shall be paid prior to the start of construction activity to allow SMAQMD to obtain emissions reductions for the proposed project. If there are changes to construction activities (e.g., equipment lists, increased equipment usage or schedules), USACE shall work with SMAQMD to ensure emission calculations and fees are adjusted appropriately.

Mitigation Measure AIR-5: Use the Sacramento Metropolitan Air Quality Management District's Off-site Mitigation Fee to Reduce PM₁₀ Emissions.

USACE shall implement the measures listed below to reduce PM₁₀ construction-related emissions.

Pursuant to SMAQMD thresholds of significance, if the projected construction-related emissions exceed the PM₁₀ threshold of significance based on the equipment inventory, USACE shall contribute to SMAQMD's off-site mitigation fee program sufficiently to offset the amount by which the proposed project's PM₁₀ emissions exceed the threshold of 80 pounds per day. The determination of the final mitigation fee shall be conducted in coordination with SMAQMD before any ground-disturbance occurs for any phase of project construction. (Estimated fees for the SREL Contract 2 project are \$110,000.) All mitigation fees shall be paid prior to the start of construction activity to allow SMAQMD to obtain emissions reductions for the proposed project. If there are changes to construction activities (e.g.,

equipment lists, increased equipment usage or schedules), USACE shall work with SMAQMD to ensure emission calculations and fees are adjusted appropriately.

3.4 Vegetation and Wildlife

3.4.1 Existing Conditions

The environmental and regulatory framework described in the ARCF GRR Final EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. Some updated information is presented below.

Appendix B-1 includes figures showing land cover types and locations of sensitive biological resources within the Project Area, including staging areas. Though not shown in the figures, the haul routes are limited to existing roadways characterized as developed. Similarly, most of the SRCSD borrow site is barren and also characterized as developed, with highly disturbed grassland present on a small portion. The potential soil disposal site at the Railyards is not included in the land cover figures because it is analyzed separately in the Railyards SEIR.

Levee Improvement Areas

The cutoff wall just north of Miller Park (illustrated on Figure 2-5) will be constructed through the existing parking lot at Miller Park and will require the removal and restoration of a small amount of park landscaping. The levee degrade required to construct the cutoff wall through the levee centerline may impact vegetation on the landside and waterside levee slopes. The herbaceous ground cover in these areas is typically dominated by non-native annual grasses, including ripgut brome (*Bromus diandrus*), soft chess (*B. hordeacous*), wild oat (*Avena fatua*), and Italian ryegrass (*Festuca perennis*). Trees are common throughout the Project Area, on the landside and waterside levee slopes and at the levee toes. Native trees in the levee improvement areas include Fremont's cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), interior live oak (*Q. wislizeni*), and northern California black walnut (*Juglans hindsii*). Non-native tree species are also present throughout the Project Area, notably tree of heaven (*Ailanthus altissima*) and black locust (*Robinia pseudoacacia*). Ornamental species typically occur landside of the levee slope, often in proximity to residences.

Staging Areas

Eight staging areas have been identified waterside and landside of the levee. Most of the landside staging areas are dominated by ornamental landscaping, concrete, or parking areas, and several of the potential staging areas are City parks. Some of the landscaping and amenities (primarily the soccer field) at Ellsworth C. Zacharias Park will be impacted.

Some landside staging areas also include non-native grassland and are bordered by or adjacent to oak woodland and Fremont cottonwood forest, such as the overflow parking area south of Front Street in Miller Park and the landside levee toe along North Point Way, east of Grangers Dairy Drive. Areas along Front Street are dominated by development and landscaping associated with an industrial area located approximately 650 feet upstream of the Pioneer Bridge. This area provides marginal quality habitat and is

used by a relatively small number of species that are tolerant of primarily non-native vegetation and high levels of human disturbance.

A waterside staging area is proposed north of Miller Park (approximately Station 1111). The levee is wide in this area, and staging will occur on gravel and sparse areas of non-native grassland. The waterside staging area in the Little Pocket (at approximately Station 1280+00 to 1314+00) (Figure 2-2) is adjacent to and partially within Fremont cottonwood forest, which provides an important habitat corridor for wildlife species in the Sacramento region.

Haul Routes

Haul routes are primarily associated with developed roadways through residential and industrial areas that have limited biological resource value. The levee crown haul route is adjacent to riparian forest, oak woodland, and other relatively natural habitat that supports a greater diversity of biological resources. A portion of the haul route from the SRCSD borrow site also passes through undeveloped grassland habitat within the SRCSD Bufferlands.

Borrow Site

Much of the SRCSD borrow site has been previously disturbed and is now barren of vegetation. Areas around the perimeter of and adjacent to the site support non-native grassland habitat that provides some value for wildlife species that occur in open grassland habitats and are tolerant of disturbance associated with the City's wastewater treatment facilities. An alternative borrow site chosen at the contractor's discretion must demonstrate environmental compliance is complete.

Soil Disposal Site

The Railyards disposal site has undergone extensive excavation and grading and is essentially barren soil. The site is surrounded by urban development and provides almost no biological resource habitat value. An alternative disposal site chosen at the contractor's discretion must demonstrate environmental compliance is complete.

Sensitive Habitats

The acreage of each habitat type in the Project Area is shown in Table 3-6. A jurisdictional wetland delineation has been completed for a larger portion of the Sacramento River east levee, which includes the Project Area for the Proposed Action. The Project Area for the Proposed Action includes no jurisdictional waters of the United States. No wetlands located above the ordinary high-water mark of the Sacramento River, or other streams or drainages, were identified. The Project Area for the Proposed Action also includes 11.37 acres of riparian habitat, including Fremont Cottonwood Forest and Valley Oak Woodland/Trees habitat types are considered forestland (as defined in California PRC Section 12220[g]).

Table 3-6. Existing Habitat Types in the Project Area

Habitat Type	Acreage
Developed	24.76
Fremont Cottonwood Forest	5.20
Landscape	13.82
Willow Thicket	0.43
Valley Oak Woodland/Trees	5.74
Wild Oats Grassland	16.12
Total	66.07

Source: GEI Consultants, Inc. 2019

3.4.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR evaluated vegetation, including trees, which will be removed by levee degradation for cutoff wall construction. It assumed the upper half of the levee will be degraded and estimated approximately 750 trees will be removed for the entire Sacramento River east levee. The analysis highlighted effects on avian species, indicated surveys for nesting birds will be conducted, and proposed to mitigate for potential impacts to nesting birds by postponing the removal of trees with active nests until the young have fledged. It also indicated that tree removal will be compensated by planting up to 95 acres of riparian habitat for all Sacramento River projects within ARCF. A System Wide Improvement Framework agreement with the non-Federal sponsor will allow vegetation and encroachment compliance on the landside of the levee to be deferred and addressed by the local maintaining agency at a later time, which will benefit vegetation and wildlife by staggering the removal of vegetation. However, because it will take many years for compensation habitat to provide the value of habitat that will be removed the ARCF GRR EIS/EIR determined at the program level that construction related vegetation and wildlife impacts to have significant short term impacts and less than significant long term impacts with mitigation.

Significance Criteria

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

- Substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat.
- Substantial effects on a sensitive natural community, including Federally protected wetlands and other waters of the U.S., as defined by Section 404 of the Clean Water Act. (this threshold has been updated as described below)
- Substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species.
- Substantial conflict with the American River Parkway Plan, Sacramento County Tree Preservation Ordinance, or the City of Sacramento Protection of Trees Ordinance.

- Substantial adverse effects on native wood habitats in the American River Parkway, resulting in the loss of vegetation and wildlife.

The following threshold has been updated to reflect the most current CEQA Guidelines:

- Substantial adverse effect on State and Federally protected waters of the United States, including wetlands, through direct removal, filling, hydrological interruption, or other means.

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. Any additional work conducted to address the seepage, slope stability, overtopping, or erosion concerns in the Project Area would not occur. As a result, if a flood event were to occur in the immediate future, the Sacramento area would remain at risk of a possible levee failure. Under this alternative, there would be no construction-related effects to vegetation and wildlife. However, if the project is not constructed, and without some kind of erosion control measures, the Sacramento River levees would continue to erode during high flows. If flood fighting becomes necessary or a levee failure occurs, there would likely be substantial adverse effects on vegetation, terrestrial wildlife, and other aquatic resources. Because the potential for such occurrences is uncertain, and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable, a precise determination of significance under this alternative is not possible.

Proposed Action

Adverse Effects on Riparian Habitat and Waters of the United States

Some levee improvement and staging areas are located within or adjacent to riparian habitat along the Sacramento River. Constructing the Proposed Action will require removal of riparian vegetation within the levee degrade footprint, the top one third to one half of the levee. An estimated 60 trees will be removed to enable construction of the project, which is included within the 750 trees estimated in the ARCF GRR Final EIS/EIR for all Sacramento River East Levee contracts. This represents 2.51 acres of canopy (1.86 acres on the waterside of the levee and 0.65 acres on the landside). These tree and canopy acre estimates include both 1.08 acres of valley oak woodland riparian habitat, and additional native- and non-native landscaping and trees within other habitat types, and could increase by up to 15 percent. Most of the trees that will be trimmed or removed are valley oaks (*Quercus lobata*), with smaller numbers of California black walnut (*Juglans hindsii*) and other species. This will be a significant impact.

Implementing Mitigation Measure VEG-1 will compensate for removing 2.51 canopy acres of riparian habitat at a 2:1 ratio by planting 5.02 acres of new riparian habitat at the Beach/Stone Lakes Mitigation Site (BSLMS). However, because it will take many years for compensation habitat to provide the value of habitat that will be removed, the short-term habitat loss will remain significant, and thus will not be more severe than those addressed in the ARCF GRR EIS/EIR. Therefore, the construction-related impacts on visual resources are already adequately addressed in the ARCF GRR EIS/EIR.

Conflict with Tree Preservation Policies or Ordinances or Provisions of an Adopted Habitat Conservation Plan or Natural Community Conservation Plan

Implementation of flood protection activities by public agencies does not require a tree permit per City of Sacramento Code. Therefore, there will be no conflict with the City of Sacramento tree preservation policy or ordinance. A habitat conservation planning effort has been completed for the South Sacramento region, and the SRCSD borrow site is located in the plan area for the South Sacramento Habitat Conservation Plan (SSHCP). The plan has not yet been adopted by all SSHCP partners, and not all regulatory agency permits have been issued. In any case, using material at the existing SRCSD borrow site will not conflict with the plan provisions. Therefore, the Proposed Action will cause no impact arising from conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

Effects of Nighttime Lighting on Wildlife

Night lighting will be required during the installation of the jet grout cutoff wall in the industrial area near the City of Sacramento's Pioneer Reservoir (from levee stations 1093+50 to 1098+50), and the Chevron and Phillips 66 oil tank facilities (from levee stations 1105+00 to 1116+15). Night work near the main channel of the Sacramento River has been shown to increase juvenile fish predation and may affect nesting birds. Implementing Mitigation Measure LIGHT-1: Minimize Disturbance to Nocturnal Wildlife will reduce this effect to less-than-significant.

3.4.3 Avoidance, Minimization, and Mitigation Measures

The following measures are consistent with mitigation identified in the ARCF GRR EIS/EIR.

Mitigation Measure VEG-1: Compensate for Riparian Habitat Removal.

To compensate for riparian habitat removal, replacement habitat will be created in accordance with the 2013 ARCF GRR Fish and Wildlife Coordination Act Report. The mitigation will be implemented at the BSLMS or other USFWS approved location.

Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices

Please refer to Section 3.8.3 for the full text of this mitigation measure.

LIGHT-1: Minimize Disturbance to Nocturnal Wildlife

Please refer to Section 3.2.3 for the full text of this mitigation measure.

3.5 Special-Status Species

3.5.1 Existing Conditions

The environmental and regulatory framework described in the ARCF GRR Final EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. Some updated information is presented below.

Appendix B-1 includes figures showing locations of elderberry (*Sambucus* sp.) within the Project Area, including staging areas. Though not shown in the figures, the haul routes are limited to existing roadways characterized as developed.

Special-status species evaluated for potential to occur in the Project Area for the Proposed Action were identified based on review of current U.S. Fish and Wildlife Service (USFWS) species lists (USFWS 2019a and 2019b) (see Appendix B-2), resource databases and other information available from National Marine Fisheries Service (NMFS), California Natural Diversity Database occurrences (CDFW 2019), and the California Native Plant Society online inventory (CNPS 2019). Additional species addressed in the environmental analysis for projects in the vicinity or in local conservation planning efforts were also considered (SRCSD 2014; County of Sacramento 2011). Appendix B-3 includes tables providing updated information on each special-status plant, fish, and wildlife species that was evaluated.

A protocol-level special-status plant survey was conducted in Project Area in August 2016. One special-status species, woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*), was observed during the survey along the Sacramento River east levee. A total of five individuals of woolly rose mallow were observed at two locations along the river shoreline (see habitat and land cover figures in Appendix B-1), but these are not located within the Project Area for the Proposed Action.

Focused surveys of elderberry shrubs were conducted in 2017 and 2020 to evaluate potential impacts of the Proposed Action on valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Approximately seven elderberry shrubs are present in the Project Area for the Proposed Action, with an additional 30 shrubs within 150 feet of construction area limits, based on the result of this survey. Ten elderberry shrubs exist outside of the Project Area in the Little Pocket, with two shrubs 20 feet outside of the construction limits. Two shrubs are located within the proposed staging area in the vacant lot at 6534 Benham Way. No additional protocol-level special-status wildlife surveys have been conducted.

3.5.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR determined that Sacramento River east levee improvements could result in mortality and indirect effects from loss of habitat for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and loss and disturbance of habitat for western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), purple martin (*Progne subis*), and common migratory birds. Project effects on special-status species were addressed in consultation with USFWS, and a biological opinion (BO) was issued on September 11, 2015 (08ESMF00-2014-F-0518). A total of 50 elderberry shrubs were estimated to be in the Sacramento River east levee Project Area during preparation of the ARCF GRR

Final EIS/EIR. These effects were determined to be significant. Mitigation measures will include following USFWS standards, including transplanting elderberry shrubs and planting a mix of native riparian/or upland vegetation at the transplant site. It was determined that implementing these measures will reduce impacts on valley elderberry longhorn beetle to less than significant.

Effects of construction activities and habitat loss on special-status birds were determined to be significant. Mitigation measures were identified to avoid impacts on nesting special-status and migratory birds and occupied burrowing owl burrows and habitat replacement will reduce long-term habitat effects to less than significant.

Significance Criteria

Effects on special status-species were considered significant if an alternative will result in any of the following:

- Substantial direct or indirect reduction in growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State ESA.
- Substantial direct mortality, long-term habitat loss, or lowered reproductive success of Federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing.
- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, plant species listed by the California Native Plant Society (CNPS), or species of special concern or regionally important commercial or game species.
- Adverse effect on a species' designated critical habitat

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. Any additional work conducted to address the seepage, slope stability, overtopping, or erosion concerns in the Project Area would not occur. As a result, if a flood event were to occur in the immediate future, the Sacramento area would remain at risk of a possible levee failure. Under this alternative, there would be no construction-related effects to special-status species. However, if the project is not constructed, and without some kind of erosion control measures, the Sacramento River levees would continue to erode during high flows. If flood fighting becomes necessary or a levee failure occurs, there would likely be substantial adverse effects on vegetation and terrestrial wildlife. Because the potential for such occurrences is uncertain, and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable, a precise determination of significance under this alternative is not possible.

Proposed Action

Adverse Effect on Special-status Species: Plants

Levee reconstruction and the use of related staging areas will have no impact on special-status plant populations, because the areas where these activities will be conducted do not provide suitable habitat for woolly rose mallow or Sanford's arrowhead. Though five individuals of woolly rose mallow were observed at two locations along the river shoreline no special-status plant species were observed during focused surveys conducted in August 2016 in the Project Area for the Proposed Action. Therefore, mitigation measures for special status plant species identified in the ARCF GRR EIS/EIR are not required for the Proposed Action.

Adverse Effect on Special-status Species: Valley Elderberry Longhorn Beetle

There are numerous documented occurrences of valley elderberry longhorn beetle along the Sacramento River, and approximately 143 elderberry shrubs are currently identified along the Sacramento River in the vicinity of the Project Area for the Proposed Action. However, only two elderberry shrubs are located within the anticipated ground disturbance limits and known to require removal.

Because elderberry is a fast-growing plant and focused surveys were last completed in 2019, for the purposes of impact analysis it is conservatively assumed that up to 10 elderberry shrubs may be removed during construction activities. These effects are less than the 163 stems greater than one inch identified in the 2015 BO for all SREL projects. Elderberry shrub removal will reduce available habitat and could result in direct mortality of valley elderberry longhorn beetle. In addition, construction activities in close proximity to shrubs could impact valley elderberry longhorn beetles that may be present on the affected shrubs.

Implementing Mitigation Measure VELB-1 will reduce potentially significant effects to a less-than-significant level by avoiding and minimizing impacts on elderberry shrubs, transplanting elderberry shrubs that cannot be avoided, and compensating for unavoidable impacts.

Adverse Effect on Special-status Species: Burrowing Owl

Potentially suitable burrowing owl (*Athene cunicularia*) habitat is present adjacent to the SRCSD borrow site. Although the borrow site is actively used, portions of the area can remain undisturbed for extended periods and become suitable for the species. In addition, numerous burrowing owl occurrences have been documented at and adjacent to the wastewater treatment plant and surrounding SRCSD Bufferlands. Therefore, implementing the Proposed Action could result in destruction and/or disturbance of occupied burrows. Implementing Mitigation Measure BUOW-1 will reduce potentially significant effects to a less-than-significant level by conducting a habitat assessment and focused survey if evidence of burrowing owls is observed, consulting with CDFW and implementing impact avoidance and minimization measures if active burrows could be affected, minimizing disturbance adjacent to occupied burrows, and instructing construction personnel about the potential presence of burrowing owls and required avoidance and minimization measures.

Adverse Effect on Special-status Species: Swainson's Hawk and Other Special-status Birds

Trees along the Sacramento River east levee and adjacent narrow riparian corridor along the river support a number of active nest sites of Swainson's hawk. This corridor also provides suitable nesting and/or foraging habitat for other special-status birds, such as western yellow-billed cuckoo, white-tailed kite, and purple martin. Nesting habitat for Swainson's hawk, white-tailed kite, and purple martin occurs throughout the Project Area for the Proposed Action. The Project Area is outside the nesting range of yellow-billed cuckoo, but transient individuals could use the area during migration.

Suitable habitat is primarily at and adjacent to the levee improvement and waterside staging areas. Tree removal to accommodate cutoff wall construction and staging area use, discussed in Section 3.4, will reduce the amount of habitat available to these species and could destroy active nests, resulting in loss of eggs and young. In addition, noise and visual disturbance from construction activities could disturb nearby active nests, potentially resulting in nest failure. Implementing Mitigation Measure BIRD-1 will reduce potentially significant effects on special-status and other migratory birds to a less-than-significant level by minimizing removal of vegetation with active nests, implementing protective buffers around active nests, monitoring to ensure that birds and their young are not adversely affected by project activities, and compensating for riparian habitat removal.

Adverse Effect on Special-status Species: Special-status Bats

Several species of bat are identified by CDFW as species of special concern; therefore, impacts on these species are analyzed under CEQA only. Mature trees that may provide suitable roost cavities for pallid bat (*Antrozous pallidus*) and other trees with suitable foliage for roosting by western red bat (*Lasiurus blossevillii*) occur in and adjacent to staging areas and levee improvement areas. Most of the trees that will be removed provide few, if any, cavities for roosting pallid bats. However, mature valley oak trees that may provide high-quality pallid bat roosting habitat, and tree species that are favored by roosting red bats will be removed. Although the likelihood is relatively low, it is possible this habitat could support a maternity colony; removal of a maternity colony could result in loss of a large number of individuals of special-status bats, potentially having a substantial adverse impact on the local population under CEQA. Implementing Mitigation Measure BAT-1 will reduce potentially significant effects on roosting special-status bats under CEQA to a less-than-significant level by implementing appropriate buffers around active roosts that could be affected by project activities.

3.5.3 Avoidance, Minimization, and Mitigation Measures

Mitigation identified in the ARCF GRR EIS/EIR has been updated in Mitigation Measure VELB-1 for consistency with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (2017).

Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle.

USACE will implement the following measures in accordance with the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017), to reduce effects on valley elderberry longhorn beetle:

- Fencing. All areas to be avoided during construction activities will be fenced and/or flagged as close to construction limits as feasible.
- Avoidance area. To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) will be avoided within 20 feet from the drip-line of the shrub.
- Worker education. A qualified biologist will provide training for all contractors, work crews, and any onsite personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging elderberry shrubs, and the possible penalties for noncompliance.
- Construction monitoring. A qualified biologist will monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented.
- Timing. To the extent feasible, activities within 165 feet of an elderberry shrub will be conducted outside of the valley elderberry longhorn beetle flight season (March - July).
- Trimming. To the extent feasible, elderberry shrub trimming will occur between November and February and avoid the removal of any branches or stems greater than or equal to 1 inch in diameter.
- Chemical Usage. Herbicides will not be used within the drip-line, and insecticides will not be used within 100 feet of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method.
- Mowing. Mechanical weed removal within the drip-line of elderberry shrubs will be limited to the season when adults are not active (August - February) and will avoid damaging the shrub.
- Transplanting. To the extent feasible, elderberry shrubs will be transplanted when the shrubs are dormant (November through the first two weeks in February) and after they have lost their leaves. Exit-hole surveys will be completed immediately before transplanting. A qualified biologist will be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.
- Compensation. Effects will be compensated at ratios ranging from 1:1 to 3:1, depending on the compensation approach and circumstances of the affected shrubs. Affected area will be re-vegetated with appropriate native plants.

Mitigation Measure BUOW-1: Implement Measures to Protect Burrowing Owl. USACE will implement the following measures to reduce effects on burrowing owl:

- Prior to the implementation of construction, surveys will be conducted to determine the presence of burrows or signs of burrowing owl at the SRCSD borrow site. The survey will be conducted in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFG 2012).

- If burrowing owls are observed, coordination with the California Department of Fish and Wildlife (CDFW) will be initiated to determine the appropriate actions to take or any additional avoidance and minimization measures that may need to occur. These measures may include creating a protective buffer around occupied burrows during the duration of the breeding/juvenile rearing season and biological monitoring of active burrows to ensure that construction activities do not result in adverse effects on nesting burrowing owls.
- If potential burrows are present, all on-site construction personnel will be instructed on the potential presence of burrowing owls, identification of these owls and their habitat, and the importance of minimizing impacts on burrowing owls and their habitat.

Mitigation measure BIRD-1 is consistent with but slightly modifies mitigation measures identified in the ARCF GRR Final EIS/EIR to address concerns regarding the feasibility of surveying for all active migratory bird nests within 500 feet of project disturbance and implementing a 0.25-mile buffer around all active migratory bird nests. Implementing a 0.25-mile buffer will likely preclude construction during the nesting season, severely shortening the construction window. In addition, extensive monitoring conducted during recent major levee improvement projects in the region has demonstrated that construction activities can often occur within 0.25 mile of active nests without adversely affecting nesting activities.

Mitigation Measure BIRD-1: Implement Measures to Protect Nesting Migratory Birds.

USACE will implement the following measures to minimize potential effects on active nests of Swainson's hawk, white-tailed kite, purple martin and other migratory birds:

- Before on-site project activities begin, all construction personnel will participate in a worker environmental awareness program. A qualified biologist will inform all construction personnel about the life history of Swainson's hawk and the importance of nest sites.
- A breeding season survey will be conducted for active Swainson's hawk nests within 0.5 mile of construction activities, including grading. A survey will also be conducted for active nests of white-tailed kite and purple martin within 500 feet of construction activities and active nests of other migratory birds within 100 feet of construction activities. Swainson's hawk surveys will be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30 with no fewer than three surveys completed in at least two survey periods, and with at least one survey occurring immediately prior to project initiation (Swainson's Hawk Technical Advisory Committee 2000). Other bird nest surveys could be conducted concurrent with Swainson's hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation.
- For any active migratory bird nest found, a protective buffer will be established and implemented until the nest is no longer active. The size of the buffer will be determined based on the species, nest stage, type and intensity of project disturbance in the nest vicinity, presence of visual buffers, and other variables that may affect susceptibility of the nest to disturbance. A qualified biologist

will monitor the nest during project activities to confirm effectiveness of the buffer and adjust the buffer as needed to ensure project activities do not adversely affect behavior of adults or young.

- Tree and shrub removal and other clearing, grading, and construction activities that remove vegetation will not be conducted during the nesting season (generally February 15 through August 31, depending on the species and environmental conditions for any given year). If construction activities that require tree and shrub removal occur during the nesting season, USACE will consult with USFWS and CDFW to determine the appropriate measures to implement to avoid adverse effects.

Mitigation Measure BAT-1: Implement Measures to Protect Maternity Roosts of Special-Status Bats.

The ARCF GRR Final EIS/EIR did not identify a significant impact associated with special-status bats. Therefore, the following is a new mitigation measure. CVFPB will implement the following measure to avoid and minimize effects on special status bats:

- Wherever feasible, the USACE will conduct construction activities outside of the pupping season for bats (generally April 1 to August 31).
- If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark.
- If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. No project activity shall commence within the buffer areas until the end of the pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the buffer, a qualified biologist will monitor activities either continuously or periodically during the work, as determined by the qualified biologist. The qualified biologist will be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated adverse effects on special status bats. If construction activities are stopped, CDFW will be consulted to determine appropriate measures to implement to avoid adverse effects.
- For trees containing cavities, cracks, crevices, or deep bark fissures that are planned for removal or trimming (irrespective of time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day (in the afternoon), limbs and branches will be removed, using chainsaws only. Removal activities must avoid limbs with cavities, cracks, crevices, or deep bark fissures, and remove only branches and limbs without those features. On the second day, the entire tree will be removed. A qualified biologist will monitor removal of these trees.

3.6 Climate Change

3.6.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some updated information is presented below.

Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.53 degrees Fahrenheit over the last 140 years (IPCC 2013). The causes of this warming have been identified as both natural processes and human actions. The Intergovernmental Panel on Climate Change concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming from preindustrial times to 1950 and had a small cooling effect afterward. However, since 1950, increasing greenhouse gas (GHG) concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been determined with 95 percent certainty to be responsible for most of the observed temperature increase (IPCC 2013).

During this period of increased global warming, many other changes have occurred or are predicted to occur in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines can rise, resulting in changes to the snowpack, runoff, and water storage; drought and wildfire risks have increased; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2013).

According to the City of Sacramento Climate Action Plan (City of Sacramento 2012), climate change is expected to affect the Sacramento region in the following ways:

- variable precipitation patterns, with the possibility of reduced average rainfall;
- reduced snowpack and snowline at higher elevations;
- earlier, hotter, more frequent, and longer heat waves;
- more frequent and extreme storm events and associated flood risk;
- diminished air quality;
- levee failure induced by sea level rise, leading to critical infrastructure damage in the Sacramento-San Joaquin Delta (Delta);
- increased pressure on water supplies and diminished water quality;

- increased climate-related illnesses (from factors such as extreme heat, air quality, and disease-bearing vectors);
- loss of natural habitat and agricultural productivity; and
- compromised energy supply and security.

3.6.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

Project-related GHG emissions will exceed thresholds, and this effect was determined to be less than significant after implementation of a suite of various mitigation measures to reduce and offset construction-related GHG emissions. Because the project will not conflict with or obstruct the implementation of GHG emission reduction plans, its effect was determined to be less than significant. Furthermore, project implementation will increase the likelihood that the flood management system could accommodate future flood events as a result of climate change, and therefore the project will improve the resiliency of the levee system with respect to changing climatic conditions, potentially reducing exposure of property or persons to the effects of climate change.

Significance Criteria

Significance of impacts associated with the Proposed Action were evaluated based on the updated thresholds described below.

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

- Conflict with an applicable plan adopted for the purpose of reducing GHG emissions. SMAQMD has local jurisdiction over the Proposed Action Project Area. In October 2014, the SMAQMD adopted a resolution that recommends GHG thresholds of significance as follows:
- Construction phase of projects: 1,100 metric tons of carbon dioxide equivalent (CO₂e) per year
- Operational phase of land development projects: 1,100 metric tons of CO₂e per year; and,
- Stationary source projects: 10,000 direct metric tons of CO₂e per year.

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

Effects Analysis

No-Action Alternative

Potential climate change effects in California and the Sacramento area include, but are not limited to, Delta salt water intrusion, extreme heat events, increased energy consumption, increased occurrence of infectious diseases and respiratory illnesses, reduced snowpack and water supplies, increased water consumption, and potential increase in wildfires.

Global climate change could expose the existing conditions under the No-Action Alternative to increased rainfall runoff and flood flows in the Sacramento River. The effects of increased flood flows would be most severe for the No-Action Alternative, which does not include any flood-risk reduction measures. Without improvements to the levee system, the risk of levee failure would remain high. Under these conditions, portions of the levees could fail, triggering widespread flooding and extensive damage. If a catastrophic flood were to occur, emergency flood-fighting and clean-up actions would require the use of a considerable amount of heavy construction equipment. Timing and duration of use would directly correlate with flood-fighting needs, but it is assumed that pollutants emitted would increase GHG emissions. Depending on the magnitude of the flood, flood-fighting could last for weeks or even months. Furthermore, because of the unpredictable nature of an emergency response, no BMPs to manage emissions would be in place. All of these effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Extreme drought conditions brought on by climate change could have considerable effects on groundwater levels and cutoff wall installation could worsen these effects. Investigating data on 170 domestic wells near SREL reveals an average well depth of 116 feet with a minimum well depth of 60 feet (California Department of Water Resources 2020). With a maximum cutoff wall depth of 88 feet, shallower than the average well in the area, the Proposed Action will not magnify existing impacts on groundwater in the area.

Temporary, Short-term Generation of Greenhouse Gas Emissions

The Proposed Action will emit an estimated 5,266 metric tons of CO₂e during project construction in 2021. This exceeds the threshold of 1,100 metric tons of CO₂e recommended by SMAQMD for construction phases and applied by USACE to this analysis. Implementing Mitigation Measure GHG-1 will reduce construction-related GHG emissions to a less-than-significant level through efficient operation of construction equipment engines, enhanced emissions reductions for equipment used during construction, minimization of equipment idling when not in use, and offset credits. Therefore, with implementation of mitigation measures to reduce GHG emissions and the purchase of offset credits, the project will not to make a considerable contribution to cumulative GHG emissions and global climate change.

Conflict with an Applicable GHG Emissions Reduction Plan and Effects of Climate Change

The intent, purpose, and function of the Proposed Action aligns with the goals of the Assembly Bill (AB) 32 Scoping Plan to protect against the detrimental effects of climate change. It is not anticipated that climate change will have an adverse effect on the Proposed Action, rather, the Proposed Action will improve the Sacramento River east levee and provide improved flood protection to the densely populated City of Sacramento and some unincorporated Sacramento County areas. Therefore, the Proposed Action is an adaptive measure against the potential effects of climate change. The climate change assessment contained in the 2018 Safeguarding California Plan, California's Climate Adaptation Strategy (CAS) identified floods (among heat waves, wildfires, and droughts) as likely being one of the earliest climate change effects experienced in California (CNRA 2018). The Updated AB 32 Scoping Plan cites the need to buffer from the increasing effects of climate change, including flood (ARB 2017). Therefore, in addition to reducing GHG emissions, which is the primary goal of the Scoping Plan, it is also critical to implement actions and projects that will prevent, avoid, and minimize the detrimental effects of climate change. These types of projects will also help avoid reconstruction and repair expenditures, losses and disruptions to economic activities, and effects on local residents from a flood event. Therefore, the project will be consistent with the goals of the 2018 CAS and the 2017 AB 32 Scoping Plan to protect against the detrimental effects of climate change without impeding current economic growth, and the Proposed Action will have a less-than-significant effect.

3.6.3 Avoidance, Minimization, and Mitigation Measures

The following measures are consistent with mitigation identified in the ARCF GRR Final EIS/EIR.

Mitigation Measure GHG-1: Implement GHG Reduction Measures

Additional measures that will be implemented to further reduce the project's contribution from generation of GHGs include the following:

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Recycle at least 75% of construction waste and demolition debris.
- Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

- Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- Use an ARB approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)

Purchase GHG offset for program-wide GHG emissions (direct emissions plus indirect emissions from on-road haul trucks plus commute vehicles) exceeding SMAQMD significance thresholds applicable at the time of construction. Carbon offset credits will be purchased from programs that have been approved by SMAQMD.

3.7 Cultural Resources

3.7.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some updated and site-specific conditions are described below.

The area in which cultural resources are identified and in which potential effects on historic properties (those cultural resources determined to be eligible for listing on the National Register of Historic Places [NRHP]) are analyzed is called the Area of Potential Effects (APE). The APE for the Proposed Action includes the project footprint (the area where any ground-disturbance will occur), such as levee improvement areas (levee degrade and cutoff wall installation), stability berms, and staging areas. An additional surrounding area (typically extending about 20 – 40 feet beyond the footprint) is included in the APE to account for buried resources that may extend outside the project footprint. This also includes the area in which built-environment resources could be affected physically, including through vibration. The boundary of the additional area surrounding the project footprint is generally limited by existing developed areas such as housing with fenced yards. No permanent substantial visual or auditory changes will occur as a result of project implementation; therefore, no area of indirect effect (the area in which changes in the visual or auditory setting may occur) has been identified. The vertical extent of the project APE is variable but will extend from the crown of the levee to a maximum depth of up to 140 feet below ground surface for excavation for cutoff walls.

The APE for the Proposed Action contains numerous remains of past human activity ranging from Native American sites to flood control structures and may contain Native American human interments. Such materials can be found at many locations on the landscape. USACE has consulted with the State Historic Preservation Officer (SHPO) and other parties and as a result has executed a Programmatic Agreement (PA). The PA establishes the process USACE shall follow for compliance with Section 106 of the National Historic Preservation Act (NHPA), taking into consideration the views of the signatory and concurring parties and interested Native American Tribes. The PA stipulates time frames and document review procedures; delineation of project APEs; development of a Historic Properties Management Plan (HPMP) to guide identification, evaluation, and findings of effect; Historic Property Treatment Plans (HPTPs) to identify treatment for Historic Properties that will be adversely affected; a process to guide

limited geotechnical investigations; Native American consultation procedures; and other processes and implementation procedures. The term “historic property” refers to any cultural resource that has been found eligible for listing, or is listed, in the NRHP.

Recent Surveys and Investigations

Efforts to identify Historic Properties and potential Historic Properties in the project APE that have been conducted since the ARCF GRR Final EIS/EIR was prepared include records searches, archival research, an archaeological pedestrian survey, survey by historians, consultation with historical societies and organizations, Native American pedestrian survey, Native American consultation, and geoarchaeological modeling.

Records Search

In October 2019, contracted Archaeologists conducted a supplemental record search at the North Central Information Center (NCIC) for the Proposed Action APE. The records searches included the following sources:

- NRHP-listed properties (NPS 1997) and updates;
- California Inventory of Historic Resources (State of California 1976 and updates);
- California Points of Historical Interest (State of California 1992 and updates);
- California Department of Transportation (Caltrans) Bridge Inventory (Caltrans 1989, 2000, and 2004);
- Historic Maps;
- California Historical Landmarks (State of California 1996 and updates);
- Directory of Properties in the Historic Resources Inventory (State of California 2006);
- Gold Districts of California (Clark 1970);
- California Gold Camps (Gudde 1975);
- California Place Names (Gudde 1969); and
- Historic Spots in California (Hoover et al. 1966 and 1990).

Archival Research at the following repositories:

- California Digital Newspaper Collection
- California History Room, California State Library
- California State Archives
- California State University, Sacramento (CSUS) Anthropology Department Anthropological Curation Facility
- CSUS Library
- Central Branch of the Sacramento Public Library
- Center for Sacramento History
- David Rumsey Historical Map Collection
- GEI Consultants, Inc. Cultural Library
- National Archives at San Francisco
- NCIC
- NETR Online Historic Aerials
- University of California, Berkeley (UCB), Anthropology Library
- UCB Bancroft Library

- UCB Doe Library
- University of California, Davis, Shields Library
- URS Corporation Urban Levee Geotechnical Evaluations Database
- USACE, Sacramento Division Headquarters

The purpose of the archival research was to assist with identifying where the material that was used to build the Sacramento River east levee came from and the construction methods used in the design of the levee system. The archival research was also used to identify important trends, people, and architectural and engineering methods that created the historic context in which the cultural resources in the Project Area were evaluated. The research also helped to determine detailed information about construction dates and construction methods and materials.

Field Surveys

Contracted archaeologists conducted an intensive pedestrian archaeological survey (survey transects spaced no more than 10 meters apart) of the Proposed Action APE. Much of the APE along the Sacramento River consists of fill material used during levee construction and O&M. Archival research was not able to conclusively determine the source material for the levee fill. On much of the water side of the levee, conditions consisted of heavily vegetated areas, areas of riprap, and paved areas. On the land side of the levee, most of the areas have been landscaped or altered by modern development.

Native American Consultation

Native American Consultation Conducted by USACE

USACE is the lead Federal agency responsible for compliance with Section 106 of the NHPA and has conducted all consultations with Native American Tribes and interested parties according to the PA and HPMP developed for the ARCF 2016 Project. Several Native American Tribes and interested parties were contacted during development of the PA and provided with general information about the ARCF 2016 Project. Consultations specifically related to the Proposed Action are a continuation of the ongoing process.

Native American Tribes identified in the PA have been contacted and provided a description of the Proposed Action. Letters describing the Proposed Action and containing maps of the APE were mailed to consulting Native American Tribes in February 2020.

Native American consultation conducted by USACE is on-going, including discussions with the United Auburn Indian Community (UAIC) regarding best practices during construction and monitoring arrangements.

Native American Consultation Conducted by Sacramento Area Flood Control Agency under California Environmental Quality Act

SAFCA also has consulted with local Native American Tribes and part of CEQA compliance related to Sacramento River east levee Improvements (SAFCA was the CEQA lead agency in 2015). In March 2015, SAFCA conducted a tour of portions of the Sacramento River east levee for the interested tribes. Native American representatives who attended the tour included Marcos Guerrero (UAIC), Kyle Dutschke (Ione Band of Miwok Indians), Melissa Baring (Ione Band of Miwok Indians), Antonio Ruiz, Jr.

(Wilton Rancheria), Kara Perry (Shingle Springs Band of Miwok Indians), and Daniel Fonseca (Shingle Springs Band of Miwok Indians).

UAIC has provided SAFCA and USACE with a sensitivity map of the ARCF 2016 Project Area which illustrated general areas that the Tribe feels are sensitive for Native American resources, such as cultural landscapes.

In August 28, 2015, SAFCA conducted a field review of SAFCA's Sacramento River east levee project footprint with representatives of UAIC, USACE, and contracted archaeologists. In October 2015, SAFCA conducted a follow-up field review of selected portions of the Sacramento River east levee project footprint with representatives of UAIC and contracted archaeologists.

In September 2015, the Native American Heritage Commission (NAHC) sent an updated list of Native American contacts for SAFCA's Sacramento River east levee APE and also the updated results of a search of their Sacred Lands File. The NAHC indicated that no sacred sites were identified as a result of their Sacred Lands File search, although UAIC has indicated that records of sacred sites have been sent to the NAHC. However, following the discovery of human remains on the ground surface during a surface inspection of the Proposed Action APE by representatives of UAIC on May 25, 2016, the NAHC designated UAIC as the Most Likely Descendant (MLD) for the Proposed Action.

UAIC has continued to consult with SAFCA and its consultant. UAIC has identified five locations as cultural landscapes and burial grounds within the project APE. These resources are described below under, "Identified Cultural Resources."

CVFPB, as the CEQA lead agency, is continuing to conduct consultation with culturally-affiliated Native American Tribes under California Natural Resource Agency Tribal Coordination Policy. The California Natural Resources Agency adopted the California Natural Resource Agency Final Tribal Coordination Policy on November 20, 2012, which was developed in response to Governor Brown's September 19, 2011 Executive Order B-10-11. CVFPB has adopted this Policy. As such, Native American consultation will be conducted in accordance with the Policy adopted by CVFPB. The purpose of the Policy is to ensure effective, meaningful, and mutually beneficial government-to-government consultation, communication, and coordination between CVFPB and tribal entities relative to activities under CVFPB's jurisdiction that may affect tribal communities. CVFPB has contacted the Native American contacts, including those already identified by the NAHC, in an effort to identify cultural resources important to Native Americans, including Tribal Cultural Resources as defined in California Public Resources Code 21074, which may be present in the project area.

Identified Cultural Resources

Based on the results of the records search and archival research, archaeological and Native American surveys, Native American consultation, and monitoring of geotechnical explorations, the following archaeological resources have been reported within the APE for the Proposed Action.

Archaeological Resources

Resource TD-1 consists of a prehistoric subsurface archaeological deposit. The site was identified in a soil sample taken during geotechnical drilling. The soil sample was taken using a sonic bore technique. The bore sample measured approximately 4 inches in diameter and 5 feet in depth. The sample was taken from approximately 15 to 20 feet below the surface of the levee crown. The site consists of two, 4-inch thick midden layers at 17.5 and 20 feet below the surface of the levee crown, with cultural items identified

consisting of faunal bone, charcoal, fragmented bits of freshwater shell, and possible fire affected rock. No midden was identified in subsequent samples, which extended to 140 feet below the levee crown. This resource is assumed to be eligible for the NRHP.

Resource CA-SAC-505H is a 300-foot long abandoned railway grade composed of historic-age fill soil and a dense deposit of artifacts (glass, ceramics, marine shell, metal, cut bone, and brick fragments), much of which is burned (Davis and Roark 2001). The grade is a spur from the Walnut Grove Branch Line Railroad (WGBLRR) that once extended from Sacramento to Isleton. The railroad was built in 1908, ran freight and passengers from 1909 to 1934, and freight only from 1934-1978. This site has been evaluated and is recommended by the contracted historian and archaeologist as a non-contributing element to the WGBLRR and not eligible for listing on the CRHR or NRHP.

Resource CA-SAC-30 (34-000057) is a prehistoric site first recorded in 1934. At that time, the site was described as a mound approximately 100 feet in diameter that had been leveled for cultivation. Today there are no surface indicators of a cultural resource. The site appears to have been largely destroyed by agricultural and residential development, but remnants may remain within the APE.

Native American-Identified Sensitive Locations

During consultation, UAIC provided a confidential map illustrating areas of concern, which include portions of the APE for the Proposed Action. These areas of concern were not characterized as archaeological sites, but rather as areas identified by UAIC with an elevated sensitivity for the presence of resources important to the Tribe. UAIC has identified five areas within or encompassing portions of the Proposed Action APE that the Tribe considers to be sensitive. The UAIC-identified sensitive areas contain one known/recorded prehistoric archaeological site (CA-SAC-30). The UAIC-identified areas are confidential. Native American consultation is ongoing, in accordance with the requirements of the PA. These locations have not been evaluated for NRHP or CRHR eligibility due to a lack of information about the nature of the resources.

Built-environment Resources

Four historic-era (more than 45 years old) built-environment resources are located in the Proposed Action APE: two portions of the Sacramento River East Levee (Levee Unit 115 and Levee Unit 117) and two sewer lines (P-34-004261 and P-34-004262).

Sacramento River east levee (Levee Unit 115)

Levee Unit 115 is approximately 10 miles long, beginning just south of Sutterville Road. The waterside slope of this earthen levee is covered by vegetation, including mature trees, and some riprap. The landslide slope is also covered by vegetation. Fences, steps, pipes, and portions of residential parcels occur on the levee or have been built to the levee toe. The levee crown is approximately 20 feet wide. The material on the crown varies and includes gravel and steel railroad tracks.

As part of the 2020 ARCF Project SREL Contract 1 (COE120203C), Levee Unit 115 was inventoried and evaluated as eligible for listing in the NRHP under Criterion A at the national level of significance, as a contributor to a larger district within the context of flood management, one of the four major themes for built environment resources identified in the HPMP (GEI 2017:6-25). The period of significance begins in 1917, the year U.S. Congress approved the flood control act, marking the first comprehensive plan for flood management in California. The period of significance ends in 1968, a 50-

year cutoff date, as allowed in the HPMP (GEI 2017:6-28). In November 2019, the SHPO concurred with the findings that Levee Unit 115 is eligible for the NRHP (Polanco 2019).

Sacramento River east levee (Levee Unit 117)

As part of the 2018 ARCF Project Reach D Seepage Berm Project (COE120203C), Levee Unit 117 (Tower Bridge to Sutterville Road) was inventoried and evaluated as eligible for listing in the NRHP under Criterion A at the national level of significance. It was determined eligible as a contributor to a larger district within the context of flood risk management, one of the four major themes for built environment resources identified in the HPMP (GEI 2017:6-25). The period of significance begins in 1917, the year U.S. Congress approved the flood control act, marking the first comprehensive plan for flood management in California. The period of significance ends in 1968, a 50-year cutoff date, as allowed in the HPMP (GEI 2017:6-28). In December 2018, the SHPO concurred with findings that Levee Unit 117 is eligible for listing in the NRHP (Polanco 2018:3).

P-34-004261 and P-34-004262

Resources P-34-004261 and P-34-004262 consisted of a line of concrete “bents” and two “dolphin piers” that once supported a 30-inch sewer main (004261) and four pilings from the docks of the former Da Rosa Marina. The bents and piers were built sometime around 1946, and the Da Rosa Marina was built prior to 1949. All these constructions lay immediately offshore and were long out of use when removed a few years ago. These resources have been evaluated and are recommended by the contracted historian as ineligible for listing in the NRHP or the CRHR under any criteria.

3.7.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR identified Historic Properties and potential Historic Properties through records searches and a sensitivity analysis. The inventory of Historic Properties in the ARCF GRR Final EIS/EIR did not include intensive pedestrian surveys, archaeological excavation, or identification of locations of importance to Native Americans, and analyzed a different APE from that identified for the Proposed Action.

Based on the programmatic nature of analysis that was conducted to assess effects to cultural resources, the ARCF GRR Final EIS/EIR concluded that the Sacramento River east levee project will result in significant adverse effects to Historic Properties. The ARCF GRR Final EIS/EIR also concluded that the significant effects to cultural resources will be reduced to a less-than-significant level under NEPA through implementation of the Stipulations in the ARCF PA. The impact will remain significant and unavoidable under CEQA.

Significance Criteria

Any adverse effects on cultural resources that are listed or eligible for listing in the NRHP (i.e., historic properties) are considered to be significant. Under Section 106 of the NHPA, effects to historic properties are considered to be adverse if they:

- Alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.

- Cause a substantial adverse change in the significance of a historic property through the physical demolition, destruction, relocation, or alteration of the historic property or its immediate surroundings such that the significance of the resource would be materially impaired.

Under California law, effects to a historical resource or unique archaeological resource are considered to be significant if they:

- Materially impair the significance of a historical resource or unique archaeological resource.
- Require the demolition of a historical resource.

Two additional thresholds are considered in this analysis. The project was determined to result in a significant effect related to hydrology and water quality if it will do any of the following:

- disturb any human remains, including those interred outside of formal cemeteries; or
- result in a substantially adverse change in the significance of a Tribal Cultural Resource (as defined in California Public Resources Code [PRC] Section 21074 and above) when compared against existing conditions.

Methodology

For those resources recommended to be eligible for listing in the NRHP/CRHR, analysis of the effects or likely effects was based on evaluation of the changes to the existing Historic Properties that will result from implementing the Proposed Action. In making a determination of the effects to Historic Properties, consideration was given to:

- specific changes in the characteristics of Historic Properties in the APE;
- the temporary or permanent nature of changes to Historic Properties and the visual area around the Historic Properties; and
- The existing aspects of integrity that are retained by Historic Properties in the APE and how those aspects relate to the specific significant characteristics that make a Historic Property eligible for listing in the NRHP.

An assessment of effects for the purposes of this Supplemental EA/EIR and a determination of effect under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP/CRHR. Resources that have been determined to be eligible for listing in the NRHP or are listed in the NRHP are referred to as Historic Properties. Resources that have been found or recommended to be ineligible for listing in the NRHP/CRHR are not considered further in this Supplemental EA/EIR. Similarly, because isolated artifacts are generally not considered to be potentially eligible for listing in the NRHP and because an assessment of effects for the purposes of this Supplemental EA/EIR and a determination of effects under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP or that are listed in the NRHP, isolated artifacts are not considered to be Historic Properties and an assessment of effects on those resources is not necessary. Therefore, isolated artifacts are not considered further in this Supplemental EA/EIR. This evaluation of potential effects on cultural resources is based on detailed information compiled since the ARCF GRR Final EIS/EIR was

prepared, as described above under “Existing Conditions.” The effects analysis considered the following factors related to the Proposed Action: project elements, including construction of levee improvements, stability berms, staging areas, potential effect mechanisms; the area that will be temporarily and permanently disturbed; known or potential locations of cultural resources, including locations identified by culturally affiliated Native Americans as cultural landscapes, Traditional Cultural Properties, sacred sites or other sensitive resources. In particular, the significance of each effect was evaluated in terms of its potential effect on resources that are eligible or potentially eligible for listing in the NRHP/CRHR. The mitigation identified in the ARCF GRR Final EIS/EIR for potential impacts to cultural resources included implementing stipulations of the ARCF PA. Where feasible, more specific measures are identified below to reduce adverse effects. Where there are uncertainties about resource boundaries, eligibility for listing, and project effects, processes for determining boundaries, eligibility, and effects stipulated in the PA and associated HPMP will be implemented.

USACE has not concluded determinations of NRHP eligibility based on consultation with SHPO and other ARCF PA Parties and therefore the impact analysis presented in this document does not reflect consensus findings under Section 106 of the NHPA as implemented through the ARCF PA. In accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation will be made through consultation between USACE, SHPO and other Consulting Parties to the PA as appropriate prior to initiating construction of the Proposed Action.

Effects Analysis and Mitigation Measures

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

Potential levee failure and the resulting major flooding event could alter existing conditions by burying, destroying, or revealing cultural resources. Failure of the levee and subsequent flooding would result in greatly accelerated need for post-failure emergency repairs. Flooding could result in significant damage to cultural resources in a large geographic area through erosion and inundation. The required post-failure emergency repairs could have a large footprint, and the urgent need to immediately repair the levee would preclude proper planning and environmental protection. This effect could be considered significant and adverse. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Damage to or Destruction of Built-environment Historic Properties

A total of four historic-era built-environment resources have been identified and evaluated for historical significance: Sacramento River east levee Units 115 and 117 and two sewer lines (P-34-004261 and P-34-004262). P-34-004261 and P-34-004262 have been evaluated by the contracted historian and recommended to be ineligible for the NRHP or the CRHR and are therefore not considered to be Historic Properties for the purpose of this analysis. . Levee Units 115 and 117 are considered Historic Properties. Portions of the Sacramento River east levee (Units 115 and 117) will be enhanced and stabilized by the Proposed Action. When originally constructed, the levee was designed to be periodically maintained and strengthened, which was the purpose of the SRFCP. The proposed modifications will not alter the

character-defining features or the integrity of the Sacramento River east levee Unit 115 or Unit 117, which include their overall design and form. In addition, the materials, workmanship, and general physical characteristics that convey the significance of the levee will remain in place. The levee will continue to serve its intended purpose within the context of flood control. Therefore, the project will have no effect on the Levee Units.

Damage to or Destruction of Known Prehistoric-period Archaeological Sites and Tribal Cultural Resources

Levee improvement activities will include substantial ground disturbance, such as excavation, soil removal, trenching, construction of earthen berms, levee crown degradation and reconstruction for cutoff wall installation, grading, and use of staging areas. These earthmoving activities could result in damage to or destruction of known prehistoric-period archaeological sites and Native American-identified Tribal Cultural Resource. Due to regulatory restrictions on excavation within the levee prism and Native American preference for not conducting archaeological testing within certain locations, the exact boundaries and constituents of known prehistoric-period archaeological sites and Native American-identified Tribal Cultural Resources are not fully known.

Site TD-1, identified during geotechnical drilling, appears to indicate the presence of a buried prehistoric site which is assumed to be eligible for listing on the NRHP and CRHR for the purposes of this analysis. Because the levee will be degraded and a cutoff wall will be constructed at the location of this resource, it is assumed for the purposes of this analysis that resources TD-1 will be adversely affected by ground disturbance associated with levee degrade or cutoff wall construction. Under NEPA, implementing Mitigation Measure CR-1 will resolve adverse effects through identification of mitigating or compensatory measures identified in a Historic Properties Treatment Plan.

Under CEQA, implementation of Mitigation Measure CR-1 will reduce the level of impact, but not to a less-than-significant level because there is no process similar to the ARCF PA which constitutes an agreed-upon process to mitigate adverse effects. Therefore, this effect will remain significant and unavoidable under CEQA, as described in the ARCF GRR Final EIS/EIR.

Potential Damage to or Destruction of Previously Undiscovered Archaeological Sites or Tribal Cultural Resources

Cultural resources investigations have identified archaeological resources and potential Tribal Cultural Resources in the APE. Based on available information, other areas in the APE are also potentially sensitive for unknown buried archaeological resources and Tribal Cultural Resources and there remains the possibility that previously unknown archaeological resources or Tribal Cultural Resources could be discovered during project construction and inadvertently damaged. Implementing Mitigation Measure CR-2, CR-3, CR-4 and CR-5 will reduce the potential for a significant effect resulting from inadvertent damage to or destruction of presently undocumented archaeological resources and Tribal Cultural Resources to a less-than-significant level, because these measures will require that if archaeological resources or Tribal Cultural Resources are discovered prior to or during project-related construction activities, appropriate treatment and protection measures must be implemented.

Damage to or Destruction of Human Remains during Construction

The APE and vicinity are known to contain significant prehistoric archaeological sites, including sites with human burials. Native American human remains could be encountered during earthmoving activities associated with the Proposed Action. This will be a potentially significant effect. Implementing Mitigation Measure CR-6 will reduce the potential for a significant effect resulting from inadvertent

damage to or destruction of presently undocumented human remains to a less-than-significant level because it requires that if human remains are discovered during project-related construction activities, disturbances in the area of the find must be halted and appropriate treatment and protection measures must be implemented, all in consultation with the NAHC, MLD, and landowners, in compliance with California Health and Safety Code Section 7050 et seq. and PRC Section 5097.9 et seq.

3.7.3 Avoidance, Minimization, and Mitigation Measures

The following measures augment the mitigation identified in the ARCF GRR Final EIS/EIR, including actions to address Tribal Cultural Resources under CEQA and specifically address inadvertent discovery of human remains.

Mitigation Measure CR-1: Resolve Adverse Effects through Programmatic Agreement and Historic Properties Treatment Plan (HPTP).

For Historic Properties which will be adversely affected by implementation of the Proposed Action (pending concurrence of eligibility and finding of effect in the ARCF PA consultation process), USACE shall consult with the SHPO and interested Native American Tribes in accordance with the ARCF PA and associated HPMP to develop a HPTP. The HPTP shall specify measures that will be implemented to resolve the adverse effects to the Historic Properties and shall constitute mitigation for the effects to these resources. USACE shall implement the terms described in the HPTP.

Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan.

In accordance with the procedures described in Section 9.2 of the ARCF HPMP, a discovery plan shall be prepared and included in the construction contractor's specifications. The discovery plan shall specify what actions are required to be taken by the contractor in the event of an archaeological discovery and describe what actions USACE may take in the event of a discovery.

In accordance with the procedures described in Section 9.3.9 of the ARCF HPMP, an archaeological monitoring plan shall be developed for the Proposed Action. This plan shall identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and shall include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials.

Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training.

In accordance with the procedures described in Section 9.1 of the ARCF HPMP, USACE shall require the contractor to provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training shall be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology (36 CFR Part 61), as well as culturally affiliated Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training shall be conducted before any project-related construction activities begin in the APE and shall include relevant information regarding sensitive cultural resources and Tribal Cultural Resources, including applicable regulations, protocols for avoidance, and consequences of violating Federal and State laws and regulations.

The training shall also describe appropriate avoidance and impact minimization measures for cultural resources and Tribal Cultural Resources that could be located in the APE and shall outline what to do and who to contact if any potential cultural resources or Tribal Cultural Resources are encountered. The training shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and shall discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

Mitigation Measure CR-4: Implement Procedures for Inadvertent Discovery of Cultural Material.

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains); Tribal Cultural Resources; sacred sites; or landscapes is made at any time during project-related construction activities, USACE in consultation with CVFPB and other interested parties, shall develop appropriate protection and avoidance measures where feasible. These procedures shall be developed in accordance with the ARCF PA and HPMP, which specifies procedures for post-review discoveries. Additional measures, such as development of HPTPs prepared in accordance with the PA and HPMP may be necessary, if avoidance or protection is not possible.

Mitigation Measure CR-5: In the Event that Tribal Cultural Resources are Discovered Prior to or During Construction, Implement Procedures to Evaluate Tribal Cultural Resources and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.

California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise concerning their Tribal Cultural Resources (California PRC Section 21080.3.1). As was done during Supplemental EA/EIR preparation, culturally affiliated Tribes shall be further consulted concerning Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. Further consultation with culturally affiliated Tribes shall focus on identification of measures to avoid or minimize impacts on any such resources discovered during construction. If Tribal Cultural Resources are identified in the APE prior to or during construction, the following performance standards shall be met before proceeding with construction and associated activities that may result in damage to or destruction of Tribal Cultural Resources:

Each identified Tribal Cultural Resource will be evaluated for CRHR eligibility through application of established eligibility criteria (CCR 15064.636), in consultation with interested Native American Tribes.

If a Tribal Cultural Resource is determined to be eligible for listing on the CRHR, USACE, in consultation with CVFPB, will avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that will avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant impacts and constitute the standard by which an impact specifically address inadvertent discovery of human remains may be reached:

- i. Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks,

or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

- ii. Treat the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - a. Protect the cultural character and integrity of the resource.
 - b. Protect the traditional use of the resource.
 - c. Protect the confidentiality of the resource.
 - d. Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.
 - e. Protect the resource.

Mitigation Measure CR-6: Implement Procedures for Inadvertent Discovery of Human Remains.

To minimize adverse effects from encountering human remains during construction, CVFPB shall implement the following measures.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, CVFPB shall consult with USACE, and USACE shall immediately halt potentially damaging excavation in the area of the burial and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated MLD, in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains.

Upon the discovery of Native American human remains, USACE, in coordination with CVFPB, shall require that all construction work must stop within 100 feet of the discovery until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that CVFPB shall employ:

- Record the site with the NAHC or the appropriate Information Center.
- Record a document with the county in which the property is located.

If agreed to by the MLD and the landowner, CVFPB or CVFPB's authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance, if the NAHC is unable to identify an

MLD, or if the MLD fails to make a recommendation within 48 hours after being granted access to the site. CVFPB or CVFPB's authorized representative may also reinter the remains in a location not subject to further disturbance, if CVFPB rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to CVFPB. CVFPB shall implement mitigation for the protection of the burial remains. Construction work in the vicinity of the burials shall not resume until the mitigation is completed.

3.8 Geological Resources

3.8.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated.

3.8.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR found liquefiable material at several locations within the GRR study area. However, the project will not substantially alter the composition of the levees or foundation soils or change their susceptibility to liquefaction. Because of the relatively small likelihood of a flood event and a major earthquake occurring at the same time, and because the expected magnitude of ground-shaking from large regional earthquakes is relatively low in the Project Area, the potential for failure or significant damage to project structures from seismic issues was determined to be low.

Significance Criteria

The thresholds of significance are developed to determine the significance of an action in terms of its context and intensity. Under NEPA and CEQA, consideration is given to determine possible conflicts between the proposed action and the objectives of Federal, State, Regional, and local land use plans, policies, and controls for the study area. Alternatives considered were determined to result in a significant impact to geologic resources if they will expose people or structures to substantial effects involving:

- Rupture of a known earthquake fault, strong seismic shaking, or seismic-related ground failure, including liquefaction;
- Landslides, substantial soil erosion, or permanent loss of topsoil;
- Locating the project on an unstable geologic unit, or on a geologic unit that would become unstable as a result of the project; and/or,
- Locating the project on expansive soil, as defined in the Uniform Building Code.

One additional threshold is considered in this analysis. The Society of Vertebrate Paleontology (1995, 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society of Vertebrate Paleontology assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

The Proposed Action was determined to result in a significant effect related to paleontological resources if it will:

- directly or indirectly destroy a unique paleontological resource or geologic feature.

For the purposes of this analysis, a unique resource or site is one that is considered significant under professional paleontological standards. An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Effects Analysis and Mitigation Measures

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

Under this alternative, no temporary or short-term construction-related erosion effects would occur. However, catastrophic levee failure could result in collapse of miles of levee slopes and alteration of regional and local flows that would result in substantial increases in erosion and sedimentation. Erosion causing the loss of the levee foundation and eroded topsoil from banks of a river or sloughs would increase turbidity and total dissolved solids in the Sacramento River and ultimately affect the environmental resources of the Delta by impairing the beneficial uses of waters of the Delta. Levee failure would require immediate flood fighting efforts that would not include BMP measures to reduce erosion. A flood event could lead to widespread bank erosion, loss of soil, could comprise existing riparian habitat and could result in siltation of existing channels. If a levee breach were to occur, emergency repair activities would be implemented and could result in the loss of channel capacity and alteration of present-day geomorphic processes with the placement of large quantity of rock in the river to close the breach. All of these effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Potential Temporary, Short-term Construction-related Erosion

The proposed SRCSD borrow site is an active stockpile, and borrow removal will be consistent with existing conditions. Storage and reuse of excess materials excavated from the levee and deposited at the Sacramento Railyards will be governed by the Railyards EIRs (City of Sacramento 2007 and 2016), which found that with implementation of a SWPPP and appropriate BMPs designed to control erosion, erosion effects will be less than significant. Levee improvements and staging area activities will occur between April and October when rainfall is the least likely and stream flows are lowest. However, these activities will result in the temporary and short-term disturbance of soil and could expose disturbed areas waterside of the levee to storm events. Rainfall of sufficient intensity could dislodge soil particles from the soil surface and generate runoff and localized erosion. Excessive erosion could decrease levee stability and cause sediment deposition in lower energy portions of the channel, which could affect flow patterns in the river. In addition, soil disturbance during the summer months could result in substantial loss of topsoil because of wind erosion. Implementation of Mitigation Measure GEO-1 will reduce potentially significant temporary, short-term construction-related erosion impacts to a less-than-significant level by requiring preparation and implementation of a SWPPP with appropriate BMPs such as source control and revegetation to reduce erosion and maintain surface water quality conditions in adjacent receiving waters, and implementation of a Spill Prevention Control and Countermeasures Plan (SPCCP) to prevent discharge of oil into navigable waters

Potential to Directly or Indirectly Destroy a Unique Paleontological Resource or Site

Most of the levee reconstruction, all of the staging areas, and the SRCSD borrow site are located in Holocene-age rock formations, which are considered to be of low paleontological sensitivity. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered “unique” paleontological resources.

Based on detailed geologic mapping prepared by Fugro William Lettis & Associates, Inc. (2010: Figure 4 and Plate 1), there is a potential that installing deep cutoff walls proposed in the Little Pocket could encounter the Modesto Formation at depths of approximately 10–80 feet below mean sea level and the Riverbank Formation at depths of approximately 60–70 feet below mean sea level. Because numerous vertebrate fossils have been recovered from these formations in northern and central California, including at least nine different localities from Sacramento County, these formations are considered to be paleontologically sensitive.

However, installing cutoff walls limits the extent of below-ground disturbance at the depths where these formations might be encountered to a very small area. Therefore, potential to encounter a unique paleontological resource is very low, and this impact will be less than significant.

3.8.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR Final EIS/EIR.

Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices

Prior to the start of earthmoving activities, USACE will obtain coverage under the State Water Resources Control Board (SWRCB) NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the NOI to discharge is filed. The SWPPP will identify and specify the following:

- the use of an effective combination of robust erosion and sediment control BMPs and construction techniques that will reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of mercury from project-related construction sites. These may include but will not be limited to temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;
- the implementation of approved local plans, nonstormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities;
- the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- the means of waste disposal;
- spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;

- personnel training requirements and procedures that will be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and
- the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

Where applicable, BMPs identified in the SWPPP will be in place throughout all site work and construction/demolition activities and will be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below.

- work window- conduct earthwork during low flow periods (July 1 through November 30).
- to the extent possible, stage construction equipment and materials on the landside of the levee in areas that have already been disturbed.
- minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.
- stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.
- install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.
- install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established.
- conduct water quality tests specifically for increases in turbidity and sedimentation caused by construction activities.
- prepare a Spill Prevention Control and Countermeasures Plan (SPCCP). An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor will develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP will be completed before any construction activities begin. Implementation of this measure will comply with state and Federal water quality regulations. The SPCCP will describe spill sources and spill pathways in addition to the actions that will be taken in the event of a spill (e.g., an oil spill from engine refueling will be immediately cleaned up with oil absorbents). The SPCCP will outline

descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. It will also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

- A copy of the approved SWPPP will be maintained and available at all times on the construction site.

3.9 Hazardous Wastes and Materials

3.9.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some updated information is presented below.

A Phase I Environmental Site Assessment (Phase I ESA) (HDR 2017) was conducted for the Project Area. The Phase I ESA included a visual inspection of the Project Area for the Proposed Action, a review of environmental data bases and regulatory agency records, and a review of historical data sources. The Phase I ESA identified the presence of the following Recognized Environmental Conditions (RECs):

- arsenic in soils along railroad corridors due to historical treatment with herbicides to prevent the growth of plants in and adjacent to active railroad tracks;
- aerially deposited lead identified in shallow soil samples under Pioneer Bridge;
- debris and lead contamination in fill material used to construct a portion of the Sacramento River east levee near Broadway;
- contaminants in soil and groundwater related to historical industrial use along Front Street;
- petroleum hydrocarbons in soil and groundwater associated with the bulk fuel storage area near Broadway;
- soil and groundwater contamination associated with a former manufactured gas plant on Front Street;
- contaminated soil and groundwater at the Setzer Forest Products property east of I-5 and south of Broadway; and
- petroleum hydrocarbon contamination in soil and groundwater from the Shell fuel station located at 8900 Pocket Road.

- two PG&E natural gas mains parallel the landside levee toe near Station 1096. Health and safety hazards may occur if excavation activities disrupt pipelines.

A Phase II site investigation (HDR 2018) was performed and found that elevated concentrations of lead in a limited volume of superficial soil strippings from the levee embankment and foundation that will be excavated for drained stability berm construction in Reach 4, just north of the Highway 50 viaduct (Pioneer Bridge), which is a part of SREL Contract 1. Phase II sampling also verified arsenic impacts along the rail lines as well as aeriaily deposited lead near Broadway. Additional contamination testing was completed in summer 2020 by Kleinfelder and GEI Consultants with results and analysis forthcoming.

Excess soil not in exceedance of the project specific action levels from the project may be transported to the Railyards for future use at the Railyards project site. Historic activities at the Railyards involved on-site disposals, spills, and other releases of hazardous chemical products and items containing hazardous substances that resulted in soil and groundwater contamination. The contaminated soil contained metals (primarily lead), petroleum hydrocarbons, volatile organic compounds (VOCs), and asbestos. The metals, petroleum hydrocarbons, and VOCs ultimately led to degradation of shallow groundwater underlying the site. Most of the contaminated soils have been remediated, and groundwater remediation is ongoing. Restrictions are in place that govern the types of future lands uses at the Railyards to ensure future human health and safety. (City of Sacramento 2016.)

Schools

The Leataata Floyd Elementary School and the adjacent Arthur J. Benjamin Health Professions High School, at 401 and 451 McClatchy Way, respectively, are located approximately 400 feet southeast of work and staging areas in Miller Regional Park. The Brookfield School at 6115 Riverside Boulevard is located adjacent to work areas at the northern end of the Pocket neighborhood. The Camellia Waldorf School affronts Pocket Road, which is a proposed haul route.

Airports and Airstrips

Sacramento Executive Airport is located approximately 1.3 miles east of work areas in the Little Pocket. The project site is not located within or adjacent to any of the airport safety zones. (Sacramento Area Council of Governments [SACOG] 1999:39.)

The Borges-Clarksburg Airport is located approximately 2 miles south of staging areas at the south end of the Pocket. No work or staging areas are located within or adjacent to any of the airport safety zones. The SRCSD borrow site is located just outside, and to the east of, the airport's overflight zone. (SACOG 1994:3, 21.)

Wildland Fire Hazards

Staging and levee improvement areas are located within a generally developed and urbanized area. However, riparian vegetation is present within the levees along the Sacramento River. Vegetation is also present on the north and east sides of the proposed SRCSD borrow site, in the vicinity of Laguna Creek. According to the California Department of Forestry and Fire Protection (CAL FIRE), staging and levee

improvement areas and the borrow site are in a local responsibility area and is not within a very high fire hazard severity zone (CAL FIRE 2007, 2008).

3.9.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR determined that construction contractors will be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation. Any hazardous substance encountered during construction will be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations. Work will not occur in locations where known hazardous materials sites are listed with Department of Toxic Substances Control or SWRCB. Therefore, these impacts were determined to be less than significant. Furthermore, the construction contractor will also be required to prepare a SWPPP and implement BMPs to prevent discharge from the construction site into drainage systems, lakes, or rivers, which will further reduce effects from hazardous materials.

Significance Criteria

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. The alternatives under consideration were determined to result in a significant impact related to hazards and hazardous materials if they will do any of the following;

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

One additional threshold is considered in this analysis. The project was determined to result in a significant effect related to hydrology and water quality if it will:

- 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 residences are intermixed with wildlands.

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, no construction would occur and therefore there would be no potential for hazardous spills due to construction activities. Existing hazardous sites within the Project Area would continue to exist and would be the responsibility of regulating agencies to continue the handling of these sites.

However, under this alternative, levee failure could occur. Levee failure would require immediate flood-fighting efforts that would not include BMPs to reduce the potential spill of hazardous materials. No hazardous materials handling would occur for levee improvements, although any existing handling of hazardous materials near schools would continue as under current conditions. A catastrophic flood event could cause widespread flooding, exposing people throughout the Sacramento area to existing hazardous materials (i.e. gasoline, and oils that are stored above ground), and contaminants associated with sites and elsewhere in the inundation area would likely be dispersed, posing direct and indirect risk of exposure throughout the Sacramento area. A catastrophic flood event would result in large tracts of land inundated with water during the winter months, which is the peak period when large numbers of migratory waterfowl are present in the region. Therefore, on a temporary basis (until the floodwaters subsided), the No-Action Alternative could increase in the number of birds and bird species in the vicinity of airports, increasing potential for birdstrikes. A catastrophic flood event also could result in downed power poles, which could ignite widespread fires. These effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Handling of Hazardous Materials within 0.25 Mile of a School

The Leataata Floyd Elementary School and the adjacent Arthur J. Benjamin Health are located less than 0.25 mile from haul routes and staging areas at Miller Park, and the Camellia Waldorf School and Brookfield Private School are located less than 0.25 mile from work areas. Therefore, small quantities of hazardous materials such as fuels, oils, and lubricants will be used and stored within 0.25 mile of these two schools. However, none of these materials are classified as acutely hazardous. Construction contractors will be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction activities. Thus, the use of these materials during construction will not represent a safety hazard for persons who will attend or be employed in either of the above-listed schools. Furthermore, given the temporary nature and short duration of work at each construction segment and each staging area as each reach of the levee improvements are implemented, the Proposed Action is not expected to result in hazardous air emissions (i.e., TACs) in excess of screening levels. (For a detailed

discussion and evaluation of TAC effects, see Section 3.3, “Air Quality.”) Therefore, these project elements will have a less-than-significant effect.

Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites

Excess soil from the project may be transported and deposited at the Sacramento Railyards, for use at the Railyards project site. Most of the contaminated soil at the Railyards has been remediated, although groundwater remediation is ongoing (City of Sacramento 2016). Deposition of excess soil from the Proposed Action at the Railyards site will simply involve dumping of loaded haul trucks in areas of the Railyards that are permitted to receive imported fill. If applicable, the contractor will be required to test fill to show imported fill requirements are met prior to dumping.

The Phase I ESA identified several RECs that could include contaminated soil or groundwater on or near the Project Area. Thus, there is a potential that earthmoving activities associated with project activities could encounter contaminated soil or groundwater, and/or underground utility infrastructure containing hazardous substances, which could result in possible exposure of people or the environment to hazardous materials. Implementation of Mitigation Measure HAZ-1 in Section 3.9.3 will reduce the potentially significant effect associated with possible exposure to hazardous materials to a less-than-significant level because USACE will require testing and investigation to identify and address contaminated sites prior to construction.

Contaminants are likely to exist within the soil to be re-graded on the Chevron property, such as hydrocarbons, lead, arsenic, cyanide (location was formerly a manufactured gas plant facility), and other common contaminants found in and around petroleum facilities. However, all soil worked will remain within the same area on the property, thus no disposal of contaminants will be necessary. The construction Contractor is required to quantify the nature of the contaminants and develop a work plan for review and approval by the Government and other applicable Federal, State, and local agencies to ensure they perform the work in an appropriate manner and follow the appropriate safety protocols.

Interfere with Emergency Response or Evacuation

The project site extends along the Sacramento River, and as a result, levee improvements and associated staging will be located at the perimeter of developed areas, unlikely to interfere with emergency response or evacuation. Similarly, activities at the SRCSD borrow site are located away from transportation routes and will not interfere with emergency response or evacuation. The project will have a less-than-significant effect.

Possible Creation of Wildland Fire Hazards

The proposed activities will be primarily implemented in various locations along the Sacramento River and in adjacent and nearby urbanized areas. CAL FIRE (2007, 2008) has determined that the areas where project-related activities will occur are not within a very high fire hazard severity zone or a State Responsibility Area. The project will have a less-than-significant effect.

3.9.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR Final EIS/EIR.

Mitigation Measure HAZ-1: Conduct Phase II Investigations as Needed

USACE will require that Project Areas be tested for contaminants prior to construction. Any hazardous materials found will be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Where construction activities will occur in close proximity to sites identified as RECs in the Phase I ESA (HDR 2017). A Phase II site investigation was completed in 2018.

3.10 Water Quality and Groundwater Resources

3.10.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some updated information is presented below. Floodplain hydraulics and floodplain delineation maps can be found in the Hydraulic Report – Appendix C Attachment B of the ARCF GRR Final EIS/EIR.

Waterside portions of the area where the Proposed Action will be implemented are mapped as Zone AE by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps. AE areas are designated as having a 1% probability of annual flooding. All landside areas are designated as Zone X, due to the presence of levees that reduce flood risk (map panels 06067C0160J, 06067C170H, 06067C0285H) (FEMA 2019). According to the California Geological Survey, the Project Area is not mapped in an area where tsunami or seiche are likely to occur (DOC 2019). The project site is in the Sacramento Hydrologic Basin Planning Area and the Sacramento Delta Hydrologic Unit (510.00) and Florin Hydrologic Subarea (519.12), as designated by the Central Valley RWQCB. In accordance with Clean Water Act (CWA) Section 303, water quality standards for this basin are contained in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan). Stormwater runoff from the project site is received by the Sacramento River and other local drainages.

The Sacramento River south of the I Street Bridge is within the legal boundary of the Delta (secondary zone). Surface water quality in the hydrologic region is generally good, although possible sources of contamination that can affect water quality include turbidity; pesticides and fertilizers from agricultural runoff; water temperature exceedances; and toxic heavy metals, such as mercury, copper, zinc, and cadmium from historic mining activities. **Table 3-7** provides the current CWA Section 303(d) listings of impaired water bodies for the Delta, including progress on Total Maximum Daily Loads.

Designated beneficial uses for the Sacramento River south of the “I” Street Bridge (i.e., the Delta) consist of: municipal and domestic supply, agricultural irrigation and stock watering, industrial processing and service supply, recreation (water contact and non-contact), commercial and sport fishing, warm and cold freshwater habitat, warm and cold migration, warm spawning habitat, wildlife habitat, and navigation (CVRWQCB 2016).

The groundwater basin underlying the Sacramento River east levee is defined by the Sacramento County Water Agency as the Central Basin. DWR defines the project vicinity as falling within the South American Subbasin (5-021.65) (DWR 2016). This basin is designated as a High Priority basin under DWR’s Sustainable Groundwater Management Act (DWR 2019). The groundwater level is approximately 10 feet below the landside ground elevation (El. 8 to 10), although it does vary seasonally.

Table 3-7. Section 303(d)-Listed Pollutants in the Project Area

Pollutant/Stressor	Potential Sources	TMDL Status
Chlordane	Source unknown	Unknown
Chlorpyrifos	Agriculture; urban runoff/storm sewers	TMDL in place (2007)
DDT	Agriculture	Unknown
Diazinon	Agriculture; urban runoff/storm sewers	TMDL in place (2008)
Dieldrin	Source unknown	Unknown
Invasive Species	Source unknown	Unknown
Group A pesticides	Agriculture	Unknown
Mercury	Abandoned mines	Unknown
PCBs	Source unknown	Unknown
Unknown toxicity	Source unknown	Unknown

Notes: Includes Sacramento River – Knights Landing to Delta and Delta Waterways Northern Portion. DDT = dichlorodiphenyltrichloroethane; TMDL = total maximum daily load; PCBs = polychlorinated biphenyls

Source: SWRCB 2019

3.10.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR determined that use of bentonite slurry or Portland cement for construction of cutoff walls will pose no threat to groundwater quality, and because no other effects related to groundwater were anticipated, groundwater effects were not evaluated.

Construction-related effects to surface water quality were determined to be significant. Construction contractors will be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor will be required to obtain a permit from the Central Valley RWQCB detailing a plan to control any spills that could occur during construction. In addition, the contractor will be required to monitor turbidity in the adjacent water bodies, where applicable criteria apply, to determine whether turbidity is being affected by construction and to ensure that construction does not result in a rise in turbidity levels above ambient conditions, in accordance with the Central Valley RWQCB Basin Plan turbidity objectives. Finally, a Spill Prevention Control and Countermeasures Plan will also be prepared and implemented. Surface water quality effects will be reduced to be a less-than-significant level after implementation of avoidance, minimization, and mitigation measures.

Significance Criteria

For this analysis, an effect pertaining to surface water quality and groundwater quality was considered significant under CEQA and NEPA if it will result in any of the following environmental

effects, which are based on professional practice, Federal guidelines, and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.):

- Violate water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with ground water recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially degrade water quality; and
- Alter regional or local flows resulting in substantial increases in erosion or sedimentation.

One additional threshold is considered in this analysis. The project was determined to result in a significant effect related to hydrology and water quality if it will:

- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

Under this alternative, levee failure could occur, potentially resulting in the collapse of several miles of levee slopes and alteration of regional and local flows that would result in substantial flooding and widespread inundation of urban, suburban and agricultural areas around Sacramento. Levee failure also could damage and destroy storm drainage facilities and clog storm drainage pipelines and outfalls within the area of inundation.

Without levee improvements, there is the continued high risk of levee failure and continuing under seepage and loss of levee foundation soil. If a levee overtopping or breach was to occur floodwaters could be pumped back over levees or recede back through the levee breach into the waterways. Flooded areas could contain contaminants from stored chemicals, septic systems, and flooded vehicles—all of which would be released into floodwaters and subsequently contaminate the Sacramento River, Delta surface waters, and potentially soil and groundwater. These contaminants would likely exceed acceptable established water quality standards and impair beneficial uses.

Substantial increases in erosion and sedimentation would also occur from levee failure. Erosion causing the loss of the levee foundation and eroded topsoil from banks of a river or sloughs would increase turbidity and total dissolved solids in the Sacramento River, and would ultimately affect the environmental resources of the Delta by impairing the beneficial uses of waters of the Delta. All of these effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Groundwater Quality, Result in Substantial Erosion or Siltation On- or Offsite, or Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan

Potential dewatering to facilitate construction activities (e.g., removing groundwater that may fill trenches dug for cutoff wall construction) could result in erosion and/or release of sediment into surface or groundwater. Excavation could extend to a depth that will expose the water table, creating an immediate and direct path to groundwater that could allow contaminants to enter the groundwater system and indirectly affect water quality. Soil that is displaced during jet grouting will be piped into drying beds or containment cells with impermeable liners located in the staging area for later disposal. Damage to these drying beds could result in the release of sediment into surface or groundwater. Lastly, earthmoving activities associated with overall project construction could result in erosion or siltation.

Construction activities, including use of waterside staging areas, will employ heavy equipment, cranes, compactors, and other construction equipment that uses potentially harmful products such as fuels, lubricants, hydraulic fluids, and coolants, all of which can be toxic to fish and other aquatic organisms. This equipment could be a direct source of contamination if safe equipment and construction practices are not properly followed. An accidental spill or inadvertent discharge from such equipment could directly affect the water quality of the river or water body in the Project Area, or groundwater, and indirectly affect regional water quality of the river or water body. Implementation of Mitigation Measures GEO-1 and HWQ-1 will reduce potentially significant temporary, short-term construction-related erosion impacts and the potential release of contaminants to surface or groundwater during construction to a less-than-significant level by requiring compliance with BMPs to reduce erosion and sediment transport, and treating dewatering effluent as required by permits.

Substantially Decrease Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin

There will be no groundwater production wells installed as part of the project nor will the project use any existing wells. Slurry cutoff walls have potential to hydraulically reduce Sacramento River water seeping into the shallow aquifer landside of the Sacramento River east levee. The cutoff walls will cause lower static (non-pumping) groundwater levels landside of the levee when the direction of groundwater flow is away from the river (i.e., losing conditions). If a substantial drop in groundwater levels were to occur, the yield of nearby wells could decrease, or pumping costs of those wells could increase.

Cutoff walls could also partially isolate the wells from the river and reduce the effective volume of the aquifer from which water can be withdrawn. For this to occur, the following conditions will have to be created: 1) the cutoff wall will have to be deep enough to intersect the water-bearing zone tapped by the well, and 2) the cone of depression produced by the well will have to be large enough to reach the cutoff wall. However, because cutoff walls are already present along the Sacramento River east levee, the addition of adjacent, discontinuous cutoff walls is not expected to reduce local groundwater well water

surface elevations. A groundwater level model developed for the Southport Sacramento River Early Implementation Project (ICF International 2013), which is across the river from the Proposed Action indicated that the average effect of a cutoff wall was a small decrease in static groundwater levels (i.e., a maximum of 1.5 feet). The estimated effects will vary seasonally, and groundwater levels landside of the levee will be lower during the winter and spring, especially during periods of high river stage. The cutoff walls will cause slightly higher groundwater levels during the summer and fall because the gradient for flow tends to be toward the river during periods of low stage. The average water level decrease will be much lower than the maximum decrease, because high stage events have short durations, and effects will be smallest during the irrigation season. Furthermore, a qualitative assessment of the impacts of fully penetrating cutoff walls in the Pocket determined that the groundwater flow is towards Elk Grove, CA where the municipal water supply is taken from the groundwater (USACE 2020). In the Pocket, fully penetrating cutoff walls are only planned for 10% of the levee's length and only extend in depth down 10% towards the confined groundwater below. Thus, only minor (if any) groundwater level reductions will occur with installation of cutoff walls for the Proposed Action, and this will have a less-than-significant impact.

Extreme drought conditions brought on by climate change could have considerable effects on groundwater levels and cutoff wall installation could worsen these effects. Investigating data on 170 domestic wells near SREL reveals an average well depth of 116 feet with a minimum well depth of 60 feet (California Department of Water Resources 2020). With a maximum cutoff wall depth of 88 feet, shallower than the average well in the area, the Proposed Action will not magnify existing impacts on groundwater in the area.

Create or Contribute Runoff Water Which Will Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluter Runoff

The levee improvements proposed as part of the project will not change the drainage pattern of the Project Area, and do not include creation of substantial new pavement or impervious surfaces. The Proposed Action will therefore not create new runoff water compared to existing conditions. This impact will be less than significant.

Risk Release of Pollutants Due to Project Inundation in Flood Hazard, Tsunami, or Seiche Zones

The possibility of a seiche (a standing wave in an inland body of water) occurring at the project site is low because the geometry of the adjacent river and distance to seismic sources generally are not conducive to the occurrence of a seiche. Additionally, the Project Area is not within a mapped tsunami hazard zone (DOC 2019). Levee improvements will not be constructed during the typical flood season (i.e., November through February) and will not reduce the flood protection for adjacent areas; therefore, potential increase in the risk of pollutant release due to project site inundation will be avoided. Additionally, the project will include improvements to the levee system to minimize the risk of levee failure and project site inundation. Therefore, the Proposed Action will have a less-than- significant effect.

3.10.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR EIS/EIR.

Mitigation Measure: Implement Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan.

Please refer to Section 3.8.3 for the full text of this mitigation measure.

The following measure augments the mitigation identified in the ARCF GRR EIS/EIR.

Mitigation Measure HWQ-1: Obtain Appropriate Discharge and Dewatering Permit and Implement Provisions for Dewatering

Before discharging any dewatered effluent to surface water, USACE and CVFPB will obtain a Low Threat Discharge and Dewatering NPDES permit or an Individual Permit from the Central Valley RWQCB if the dewatering is not covered under the RWQCB's NPDES Construction General Permit. The dewatering permit includes extensive water quality monitoring to adhere to the strict effluent and receiving water quality criteria outlined in the permit. As part of the permit, the permittee will design and implement measures as necessary to meet the discharge limits identified in the relevant permit. For example, if dewatering is needed during the construction of a cutoff wall, the dewatering permit will require treatment or proper disposal of the water prior to discharge if it is contaminated. These measures will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable.

Implemented measures could include the retention of dewatering effluent until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water quality control measures will be subject to approval by the Central Valley RWQCB. USACE and CVFPB will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. USACE and CVFPB or its authorized agent will perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. USACE and CVFPB will notify its contractors immediately if there is a non-compliance issue and will require compliance.

3.11 Noise

3.11.1 Existing Conditions

The environmental and regulatory framework in the GRR Final EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. Some site-specific conditions are described below.

Land uses adjacent to the individual work areas consist of residences, schools, playgrounds, parks, office and industrial land uses. Land uses as defined by Federal, State, and local regulations as noise-sensitive vary slightly but typically include schools, hospitals, rest homes, places of worship, long-term care facilities, mental care facilities, residences, convalescent (nursing) homes, hotels, certain parks, and

other similar land uses. The closest noise-sensitive land uses are residential properties within 50 feet. The primary existing noise source in these residential areas consists of vehicular traffic on adjacent roadways.

Noise-level Measurements

Ambient noise levels near existing noise-sensitive uses were measured at various locations in the proposed levee improvements area. Short-term (15-minute) measurements of ambient noise levels were conducted on Thursday, September 11, 2014, at 12 locations. The existing noise environment was dominated by local and distant traffic sources and natural sources (e.g., wind and birds). Measured ambient noise levels at the noise-sensitive land uses closest to the levee improvements area ranged between 42–68 A-weighted decibels (dBA) equivalent sound level (Leq).

Existing traffic noise on the roadways in the proposed Sacramento River east levee Improvement area was estimated for most major haul routes (see Figure 2-1 through Figure 2-4 in Chapter 2.0 Alternatives), based on the existing traffic volumes. The location of the 60 decibels (dB) 1-hour Leq contour ranges from 15 to 1,632 feet from the centerline of Project Area roadways. Traffic noise levels 100 feet from the centerline of various roadways in the proposed levee improvements area range from 48 to 78 dB Leq. The 100-foot distance is a representative distance from the roadway centerline to adjoining noise-sensitive uses, such as residences, based on the width of the public rights-of-way (approximately 80 feet) of the roadways.

Existing Vibration Environment

The existing vibration environment in the proposed levee improvement area, like the noise environment, is dominated by transportation-related vibration from roads, highways, and the rail used by the Excursion Train. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. If the vibration level in a residence reaches 85 vibration decibels (VdB), most people will be strongly annoyed by the vibration (FTA 2006). The background vibration level in residential areas is usually 50 VdB or lower, well below the 80-VdB vibration effect criteria for residences and buildings where people sleep (FTA 2006).

3.11.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The GRR Final EIS/EIR found that ground vibration could cause a significant effect if construction is required within 40 feet of a vibration-sensitive building (defined as a building with either plaster or wallboard for internal walls and ceilings). Mitigation to prepare a vibration control plan will be implemented prior to construction.

Although Sacramento County has a construction noise exemption during daylight hours, noise levels above 55 dBA are generally considered to be a significant effect on sensitive receptors. Noise levels could range from 83–95 dBA at 50 feet from the source. Therefore, based on projected construction equipment noise estimates (including haul trucks), the GRR Final EIS/EIR found effects to sensitive receptors to be significant during construction of the Sacramento River east levee improvements. A suite of

mitigation measures to reduce construction noise will be implemented where construction will occur within 500 feet of any sensitive receptor to reduce the impact to less than significant. Construction noise will be generated 24-hours per day to install the jet grout cut off wall along the City of Sacramento's Pioneer Reservoir (from levee stations 1093+50 to 1098+50) and the Chevron and Phillips 66 oil tank facilities (from levee stations 1105+00 to 1116+15). This is an industrial area near Interstate 5 and US Highway 50 with the nearest sensitive receptor greater than 1000 feet away, thus there will not be a significant increase to ambient noise levels at the closest residences. The impacts of the 24-hour night work fall within the noise impacts previously described and analyzed in the GRR EIS/EIR.

Significance Criteria

The proposed project will have a significant impact from noise if construction will result in any of the following:

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

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements. Under this alternative, there would be no construction-related effects to the acoustic environment, including the generation of groundborne vibration. The noise levels in the Project Area would remain consistent with the existing ambient noise levels present under current conditions.

If the project is not constructed, a catastrophic flood event could result in levee failure. The amount of noise or ground borne vibration that would be generated by activities to repair the damaged levees and remove debris from the inundation area would likely exceed the relevant standards. This effect could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Potential Increase in Ambient Noise Levels or Exposure of Sensitive Receptors to Excessive Noise or Vibration

The project will generate construction noise from equipment operating at each work location, and from the transport of construction workers, construction materials, and equipment to and from each work location. The construction noise impact discussion in the GRR Final EIS/EIR adequately addresses the noise impacts that will occur from the seepage and stability improvements. The analysis in this Supplemental EA/EIR therefore discusses the noise effects related to haul truck traffic using routes identified in Figure 2-1 through Figure 2-4 in Chapter 2.0 “Alternatives”. Project-related construction noise was estimated using the Federal Highway Administration Roadway Construction Noise Model (FHWA and U.S. Department of Transportation 2006). Haul truck traffic on local access streets that are not typically used as through traffic or haul routes will cause maximum sound levels of 56–57 dBA Leq. This represents an increase above the City of Sacramento, City of Elk Grove, and Sacramento County’s daytime limits of 55 dBA Leq at the closest residential uses.

Measured ambient noise levels at residential properties near the levee improvements area were approximately 42–68 dBA Leq[h] (1-hour equivalent sound level), during the daytime hours (7 a.m.–7 p.m.). The lowest measured ambient noise level of 42 dBA Leq[h] was conservatively assumed to be the existing ambient noise level for all of the closest noise-sensitive land uses for purposes of this analysis. The noise level generated by project-related construction traffic will be 56–57 dBA Leq. Therefore, the construction-related noise levels at the closest residential uses will exceed the ambient noise level by approximately 14–15 dB.

Project-related construction vibration levels were calculated using the Federal Transit Administration (FTA) guideline based on the 50-foot distance of the nearest sensitive land use. For purposes of this analysis, movement of loaded haul trucks was conservatively considered to produce a vibration level of approximately 86 VdB (0.076-inch per second peak particle velocity [PPV] at a distance of 25 feet [FTA 2006; Caltrans 2004]). Assuming a maximum construction vibration level of 86 VdB at 25 feet, with an attenuation rate of 9 VdB per doubling of distance, the construction vibration level at the closest sensitive uses will be approximately 77 VdB (0.02 inch per second PPV). This vibration level is below the FTA threshold of 0.2-inch per second PPV for structural damage. However, this vibration level is above the FTA threshold of 72 VdB for human annoyance and will be perceptible. Implementing Mitigation Measure NOI-1 will reduce significant impacts related to construction noise and construction traffic noise to a less-than-significant level by requiring a noise control plan and actions to reduce the effects of construction. These actions could include scheduling louder activities for daytime hours, using less noisy equipment where available, and locating and routing activities to minimize effects on sensitive receptors.

3.11.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR EIS/EIR.

Mitigation Measure NOI-1: Implement Measures to Reduce Construction Noise and Vibration Effects

USACE and CVFPB will require construction contractors to implement measures at each work site to avoid and minimize construction noise and vibration effects on sensitive receptors. Prior to the start of construction, a noise control plan will be prepared to identify feasible measures to reduce construction noise, when necessary. The measures in the plan will apply to construction activities within 500 feet of a

sensitive receptor, including, but not limited to, residences. These measures may include, but are not limited to, the following:

- Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice will be provided within 1 week to 1 month of the start of construction at that location.
- Display notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times in a conspicuous manner, such as on construction site fences.
- Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.) Monday through Friday, when feasible.
- Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation.
- Locate stationary noise-generating equipment as far as practicable from sensitive receptors.
- Limit unnecessary engine idling (i.e., more than 5 minutes) as required by State air quality regulations.
- Employ equipment that is specifically designed for low noise emission levels, when feasible.
- Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations.
- Locate construction staging areas as far as practicable from sensitive receptors.
- Design haul routes to avoid sensitive receptors, to the extent practical.
- To the extent feasible and practicable, the primary construction contractors will employ vibration-reducing construction practices such that vibration from construction complies with applicable noise-level rules and regulations that apply to the work, including the vibration standards established for construction vibration-sources by the applicable agencies (City of Sacramento and Sacramento County), depending on the jurisdictional location of the affected receptor(s). Project construction specifications will require the contractor to limit vibrations to less than 0.2-inch per

second PPV, and less than 72 VdB within 50 feet at any building. If construction will occur within 50 feet of any occupied building, the contractor will prepare a vibration control plan prior to construction. The plan will include measures to limit vibration, including but not limited to the following:

- Avoid vibratory rollers and packers near sensitive areas.
- Route heavily loaded trucks away from residential streets, if possible. If no alternatives are available, select streets with the fewest homes.
- A voluntary pre- and post-construction survey will be conducted to assess potential architectural damage from levee construction vibration at each residence within 100 feet of construction. The survey will include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation will be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures will be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage will be documented with photographs and video. This documentation will be reviewed with the individual property owners.
- Place vibration monitoring equipment at the property line adjacent to large equipment and, with owner approval, at the back of the residential structures adjacent to the large equipment. Record measurements daily.

3.12 Recreation

3.12.1 Existing Conditions

Environmental and regulatory setting in the GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some site-specific conditions are described below.

Sacramento River Parkway

The Sacramento River Parkway extends along the entire length of the Sacramento River east levee where improvements are proposed. Developed portions of the parkway accommodate pedestrians and bicyclists and provide access to the Sacramento River. Where trail segments have not been officially designated or constructed, some portions of the levee crown in the improvements area are used as a pedestrian/bicycle path.

Excursion Train

California State Parks operates the Sacramento Southern Railroad Excursion Train. The train departs from the Central Pacific Railroad Freight Depot in Old Sacramento (Front Street, between J and K Streets) and travels approximately 3 miles along the Sacramento River east levee crown, within the levee

improvements area, to a turnaround location at Land Park. The excursion train operates 53 days annually, with a total of 534 round trips, and attracts nearly 80,000 riders (California State Railroad Museum 2017).

City of Sacramento Parks and Recreation Facilities

A number of public parks are located in the levee improvements area. Several of these parks, such as Miller Park, Garcia Bend Park, and Shore Park, can also be accessed from the Sacramento River Parkway. Table 3-8 lists public parks located in the levee improvement area.

Marinas on the Sacramento River

The Sacramento Marina is located adjacent to proposed levee improvement area in Miller Park, on the east side of the Sacramento River. In addition, several other marinas (Sacramento Yacht Club, Sherwood Harbor Marina and RV Park, and Stan’s Yolo Marina) are located on the west side of the Sacramento River, opposite areas where levee improvements are proposed. All of these marinas provide boat docking facilities, and most provide fuel, laundry facilities, and a restaurant or convenience store. The marinas are described in Table 3-8.

Table 3-8 Parks and Recreational Facilities in or Near the Project Area (Public and Private)

Facility	Location	Features
Bahnfleth Park 959 Seamas Avenue	Little Pocket	6.2-acre park with two picnic areas and one soccer field
Charter Pointe Park 610 Cutting Way	Approximately 0.1 mile northeast of Sump 132	4.9-acre park with picnic areas and a playground; connects to the Pocket Canal Parkway
Chicory Bend Park 797 Seamas Avenue	Adjacent to the Sacramento River Parkway in the Little Pocket	10.5-acre nature area; no facilities or other amenities
Garcia Bend Park ¹ 7654 Pocket Road	Adjacent to levee improvement area and Sacramento River Parkway in the southern part of the Pocket	18.9-acre park with a boat launch, four group picnic areas, three soccer fields, tennis courts, and playgrounds
Lewis Park 6570 Park Riviera Way	In the northwest area of the Pocket	3.28 acres park with two tennis courts and a playground
Miller Regional Park ¹ 2710 Ramp Way	Adjacent to the levee improvement area and Sacramento River Parkway	40.3-acre park with group picnic areas and Sacramento River access
Pioneer Landing Park 1900 Front Street	Adjacent to staging area approximately 0.25 miles north of levee improvement	0.4-acre park with plaza, benches, turf, and large shade trees
Renfree Park 54 Cache River Circle	Approximately 0.25 mile east of Sump 132	6.9-acre park with two soccer fields, picnic areas, and a playground

Sacramento Marina 2710 Ramp Way	Behind Miller Regional Park	475-boat slip marina with fuel dock and convenience store
Sacramento Yacht Club 3365 South River Road	West side of Sacramento River at north end of the Little Pocket	100-boat slip marina with fuel dock, restaurant, clubhouse, and laundry
Sherwood Harbor Marina and RV Park 3505 South River Road	West side of Sacramento River opposite work areas in the Little Pocket	130-boat slip marina and 44-space recreational vehicle park with fuel dock, laundry, and convenience store
Stan's Yolo Marina 31070 South River Road	West side of Sacramento River a short distance upstream of Sump 132	25-boat slip marina and launch ramp
Ellsworth C. Zacharias Park ¹	Northern area of the Pocket	.19 acre park with a picnic area, playground, and, soccer field

Notes:

¹ All or a portion of the City park is proposed to be used as a staging area.

Sources: City of Sacramento 2017 and GEI Consultants, Inc. 2017

Bicycle Facilities

The approximately 4.8-mile Pocket Canal Parkway bike trail is a Class I (off-street) trail that begins at the southern end of Pocket Road, adjacent to Sump 132. The bike trail parallels the Pocket Canal through the Pocket Area. From Sump 132, the bike trail travels north to Florin Road, then turns west and ends at Down River Court. An eastern branch of the trail extends from Portuguese Park to Greenhaven Drive.

In addition to the Sacramento River Parkway bike path and Pocket Canal Parkway bike trail mentioned above, designated Class II and Class III (i.e., on-street rights-of-way recommended for bicycle travel that also provide shared-use with motor vehicles or pedestrian traffic) bicycle facilities currently exist throughout the Little Pocket and Pocket residential areas.

3.12.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR states that construction vehicles will be present in staging areas at various points along the Sacramento River Parkway and construction activities could result in potential disruptions/detours to pedestrian and bicycle trails as well as boat launches. The access roads in and out of the parkway at various locations will be used as haul routes for trucks transporting borrow material, resulting in increased traffic along the entry routes used by recreationists. Proximity to construction equipment and activities could also degrade recreational experiences due to noise, visual effects, odors, and

air quality. Therefore, the project was determined to result in significant effects on recreation activities during construction. Mitigation measures such as trail detours and advanced notice of closures will be implemented to reduce effects on recreation; however, short-term effects to recreation during construction were determined to be significant and unavoidable. Long-term recreational effects were determined to be less than significant because recreation facilities will be returned to pre-construction conditions after construction.

Significance Criteria

The thresholds of significance encompass the factors taken into account under NEPA to determine the significance of an impact in terms of its context and intensity. The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. Adverse effects on recreation will be considered significant if implementation of an alternative plan will result in any of the following:

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

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE will not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

Under this alternative, no construction would occur; therefore, there would be no construction-related effects to recreation. Existing problems would persist and could potentially lead to future levee failure and a subsequent flood event. A catastrophic levee failure could inundate existing recreational facilities, trails, bike paths, and recreation areas, rendering them unusable until cleanup and restoration activities could take place. This would cause significant effects to recreation facilities. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

Proposed Action

Temporary and Short-term Changes in Recreational Opportunities during Project Construction Activities

Although attempts will be made to keep the playground at Ellsworth C. Zacharias Park open, the park could be completely closed if it is decided that keeping the park open will be hazardous to park users. However, there is a playground located one third of mile to the south at Seymour Park.

The Sacramento Southern Railroad Excursion Train runs on weekends, some holidays (Memorial Day, Labor Day) and on some Tuesdays. As identified in the ARCF GRR Final EIS/EIR, the Excursion Train will be impacted by construction. The jet grout cutoff wall will be installed parallel to and in close proximity with the track.

Bicycle trails along the Sacramento River Parkway bike path and on-street bicycle routes will require temporary closures and/or detours to accommodate material transport along haul routes and construction. Temporary closure of bicycle and recreational facilities will have a significant effect. Implementation of Mitigation Measure REC-1 will reduce significant temporary, short-term effects on bicycle and recreational facilities resulting from construction activities by preparing and implementing bicycle and pedestrian detours, providing public information regarding detours and alternative access routes to public recreational facilities, and repairing or reconstructing construction-related damage to pre-project conditions. However, construction of the Proposed Action will not result in recreation impacts that will be more severe than those addressed in the ARCF GRR EIS/EIR. Therefore, the construction-related impacts on visual recreation are already adequately addressed in the ARCF GRR EIS/EIR.

3.12.3 Avoidance, Minimization, and Mitigation Measures

The following measure includes modifications to mitigation identified in the ARCF GRR Final EIS/EIR (Measure REC-1) and a new mitigation measure not included in the ARCF GRR Final EIS/EIR, Measure REC-2. The modifications are intended to provide clear communication of detours for pedestrians and bicyclists, provide information on alternative parks and boat launch locations to replace facilities that will be temporarily closed (based on guidance from the Delta Stewardship Council), and clarify the mechanism for in-kind replacement of recreation facilities affected by the project.

Mitigation Measure REC-1: Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordinate with the City of Sacramento to Repair of Damage to Bicycle Facilities

USACE and CVFPB will implement the following measures to reduce temporary, short-term construction effects on recreation facilities in the Project Area:

- Provide marked detours for all bike trails and on-street bicycle routes that are temporarily closed during construction. Detours should be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Post signs that clearly indicate closure routes at major entry points for bicycle trails, post information signs to notify motorists to share the road with bicyclists where necessary, and provide a contact number to call for questions or concerns.
- Post signs at major entry points for parks and recreation facilities, and boat ramps clearly indicating closures and estimated duration of closures. Information signs will notify the public of alternate parks and recreation sites, including boat launch ramps, and provide a contact number to call for questions or concerns.

- Upon completion of levee improvements, coordinate with the City of Sacramento to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

Mitigation Measure REC-2: Implement Scheduling and Coordination with California State Railroad Museum to Limit Closure of Sacramento Excursion Train

USACE and CVFPB will implement the following measures to reduce temporary, short-term construction effects on the Sacramento Excursion Train in the Project Area:

- Schedule cutoff wall construction occurs only Monday through Friday the impact would be minimized. If cutoff wall installation is needed on Saturdays, the Saturday trains would have to be cancelled during the period of cutoff wall construction (up to five months).
- Coordinate with the California State Railroad Museum to communicate closure to visitors.

3.13 Transportation and Circulation

3.13.1 Existing Conditions

Environmental and regulatory setting in the GRR Final EIS/EIR are generally applicable to the analysis in this Supplemental EA/EIR and are not repeated. Some site-specific conditions are described below.

Borrow material obtained from existing stockpile at the SRCSD wastewater treatment plant site would be transported to the levee improvement areas via Dwight Road and Laguna Boulevard in the City of Elk Grove, to I-5, and then onto a network of smaller arterials, major and minor collectors, and local streets in the City of Sacramento. The proposed haul truck routes are shown in Figure 2-1 through Figure 2-4 (see Chapter 2, “Alternatives”).

There is a network of existing on-street Class II and III bike lanes on streets throughout the Project Area that may be affected by haul trucks and construction activities and equipment. In addition, the Sacramento River Parkway includes a pedestrian and bicycle trail on the levee crown; several officially designated segments of the trail have been constructed along the Sacramento River east levee (see Section 3.12, “Recreation,” for further discussion of the bike trail). Also, the City of Elk Grove has designated bikeways along Laguna Boulevard and Dwight Road.

3.13.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR states that the project will result in a substantial increase in traffic on local roadways associated with truck haul trips during construction activities, but did not specifically identify the number of trips on individual roadways. In addition, traffic controls will cause or contribute to

temporary substantial increases in traffic levels on several roadways, as traffic is detoured or slowed. Traffic controls could cause delays during the morning and evening peak commute hours. Pedestrian and bicycle trails will require detours and/or temporary closures. These effects were determined to be significant. Mitigation measures, such as a Traffic Control and Road Maintenance Plan and notifications regarding roadway lane and pedestrian/bicycle path closures and detours were identified. However, it was determined that the temporary increase in construction traffic on public roadways will be a significant and unavoidable effect.

Significance Criteria

Project alternatives under consideration will result in a significant effect related to transportation and circulation if they will:

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

In addition to the significance criteria identified in the ARCF GRR Final EIS/EIR, this Supplemental EA/EIR considers a threshold of significance based on changes to the CEQA Guidelines. The project was determined to result in a significant effect related to transportation and circulation if it will:

- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) related to increases to vehicle miles traveled.

This analysis used the recommended screening criterion from the Institute of Transportation Engineers (ITE) (1988) for assessing the effects of construction projects that create temporary traffic increases. To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new peak-direction truck trips during the peak-hour. Therefore, a project would cause a substantial increase in traffic, in relation to the existing traffic load and capacity of the street system, and significant effect related to traffic if it would result in 50 or more new truck trips during the a.m. or p.m. peak hours. This is considered an “industry standard” and is the most current guidance.

To assess the effect of truck trips generated by project construction, a heavy-vehicle factor known as a passenger car equivalent (PCE) value was applied to the project-generated truck traffic. This heavy-vehicle factor was used to account for the additional space occupied, reduced speed, and reduced maneuverability associated with having these vehicles, rather than standard automobiles, on the roadway. A PCE value of 2.0 was applied to the construction equipment truck trip generation estimates, as recommended by the Highway Capacity Manual 2000 (Transportation Research Board 2000).

Therefore, the Proposed Action will cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system, and result in a significant effect related to traffic, if it will result in 100 or more new vehicle trips during the a.m. or p.m. peak hours.

Methodology

Truck trips for the project were estimated based on soil material volumes for borrow and disposal, and the volume of other materials and supplies (i.e., bentonite, aggregate). Construction worker trips were estimated based on the peak number of 100 workers, and assigned to morning and afternoon peak hours. The number of trucks from one hour to another of the day might slightly vary, depending on the access and restrictions onsite. However, this analysis assumes that construction trucks would operate throughout the day for a total of 10 hours, exporting and importing materials from and to the project area. Therefore, truck trips were evenly distributed throughout the day (during the 10-hour construction work window) to determine hourly haul truck volumes for the assigned route segments. Construction worker commute trips were only applied to peak hours in the morning and in the afternoon, assuming worker trips would occur once in the morning to get to the project area and once in the afternoon to leave the project area.

Because the sequence of activities and improvements has not been finalized, daily truck trips were conservatively estimated based on the durations of activities (i.e., transporting borrow material from the proposed borrow site at SRCSD, and disposal material), assuming overlap of borrow and disposal activities. For impacts to local roadways, this analysis assumes one-way circulation to and from work sites, and division of trips among up to four simultaneous work areas, as described in Section 2.3.6, “Construction,” in Chapter 2.0, “Alternatives.” The analysis also separately considers borrow site trips for roadways between the proposed borrow site at SRCSD and I-5.

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements. Traffic would be expected to remain generally the same in the Sacramento metropolitan area, with gradual increase associated with urban population growth.

In the event of a flood, roadways could be inundated with floodwaters. Some of these roadways could be emergency evacuation routes which would result in people being stranded. Roadways could also be damaged by the floodwaters and would require repairs once waters have receded. Floodwaters could

also damage the Sacramento Regional Transit Light Rail infrastructure. These impacts would likely be significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable. Because of this uncertainty, a precise determination of significance is not possible.

Proposed Action

Conflict with a Program, Plan, or Ordinance: Exceed Level of Service or Conflict with Vehicle- Miles-Traveled Standards

Level of service (LOS) and vehicle miles traveled (VMT) standards are typically used to evaluate long-term (operational) traffic effects resulting from residential, employment-generating, industrial, and institutional development projects. However, the project does not involve land use development, and long-term operation of the proposed levee improvements will require a similar level of maintenance and monitoring as under current conditions. Therefore, LOS standards and VMT thresholds were not used in this analysis. Instead, this analysis focuses on construction-related traffic effects and the effects of implementing the project on existing roadways. Because the project will not result in substantial changes to operations as compared to current conditions, the project will have no effect on long-term operational LOS or VMT.

Increase in Traffic Volumes or Decrease in Capacity along Designated Roadways in the Project Area

Implementing the Proposed Action will require hauling of construction equipment/materials and transporting construction workers to and from the project area along major highways and over local surface streets. Many of the construction-generated trips will involve slow-moving trucks, which will further affect highway traffic. Construction-generated traffic will temporarily increase the daily and peak-hour traffic along specified routes, including residential streets. Several staging areas (see Figure 2-1 through Figure 2-4 in Chapter 2, “Alternatives”), will be developed adjacent to the levee to maximize the efficient use and distribution of materials and equipment. Staging areas will be located along the landside and waterside toe of the levee where available, along parallel roads at the levee toe, and in nearby parks and empty parcels. The levee improvement area will be reconstructed with imported material, potentially from an existing stockpile at the proposed SCRSD borrow site.

Construction trucks that will be used for activities associated with levee improvements, including transporting material from the SRCSD borrow site and soil deposition at either the Railyards or a commercially available disposal site, will result in up to 850 truck round-trips per day (i.e., approximately 1,700 equivalent vehicle round trips per day, assuming a PCE value of 2.0) to import or remove the required materials. These estimates conservatively assume short and overlapping durations of the various construction activities identified in the construction sequencing in Chapter 2.0, “Alternatives.” Additionally, levee improvement activities will require a maximum of 100 construction workers per day during the most active construction periods. Thus, commuting by construction workers will result in a worst-case scenario of approximately 160 total daily trips (assuming two trips per day by each worker: one trip inbound to the levee reconstruction sites in the morning and one trip outbound at the end of the day) to area roadways shown in Figure 2-1 through Figure 2-4 (see Chapter 2, “Alternatives”).

In total, levee reconstruction activities (during the peak construction month in which most phases overlap) may result in as many as approximately 1,860 equivalent vehicle round trips per day distributed over levee improvements area roadways. This analysis assumes one-way circulation and from work sites, and separately identifies borrow site trips and other trips (soil disposal, other materials and equipment). Based on the estimated number of truck trips per day and these assumptions, the project-related increase in traffic volumes along the affected roadways will add up to 95 vehicles per hour for local roadways used as haul routes. This level of traffic activity will potentially degrade traffic operations along the roadways used by haul trucks. The project-related increase in traffic volumes along the affected roadways in the vicinity of the proposed SRCSD borrow site will be up to 50 trucks per hour. This level of traffic activity will not degrade traffic operations along the roadways used by haul trucks in the vicinity of the potential SRCSD borrow site. However, construction-related traffic volumes along I-5 northbound and southbound will increase by up to 190 vehicles per hour. This level of traffic increase will potentially degrade traffic operations below the applicable threshold.

Construction-related traffic could also delay or temporarily obstruct the movement of emergency vehicles. As noted in the ARCF GRR EIS/EIR, construction related traffic impacts were analyzed and determined to be significant at the program level. Furthermore, construction will also require temporary lane closures on some project area roadways, with up to half of the available roadway being closed at one time. Implementing Mitigation Measure TR-1 will reduce the potentially significant effect associated with an increase in traffic volumes and reduction in roadway capacity because a traffic control plan that includes measures to minimize traffic congestion and provide acceptable traffic flow to the maximum extent feasible will be prepared and implemented. However, as described in the GRR EIS/EIR GRR Final EIS/EIR, this temporary construction impact will remain significant and unavoidable. Additionally, USACE and CVFPB will provide public notice in advance of closures and detours/routes and will require the provision of detour signs indicating the location of alternate routes that could be used by bicyclists or pedestrians.

Conflict with a Program, Plan, or Ordinance: Decreased Performance or Safety of Alternative Modes of Transportation

Although most of the proposed levee improvement activities will occur within the project footprint, temporary road closures will be needed in some areas, which could interfere with pedestrians and cyclists along these roads. Also, pedestrian and bicycle trails along the levee crowns and at various locations along the Sacramento River Parkway will be closed during project-related activities. Implementing Mitigation Measure TR-1 will reduce the significant effect associated with alternative modes of transportation to a less-than-significant level because USACE and CVFPB will provide public notice in advance of closures and detours/routes and will require the provision of detour signs indicating the location of alternate routes that could be used by bicyclists or pedestrians.

Increased Hazards Due to a Design Feature or Incompatible Uses

The combination of the high volume of slow-moving, heavy-duty truck traffic on local roadways in the levee improvement area; workers entering and exiting construction sites; periodic road and lane closures associated with construction traffic; and potential damage to pavement will increase traffic hazards on local roadways during the construction period. Implementing Mitigation Measure TR-1 will

reduce the potentially significant effect associated with increased hazards due to a design feature or incompatible uses to a less-than-significant level because a construction traffic control and road maintenance plan will be prepared and implemented.

3.13.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR EIS/EIR. The Proposed Action does not include material transport by barge or effects on the Yolo Shortline Railroad. Therefore, mitigation related to barge transportation and the Yolo Shortline Railroad does not apply to the Proposed Action.

Mitigation Measure TR-1: Prepare and Implement a Traffic Control and Road Maintenance Plan

Before the start of project-related construction activities, USACE and CVFPB will require the contractor to prepare a Traffic Control and Road Maintenance Plan. This plan will describe the methods of traffic control to be used during construction. All on-street construction traffic will be required to comply with the local jurisdiction's standard construction specifications. The items listed below will be included in the plan and as terms of the construction contracts:

- Follow the standard construction specifications of affected jurisdictions and obtain the appropriate encroachment permits, if required. Incorporate the conditions of the encroachment permit into the construction contract. Encroachment permit conditions will be enforced by the agency that issues the encroachment permit.
- Provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor will provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- Proposed lane closures will be coordinated with the appropriate jurisdiction and be minimized to the extent possible during the morning and evening peak traffic periods. Construction specifications will limit lane closures during commuting hours where feasible, and lane closures will be kept as short as possible. If a road must be closed, detour routes and/or temporary roads will be made to accommodate traffic flows. Signs will be provided to direct traffic through detours.
- Post signs providing advance notice of upcoming construction activities at least 1 week in advance so that motorists are able to avoid traveling through affected areas during these times.
- Provide bicycle detours to allow for continued use by bicycle commuters. Maintain safe pedestrian and bicyclist access around the construction areas at all times. Construction areas will be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment should be located as far away as possible from areas where bicyclists and pedestrians are present.

- Notify (by means such as physical signage, internet postings, letters, or telephone calls) and consult with emergency service providers to inform them of construction activities, maintain emergency access, and facilitate the passage of emergency vehicles on city streets during construction activities. Emergency vehicle access will be made available at all times.
- The construction contractor will document pre- and post- construction conditions on roadways used during construction. This information will be used to assess damage to roadways used during construction. The contractor will repair all potholes, fractures, or other damages.
- Comply with Caltrans requirements by submitting this Traffic Control and Road Maintenance Plan to Caltrans for review to cover points of access from the State highway system (I-5) for haul trucks and other construction equipment.

3.14 Public Utilities and Service Systems

3.14.1 Existing Conditions

Environmental and regulatory setting in the ARCF GRR Final EIS/EIR are applicable to the analysis in this Supplemental EA/EIR and are not repeated.

3.14.2 Environmental Consequences

Summary of ARCF GRR Final EIS/EIR Effects

The ARCF GRR Final EIS/EIR states that the project could result in construction-related damage to infrastructure and disruption of service during construction and/or utility relocation activities. The timing of utility replacements will be planned, to the extent feasible, to prevent disruption of service. However, disruptions to utility services might still occur, and this effect was determined to be significant. Implementation of mitigation measures to reduce service disruptions will reduce this effect to a less-than-significant level.

The location of the landfill used for disposal of construction-related waste will be determined by the construction contractor prior to initiation of construction activity and will be approved by USACE. This disposal site will be selected based on capacity, type of waste, and other factors. Only those landfills determined to have the ability to accommodate the construction disposal needs of the project will be used. Project construction will not cause existing regional landfill capacity to be exceeded; therefore, this effect was determined to be less than significant.

Significance Criteria

The thresholds of significance encompass the factors taken into account under NEPA to determine the significance of an impact in terms of its context and intensity. The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the

State CEQA Guidelines because CEQA is more stringent than NEPA. Adverse effects on public utilities and services will be considered significant if implementation of an alternative plan will result in any of the following:

- Require the construction or expansion of any utility systems due to project implementation;
- Disruption or significantly diminished quality of the public utilities and services for an extended period of time;
- Create an increased need for new fire protection, police protection, or ambulance services or significantly affect existing emergency response times or facilities;
- Create damage to public utility and service facilities, pipelines, conduits, or power lines; or
- Create inconsistencies or non-compliance with regional planning documents.

Effects Analysis

No-Action Alternative

Under the No-Action Alternative, USACE would not construct the proposed levee improvements. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure due to seepage, slope stability, erosion, or overtopping, until the future construction of levee improvements.

As a result of this alternative, there would be no construction-related effects to public utilities and services in the Project Area. The potential would exist, however, for public utilities and services to be adversely affected by a future flood event or levee failure. Such an event could cause inundation from high flows and destruction or damage to utility lines, natural gas supply lines, and water or wastewater piping or facilities, all of which could lead to widespread contamination, temporary power outages, and interruptions of other utilities in the Project Area and surrounding areas. Under this alternative there would be no construction-related generation of solid waste. However, if a levee failure were to occur, there would be a significant amount of debris produced from the flooded properties. This would include vegetation, construction, white goods (appliances), and hazardous and toxic waste. The quantity of debris is unknown due to the fact that the size of flood and damage is unpredictable, but it is likely that the debris caused by a flood would be far more than the debris generated by the construction of this project. These potential impacts would likely be significant, though the potential for such an occurrence is uncertain, and the magnitude and duration of any related risks cannot be predicted. Because the effects of a levee failure are unpredictable, a precise determination of significance is not possible.

Proposed Action

Potential Disruption of Utility Service

USACE has identified utilities that will be relocated or removed as part of the Proposed Action in Section 2.3.5, “Utility Relocations and Removals.” Protection measures and temporary bypasses may be required for some of the utilities to be relocated. Any required utility relocation will be conducted concurrent with the proposed construction activities. Although steps will be taken to minimize potential effects to utilities, project construction activities, including grading and excavation, could inadvertently damage identified and unidentified utility infrastructure and facilities. In addition, required relocation of existing utilities could result in interruptions in service. Furthermore, the extent and intensity of proposed construction activities could affect service providers’ abilities to quickly repair damage and/or restore interrupted service. Implementation of Mitigation Measure UTL-1 will reduce the potentially significant effect associated with disruption of utility service to a less-than-significant level because USACE and CVFPB will coordinate with utility service providers and consumers to minimize utility interruptions to the maximum extent feasible, and a response plan to address service interruptions will be prepared and implemented to streamline response and shorten the potential duration of outages.

3.14.3 Avoidance, Minimization, and Mitigation Measures

The following measure is consistent with mitigation identified in the ARCF GRR EIS/EIR.

Mitigation Measure UTL-1: Verify Utility Locations, Coordinate with Affected Utility Owners/Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage

USACE and CVFPB will implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction.

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the Project Area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines will be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earthmoving activities.
- Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan will identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations.
- Stage utility relocations during project construction to minimize interruptions in service.

- Communicate construction activities with first responders to avoid response delays due to construction detours.

4.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS

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

The cumulative effects of the overall ARCF 2016 project were covered in the ARCF GRR EIS/EIR (USACE, 2016). The thorough cumulative analysis in the EIS/EIR is incorporated by reference. But the temporal scope of the analysis was necessarily vague in the EIS/EIR, therefore, for the purposes of the Proposed Action, the temporal scope of the cumulative effects analysis in this Supplemental EA/EIR considers past projects that continue to affect the Project Area in 2021, and projects that are under construction in 2021.

4.1 Cumulative Projects

4.1.1 Projects Contributing to Potential Cumulative Effects

This section briefly describes other similar or related projects, focusing on flood-risk reduction and habitat restoration projects that have similar effect mechanisms and affect similar resources as will the Proposed Action. Although the GRR Final EIS/EIR identified several of these projects in the cumulative scenario, the descriptions in this section include additional projects and updated timing and schedule information.

Past and present projects and activities have contributed on a cumulative basis to the existing environment within the Project Area via various mechanisms, such as the following:

- population growth and associated development of socioeconomic resources and infrastructure;
- conversion of natural vegetation to agricultural and developed land uses, and subsequent conversion or restoration of some agricultural lands to developed or natural lands;
- alteration of riverine hydrologic and geomorphic processes by flood management, water supply management, and other activities; and
- introduction of nonnative plant and animal species.

Several major past, present, and probable future projects are considered in this cumulative effects analysis, including regional projects for which USACE has provided approval or is in the process of considering Section 408 permission. For elements of these projects proposed for future implementation, the construction timing and sequencing is highly variable and may depend on uncertain funding sources.

However, each of these past, present, and probable future projects must be considered in the context of environmental effects from the Proposed Action to properly evaluate the cumulative effects of this action and these other similar projects on the environment.

Lower American River Common Features Project

Congressional authorizations in WRDA 1996 and WRDA 1999 enabled USACE, CVFPB, and SAFCA to undertake various improvements to the levees along the north and south banks of the American River, as well as the east bank of the Sacramento River. Under WRDA 1996, this involved the construction of 26 miles of slurry walls along the left and right banks of the American River. The WRDA 1999 authorization included a variety of additional levee improvements, such as levee raises and levee widening improvements, to ensure that the levees could pass an emergency release of 160,000 cubic feet per second. The WRDA 1996 and 1999 projects were completed in 2016, with mitigation site monitoring ongoing.

American River Watershed Common Features 2016 Project

The greater ARCF 2016 project is scheduled for construction from 2019 through 2024. The project will involve construction of levee improvements along the American and Sacramento River levees as well as proposed improvements to the Natomas East Main Drainage Canal (NEMDC) east levee and Magpie Creek (SAFCA previously completed improvements as an early implementation action in 2018). The levee improvements scheduled for implementation include construction of cutoff walls, erosion protection, seepage and stability berms, relief wells, levee raises, and a small stretch of new levee. In addition, USACE will widen the Sacramento Weir. The project will also involve construction of a number of mitigation sites in the area.

In addition to the improvements that are part of the Proposed Action, the ARCF GRR includes:

- construction of a seepage and stability berm along Front Street (completed in 2019);
- additional improvements to the Sacramento River east levee between downtown Sacramento and Freeport (planned for 2020-2023);
- erosion protection on the American River (planned for 2021-2023);
- erosion protection on the Sacramento River (planned between 2021 and 2023)
- improvements to the “East Side Tributaries, including the Magpie Creek Diversion Channel, the east bank of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, Pleasant Grove Creek Canal, and Dry, Robla, and Arcade Creeks (planned for 2022);
- widening the Sacramento Weir and Bypass, located along the north edge of the City of West Sacramento in Yolo County (planned for 2021-2023).

American River Watershed Common Features Natomas Basin Project

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and the USACE have initiated this effort with the aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally-authorized American River Common Features Project. Construction of this early implementation project was completed in 2013. In 2014, the Natomas Basin Project was authorized by Section 7002 of Water Resources Reform and Development Act (WRRDA) of 2014 (Public Law 113- 121). Construction on Reach I and Reach D began in 2018; Reach H began in 2019. Construction on Reach D is anticipated to be complete in the spring of 2020, and construction on Reaches H and I is expected to continue through 2020. Construction in Reach B is anticipated to begin in 2020 and continue into 2021, and Reaches A, E, F, and G are still in design.

Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area

SAFCA created a new assessment district (“CCAD2”) to replace the existing Consolidated Capital Assessment District and updated the existing development impact fee to provide the local share of the cost of constructing and maintaining flood-risk reduction improvements and related environmental mitigation and floodplain habitat restoration along the American and Sacramento Rivers and their tributaries in the Sacramento metropolitan area. The program includes the projects necessary to provide at least a 100-year level of flood protection for developed areas in Sacramento’s major flood plains as quickly as possible; achieve the State’s 200-year flood protection standard for these areas within the timeframe mandated by the Legislature; and improve the resiliency, robustness and structural integrity of the flood control system over time so that the system can safely contain flood events larger than a 200-year flood. The program includes Yolo and Sacramento Bypass system improvements, levee modernization, and Lower Sacramento River erosion control. The Updated Local Funding Mechanisms Final Subsequent Program EIR was certified and the project was adopted in April 2016 (SAFCA 2016b).

Sacramento River Bank Protection Project

The mission of SRBPP is to repair bank erosion and minimize the risk of flooding along the Sacramento River by evaluating riverside levees and rehabilitating sections of the levees, if necessary. Section 203 of the Flood Control Act of 1960 was the original authority for SRBPP, giving USACE authorization to implement rehabilitation of 430,000 linear feet (lf) of levee. Authority to rehabilitate an additional 405,000 lf of levee was added by the 1974 Water Resources Development Act. In 2007, the Water Resources Development Act, Pub. L. 110-114, § 3031, 121 Stat. 1113 (2007) (WRDA 2007) added 80,000 lf to SRBPP as a supplement to the 1974 legislation. USACE will release a Post Authorization Change Report (PACR), including an Environmental Impact Statement in 2020, to address the implementation of this latest authorization within economically justified sub-basins on sites chosen based upon the Site Selection and Implementation Process.

West Sacramento General Reevaluation Report

The West Sacramento Project General Reevaluation Report (WSPGRR) report determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the WSPGRR is to bring the 50- miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements will address: (1) seepage; (2) stability; (3) overtopping; and (4) erosion concerns along the West Sacramento levee system. Potential measures to address these concerns will include: (1) seepage cutoff walls; (2) stability berms; (3) seepage berms; (4) levee raises; 5) flood walls; (6) relief wells; (7) sheet pile walls; (8) jet grouting; and (9) bank protection. The WSPGRR was authorized in WRDA 2016, and in the Fiscal Year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along the Sacramento River in the northern portion of the city near the neighborhood of Bryte, and the south levee of the Sacramento Bypass. One levee segment, the Southport setback levee, is currently under construction as part of the local effort, which includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

Central Valley Flood Protection Plan of 2017

The Central Valley Flood Management Planning (CVFMP) Program is one of several programs managed by DWR under FloodSAFE California, a multifaceted initiative launched in 2006 to improve integrated flood management in the Central Valley, including the North Sacramento Streams and Sacramento River east levee (Proposed Action) Improvements areas. The CVFMP Program addresses State flood management planning activities in the Central Valley. The Central Valley Flood Protection Plan (CVFPP) is one of several documents adopted by CVFPB to meet the requirements of flood legislation passed in 2007 and, specifically, the Central Valley Flood Protection Act of 2008. DWR adopted the updated CVFPB in 2017, with a focus on Sacramento and San Joaquin Watershed Basin-Wide Feasibility Studies (BWFS), Regional Flood Management Planning, and the Central Valley Flood System Conservation Strategy. Results of these efforts will support implementation of future CVFPP actions. The CVFPP contains a broad plan for flood management system improvements, and ongoing planning studies, engineering, feasibility studies, designs, funding, and partnering are required to better define, and incrementally fund and implement, these elements over the next 20 to 25 years. Although most CVFPP projects are not well-defined and will be implemented substantially later than the Proposed Action, it is important to consider the long-term aspects of the CVFPP in conjunction with this action. The CVFPP will be reviewed again in 2022.

The Sacramento BWFS indicates that the following improvements to the Yolo Bypass flood control system could be made and therefore are considered as future projects: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below); widening the Fremont Weir and the Sacramento Weir; widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin; constructing fix-in-place improvements to the existing levees in various locations

along the west and east sides of the Upper Yolo Bypass; widening the Upper Yolo Bypass by constructing setback levees north of Willow Slough and north of Putah Creek on the west side of the Bypass; adding a tie-in to the Stockton Deep Water Ship Channel and channel closure gates; and constructing a floodwall on the west side of the Sacramento River at Rio Vista. Additional actions contemplated under the Sacramento BWFS include the following: extending the life of the Cache Creek Settling Basin by expanding it to the north; degrading the step levees at the north end of Liberty Island; widening the Lower Yolo Bypass by constructing a setback levee on the west side of the Bypass near the north end of Little Egbert Tract; degrading the existing levees along the Stockton Deep Water Ship Channel along the west side of Prospect Island; degrading the existing levees on the northern and southern ends of Little Egbert Tract; removing the Yolo Shortline Railroad tracks and crossing over the Yolo Bypass near the Interstate 80 overcrossing; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass (DWR 2016).

Lower Elkhorn Basin Levee Setback Project

The project encompasses a portion of the Phase I implementation of Yolo Bypass System Improvements pursuant to DWR's Sacramento BWFS and therefore is focused on levees in the Lower Elkhorn Basin and the Sacramento Bypass. Consistent with the Sacramento BWFS, the project is intended to reduce flooding in the Lower Sacramento River Basin by increasing the capacity of the Yolo Bypass. This increased capacity will be accomplished by constructing a setback levee on the north side of the Sacramento Bypass as an early implementation action for the ARCF 2016 project, and constructing a setback levee in the Lower Elkhorn Basin on the east side of the Yolo Bypass.

The Lower Elkhorn Basin Levee Setback project will also include implementing a project mitigation strategy designed to avoid, minimize, reduce, and mitigate impacts on sensitive habitats and special-status species caused by the project, in a manner that optimally protects the natural environment, especially riparian habitat and stream channels suitable for native plants, wildlife habitat, agricultural lands, and public recreation. Construction of the Lower Elkhorn Basin Levee Setback project is planned for 2020 and 2021. Construction effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

Folsom Dam Safety and Flood Damage Reduction Project

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

Folsom Dam Water Control Manual Update

The Folsom Dam Water Control Manual (WCM) is being updated to reflect authorized changes to the flood management and dam safety operations at Folsom Dam to reduce flood risk in the Sacramento area. The WCM Update will utilize existing and authorized physical features of the dam and reservoir, specifically the recently completed auxiliary spillway. Along with evaluating operational changes to utilize the additional capabilities created by the auxiliary spillway, the WCM Update will assess the use of

available technologies to enhance the flood risk management performance of Folsom Dam to include a refinement of the basin wetness parameters and the use of real time forecasting.

Further, the WCM Update will evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in an Engineering Report as well as a Water Control Manual implementing the recommendations of the analysis.

Folsom Dam Raise

Construction of the Folsom Dam Raise project followed completion of the JFP and the WCM projects. The Dam Raise project includes raising the Right and Left Wing Dams, Mormon Island Auxiliary Dam, and Dikes 1-8 around Folsom Reservoir by 3.5 feet. The Dam Raise project also includes the three emergency spillway gates and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). Similar to the ARCF 2016 Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction began in 2019 with Dike 8 and will be followed by Dike 7 in 2020. MIAD, the Left and Right Wing Dams, and Dikes 1-3 will begin construction in 2021, and Dikes 4-6 in 2022. The ecosystem restoration projects are not scheduled at this time. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

SAC 5 Corridor Enhancement Project

Caltrans is constructing the SAC 5 Corridor Enhancement Project on I-5 from 1.1 mile south of Elk Grove Boulevard to the American River Viaduct. The project will rehabilitate pavement and other related assets, construct 23 miles of new High Occupancy Vehicle lanes, install new fiber optic lines and extend the I-5 northbound #1 lane to improve merging. The project includes rehabilitating 67 lane miles of mainline and all ramps/connectors. The project also includes adding auxiliary lanes and extending acceleration and deceleration lanes. Project construction require lane closures on I-5 and is expected to continue from July 2019 through December 2022. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

Sacramento/Yolo Integrated Corridor Management ICM

Caltrans is constructing the Sacramento/Yolo Integrated Corridor Management ICM on Interstate 80 (I-80) from Enterprise Boulevard in the City of West Sacramento to Folsom Boulevard in the City of Folsom on HWY 50. The purpose of this project is to improve safety, more efficiently manage traffic operations, reduce congestion and decrease peak hours of delay. This project proposes to implement Integrated Corridor Management (ICM), also known as Connected Corridor, by installing Transportation Management System (TMS) and Intelligent Transportation Systems (ITS) elements. Construction is scheduled to begin July 15, 2021.

US Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project

Caltrans is constructing the US Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project will construct High Occupancy Vehicle (HOV) lanes and rehabilitate pavement on US 50 from the US 50/I-5 Interchange (PM L0.6) to the US 50/Watt Avenue Interchange (PM R5.3) for a total of 15 lane miles. The purpose of this project is to reduce congestion and replace the existing Portland Cement Concrete (PCC) pavement, reduce maintenance crew's exposure to live traffic, and reduce maintenance expenditures. Construction is scheduled to occur between April 2020 and December 2024.

Bridge District Specific Plan

The Bridge District Specific Plan, formerly the Triangle Plan, was adopted in 1993 and significantly updated in 2009 (City of West Sacramento 2009). The intent of the Bridge District Specific Plan was to provide a framework for development of a well-planned, waterfront-orientated urban district for the City of West Sacramento, along the west bank of the Sacramento River. A number of housing complexes have been built, as well as other riverfront recreational improvements, and the Barn, a local event space and beer garden along the Sacramento River just south of Raley Field. Ongoing development includes additional housing units currently under construction. Construction, road construction, and construction traffic associated with the Bridge District have the potential to contribute to cumulative impacts with the Proposed Action.

Sacramento Railyards Project

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

Delta Shores Development Project

Delta Shores is an approximately 800-acre master planned development that will include an estimated 1.3 million square feet of planned retail and commercial uses, and an estimated 5,200 residential units at different housing densities. A majority of the Delta Shores land is located east of I-5, north and south of Cosumnes River Boulevard, east of Freeport Boulevard and north of the SRCSD Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to a portion of the Delta Shores southern property line (east of I-5). Approximately 100 acres of the Delta Shores land is located on the west side of I-5 and adjacent to the Sacramento River east levee. In the Delta Shores lands west of I-5, medium- and high-density residential housing will be developed on the north side of Cosumnes River Boulevard while medium- and low-density residential housing will be developed on the

south side of Cosumnes River Boulevard. Neighborhood parks are programmed east of and adjacent to Freeport Boulevard.

Cosumnes River Boulevard was recently extended by approximately 3.5 miles (from Franklin Boulevard to Freeport Boulevard), and a new I-5 interchange was constructed in order to provide regional connectivity from HWY 99 to I-5 as well as allow access for future Delta Shores residential and commercial development. The Cosumnes River Boulevard extension and I-5 interchange improvements were completed in 2015. Construction on the regional shopping center located in the SE quadrant of the I-5 interchange and Cosumnes River Boulevard began in 2016, and the regional shopping center opened in 2017. Additional improvements anticipated to commence construction in 2021 include infrastructure and roadway construction north of Cosumnes River Boulevard, as well as, additional commercial construction north and south of Cosumnes River Boulevard on the east side of I-5. Construction traffic associated with 2021 improvement programs at Delta Shores have the potential to contribute to cumulative impacts with the Proposed Action. It is anticipated that additional infrastructure and home construction will occur on the east and west sides of I-5 in future years.

4.2 Cumulative Effects

4.2.1 Visual Resources

Most project-related activities will not be visible from SR 160, which is a State- and County-designated scenic highway from Freeport south to the County line. The southwestern end of the Delta Shores project will be visible from SR 160. However, development within the Delta Shores project is required to follow the City of Sacramento design guidelines regarding form, color, texture, mass, landscaping, and signage, as well as the Delta Shores Planned Unit Development Guidelines approved by the City of Sacramento, which are specifically designed to ensure that new development is aesthetically pleasing and blends with the surrounding landscape (City of Sacramento 2008). Therefore, there will be no significant cumulative impact related to damage to scenic resources within a State- or County-designated scenic highway, and the project will not result in a cumulatively considerable incremental contribution to a significant cumulative effect.

Construction crews, equipment, and haul trucks will be visible to residents adjacent to local streets, and staging areas, and to residences adjacent to the work sites. In addition, construction will be visible to recreationists where portions of parks will be used as staging areas, and potentially along portions of the Sacramento River Parkway bicycle and pedestrian trail. However, construction will be temporary in nature, and because construction will proceed along the levee in a linear fashion, the views of construction crews, equipment, and haul trucks will be of short duration, and related projects will not generally be visible from the same locations as the Proposed Action. At the completion of construction activities, the levees, staging areas, and borrow sites for both the Proposed Action and the related levee projects will look the same or substantially similar to existing conditions. However, construction of multiple projects along the waterways in the Sacramento region will result in a cumulative impact to visual resources due to the removal of vegetation along these waterways and disturbance from construction activities. As noted in the ARCF GRR Final EIS/EIR, cumulative impacts to visual resources were analyzed and determined to be significant at the program level.

4.2.2 Air Quality

By its nature, air pollution is largely a cumulative impact. Ambient air quality standards are violated or approach nonattainment levels because of past activities, and increasing emissions-generating activity across the region may jeopardize attainment (SMAQMD 2020). The Federal attainment status in the SVAB for pollutants of concern is shown in **Table 3-1**. Several other construction projects are expected to occur simultaneously in the SVAB during the planned construction period for the Proposed Action. The related projects have the potential to generate construction-related emissions that individually exceed SMAQMD's threshold of significance. However, all construction projects in the SMAQMD, including the Proposed Action are required to offset emissions that have the potential to negatively affect air quality in the SVAB through implementation of SMAQMD emissions reductions practices. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit).

Furthermore, the Proposed Action is part of the larger ARCF 16 project, which has been determined to meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NO_x emissions. As discussed in Section 3.3, "Air Quality," the Proposed Action will result in a cumulatively considerable incremental contribution to a significant cumulative effect related to regional air quality, and this contribution will be mitigated through implementation of Mitigation Measures described in Section 3.3.

With respect to localized air pollutants such as CO, TACs, and odors, the Proposed Action and the related projects will generate these pollutants only during construction, and they will be temporary and short term. Some of the related projects may generate concentrations of these pollutants at levels that exceed relevant thresholds. However, the related projects include CEQA/NEPA documents containing mitigation measures that must be implemented to reduce individual project emissions. As discussed in Section 3.3, the Proposed Action will not generate CO, TACs, or odors at levels that will represent a health hazard. Therefore, the proposed project will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to generation of CO or TACs during construction.

4.2.3 Vegetation and Wildlife

Project implementation has the potential to contribute to the loss or degradation of sensitive habitats, including riparian, waters of the United States, and waters of the State, and forestland. Similar potential for adverse effects on habitats will be associated with the flood-risk reduction projects, including future ARCF 16 projects proposed along the Sacramento River east levee and the American River, and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects will generally continue to contribute to the loss or degradation of sensitive habitats and forestland. Most potential adverse effects of the Proposed Action and the related levee projects will be associated with construction disturbances of habitats, but permanent loss of habitat will also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.4, "Vegetation and Wildlife," will reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal ESA and CESA and other regulatory programs that protect habitats, such as CWA Sections 401 and 404. Although the Proposed Action's temporary impacts will be significant, the Proposed Action will not result in a cumulatively

considerable incremental contribution to significant cumulative effects related to the permanent loss or degradation of sensitive habitats or loss of forestland.

4.2.4 Special-Status Species

Project implementation has the potential to adversely affect special-status species (valley elderberry longhorn beetle host plants, Swainson's hawk, other nesting birds, and bats). Similar potential for adverse effects on special-status species and their habitats will be associated with the flood-risk reduction projects, including future ARCF 16 projects proposed along the Sacramento River east levee and the American River, and removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects will generally continue to adversely affect special-status species. Most potential adverse effects of the Proposed Action and the related levee projects related to wildlife will be associated with construction disturbances of wildlife and their habitats, but permanent loss of habitat will also result from some of the individual levee improvement projects and the development projects. These adverse effects could contribute to species declines and losses of habitat that have led to the need to protect these species under the Federal ESA and California Endangered Species Act (CESA). Implementation of Mitigation Measures described in Section 3.5, "Special-Status Species," will reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal ESA and CESA. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on special- status species.

4.2.5 Climate Change

Climate change as related to GHG emissions is inherently cumulative. Though significance thresholds can be developed by air districts and State and Federal regulatory agencies, these thresholds and their related goals are ultimately designed to affect change at a global level. Therefore, the analysis presented in Section 3.6, "Climate Change," includes the analysis of both the project and cumulative effects. The Proposed Action and the related projects will result in the generation of GHGs, in proportion to the size of each individual project, amount and time of operation of construction equipment, and distances traveled. However, the Proposed Action and the related projects that will generate GHG emissions in excess of threshold levels will implement the mitigation measures set forth in their respective CEQA/NEPA documents to reduce emissions and/or purchase carbon offsets. Furthermore, the Proposed Action will not exceed CEQ GHG threshold guidance levels and the Proposed Action will be consistent with statewide climate change adaptation strategies. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to climate change.

4.2.6 Cultural Resources

Implementation of the Proposed Action, other flood-risk reduction projects, including the ARCF GRR projects proposed along the Sacramento River east levee and the American River, and other projects considered in this cumulative analysis, have the potential to contribute to the loss or degradation of known and unrecorded archaeological resources, known prehistoric-period Cultural Landscapes, known and unknown human remains, known and unknown historic-period archaeological resources.

Most potential effects of the Proposed Action and other related projects to cultural resources will be associated with construction disturbances of archaeological sites, prehistoric Cultural Landscapes, and human remains. These effects could contribute to the loss of intact cultural resources and human remains in the Sacramento region.

Implementation of the Mitigation Measures presented in Section 3.7, “Cultural Resources,” will reduce or avoid the effects of the project on known resources and on unknown archaeological resources and human remains that could potentially be discovered during project construction. However, significant impacts will remain, and the project will contribute considerably to a cumulatively significant effect.

4.2.7 Geological Resources

Construction activities associated with the Proposed Action and most of the related projects, including the levee projects and the Delta Shores development project, will involve extensive grading and earthmoving activities, thereby exposing soil to erosion from wind in summer and from rainfall during storm events. If uncontrolled, suspended sediment from stormwater runoff could enter adjacent water bodies and result in increased turbidity. However, the Proposed Action along with each related project that will disturb 1 acre of land or more are required by law to comply with the Construction General Permit from the State Water Resources Control Board, which require preparation of a SWPPP and implementation of erosion control BMPs. Therefore, there will be no significant cumulative effect related to construction-related erosion, and the project will not result in a cumulatively considerable incremental contribution to a significant cumulative effect.

If not addressed, seepage-related levee failures could contribute significant volumes of sediment and material to the stream channels, which could alter flow patterns and potentially destabilize other levees outside the Project Area. However, the Proposed Action and most of the related projects will implement seepage control measures that will reduce the risk of levee failure. Therefore, the Proposed Action and the related projects will not cumulatively increase the risk of levee failure. This effect will be cumulatively beneficial.

All Proposed Action improvements, as well as improvements proposed as part of the related levee projects, will be designed based on the results of detailed geotechnical engineering studies and required to comply with standard engineering practices for levee design. In addition to compliance with CVFPB standards, levee design and construction must be in accordance with EM 1110-2-1913 Design and Construction of Levees (USACE 2000), the primary Federal standards applicable to levee improvements. In addition, ER 1110-2-806, Earthquake Design and Evaluation for Civil Works Projects (USACE 2016), will also apply to project design and construction. Therefore, it is assumed that the design and construction of all levee modifications will meet or exceed applicable design standards for static and dynamic stability, seismic ground shaking, liquefaction, subsidence, seepage, and expansive soils. The related development projects must comply with the California Building Standards Code, which incorporates specific requirements for engineering and construction that are designed to reduce damage from seismic ground shaking, liquefaction, subsidence, seepage, and expansive soils to the maximum extent feasible. Therefore, the Proposed Action will not result in cumulatively considerable incremental contribution to a significant cumulative effect related to seismicity and soils.

The Proposed Action and most of the related projects, will entail earthmoving activities in the Riverbank and/or Modesto Formations, which are considered paleontologically sensitive. While some of the related projects, such as the CVFPP, NLIP, and the Delta Shores projects contain mitigation measures to protect paleontological resources, the other related projects may not. Therefore, some of the related projects may result in significant effects to unique paleontological resources. Future ARCF 16 projects proposed along the Sacramento River east levee and the American River will also take place in the Riverbank Formation. However, the presence of unique paleontological resources is site-specific, and a low probability exists that any project, including the Proposed Action, will encounter unique, scientifically important fossils. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to damage to or destruction of unique paleontological resources.

4.2.8 Hazardous Wastes and Materials

Implementation of the Proposed Action and the related projects will include handling small quantities of hazardous materials used in construction equipment (e.g., fuels, oils, lubricants) and during construction activities. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various Federal, State, and local agencies. Permits are required for the use, handling, and storage of these materials, and compliance with appropriate regulatory agency standards agencies is also required to avoid releases of hazardous waste. Construction companies that handle hazardous substances for the Proposed Action and all of the related projects are required by law to implement and comply with these existing regulations. Furthermore, any effect that might occur will be localized to the area where the materials are being used and will not be additive to other hazardous materials-related effects associated with the Project Area. None of the materials will be acutely hazardous, and they will not be used in quantities that pose a hazard to schools within 0.25 mile of construction sites. Thus, the project will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to the potential for accidental spills of materials used during construction activities or handling of hazardous materials within 0.25 mile of a school.

Project implementation could result in exposure to existing hazardous materials sites or from accidental rupture of petroleum or natural gas pipelines during construction activities. It is unknown whether any of the related project sites contain existing hazards materials. However, Mitigation Measures identified in Section 3.9, “Hazardous Wastes and Materials,” will minimize potential exposure to unknown hazards and hazardous materials during implementation of the Proposed Action. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to existing hazardous materials.

Wildland fire represents a hazard particularly during the hot, dry summer and fall in the Central Valley. Most of the related projects, including future levee and development projects, will be implemented in urbanized areas, similar to the Proposed Action, with a relatively low risk of wildland fire. Therefore, there will be no significant cumulative impact related to wildland fire risk, and the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to wildland fire hazards.

4.2.9 Water Quality and Groundwater Resources

A majority of the levee projects, including the Proposed Action, involve subsurface geotechnical work to repair levees in place and, consequently, there will be no effects on flooding. Some projects, such as the West Sacramento GRR and the SRBPP, include levee raises, flood walls, and bank protection. The West Sacramento GRR, the balance of the ARCF 16 projects, and Lower Elkhorn Basin Levee Setback Project, include construction of new setback levees. Dewatering of the construction area (e.g., removing groundwater that may fill trenches dug for cutoff wall construction) could result in the release of contaminants to surface or groundwater. The related projects considered in this cumulative analysis could also result in adverse water quality effects from construction dewatering. However, the Proposed Action and the related projects are required by law to comply with Central Valley RWQCB provisions that require a dewatering permit and to implement Central Valley RWQCB measures designed to reduce adverse water quality effects from construction dewatering. Therefore, the Proposed action will not result in a cumulatively considerable incremental contribution related to degradation of water quality from construction dewatering.

4.2.10 Noise

The Delta Shores Development project is located in the immediate vicinity of the Proposed Action, and thus was considered for purposes of this cumulative noise and vibration analysis. A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 500 feet of the Proposed Action's construction activities, and also, if the construction activities of other projects were to occur at the same time or overlap at some point during the construction activities of the Proposed Action. Construction of a portion of the shopping center at Delta Shores, east of I-5, began in 2016 and is ongoing. However, at its closest point, this portion of the Delta Shores project area is more than 0.5 mile southeast of the project site. There is currently no scheduled date for construction of homes and parks on the west side of I-5 at Delta Shores. Therefore, the Delta Shores project is located too far away to combine with the Proposed Action's construction noise or vibration effects. Furthermore, although any of the related projects could require construction that exceeds the respective local City or County noise ordinances, the Proposed Action will limit noise-generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to construction equipment or traffic noise levels in excess of standards established in the local general plan or noise ordinance, in other applicable local, State, or Federal standards, or exceeding the ambient background.

4.2.11 Recreation

The Proposed Action, along with the related projects, may result in temporary closure of recreational facilities, potential damage to recreational facilities, and temporary diminishment of recreational experiences at nearby parks during construction. Implementation of Mitigation Measures described in Section 3.12, "Recreation," will reduce the Proposed Action's effects to a less-than-significant level. Because of the temporary nature of the construction effects and the likelihood that any access restrictions or degradation of the quality of recreational experiences will last for approximately 3–6 months in any location, the Proposed Action's effects on local recreation are not anticipated to overlap with effects of other related project. The nearby Delta Shores development project includes internal parks for

use by residents. Consequently, cumulative effects related to recreation resources will be less than significant, and the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to short-term temporary changes in recreational opportunities during project construction activities.

4.2.12 Transportation and Circulation

The majority of traffic effects related to the Proposed Action will occur west of I-5, in the vicinity of the Project Area. The SAC 5 Corridor Enhancement Project and the Delta Shores project (in addition to other construction projects in the Sacramento metropolitan area) will also affect traffic volumes and capacity on I-5 in the vicinity of the Project Area and potentially other proposed haul routes shown in Figure 2-1 through Figure 2-4 (see Chapter 2, “Alternatives”). Other levee projects will occur at locations that are relatively distant. There are no known projects that will affect the local haul routes shown in Figure 2-1 through Figure 2-4. The Sac/Yolo Integrated Corridor Management ICM and US Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project could cause a cumulative impact if a borrow or disposal site is selected that utilizes Highway 50 with construction starting as early as April 2020. Because potentially significant traffic effects are only expected to occur for 6–8 months during the project construction period, it is difficult to predict if other specific projects will have traffic volumes that will cumulatively affect traffic during these same time periods. If other projects substantially affect traffic during these peak construction periods, the potential cumulative effects will be significant on segments of I-5, I-80, and US 50, and the Proposed Action will make a considerable contribution.

Mitigation described in Section 3.13, “Transportation and Circulation,” includes a traffic control and road maintenance plan to reduce the Proposed Action’s impact. This mitigation requires emergency service providers be notified in advance of road closures and detours and requires emergency access to be maintained. Although other major construction projects will also implement traffic control plans specifically designed to provide appropriate emergency access, traffic controls could cause delays during the morning and evening peak commute hours, which could disrupt emergency response times in the vicinity of the construction sites. Thus, as disclosed in the ARCF GRR Final EIS/EIR, the Proposed Action could result in a cumulatively considerable incremental contribution to a significant cumulative effect related to emergency vehicle access or response times at the program level.

Bicycle and pedestrian paths affected by the Proposed Action will be primarily west of I-5, in the vicinity of the construction activities and along potential haul routes. As part of Mitigation Measure TR-1, the Proposed Action will provide detours to maintain safe pedestrian and bicyclist access around the construction areas at all times. In general, major construction projects (including the SAC 5 Corridor Enhancement and Delta Shores) will also implement traffic control plans specifically designed to provide continued safe routes for alternative modes of transportation during construction. Therefore, the Proposed Action will not generate a cumulatively considerable incremental contribution to a significant cumulative effect related to performance or safety of alternative modes of transportation.

4.2.13 Public Utilities and Service Systems

The Proposed Action, future ARCF 2016 projects along the Sacramento River east levee and the American River, and all of the other related levee projects, in addition to Delta Shores and other development projects, could temporarily disrupt utility service as a result of inadvertent damage to existing utility equipment, facilities, and infrastructure. However, any utility and service system effects will be geographically isolated, short in duration, and occur on a project-by-project basis. Thus, these disruptions will not combine to form cumulative effects. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to potential disruption of utility services.

Temporary construction activities associated with the Proposed Action and related projects in the Sacramento Region will generate organic and non-organic solid waste. Waste material that is not suitable for disposal onsite or at the Railyards will likely be disposed of in Kiefer or the L and D Landfills. Both landfills currently provide solid waste disposal services to municipal and commercial customers and provide construction demolition and debris disposal in Sacramento County. Both landfills have sufficient permitted capacity to accommodate solid waste disposal needs for Sacramento County, including the disposal needs of the Proposed Action and the related projects. Therefore, the Proposed Action will not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to increases in solid waste generation.

4.3 Growth-inducing Effects

Because the Proposed Action will not involve construction of housing, the action will not directly induce growth. Project-related construction activities will generate temporary and short-term employment, but these construction jobs are anticipated to be filled from the existing local employment pool and will not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the project will not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action will not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements will benefit areas identified for future growth anticipated in the vicinity of the Sacramento River east levee in the City of Sacramento. Local land use decisions are within the jurisdiction of the City of Sacramento, which has adopted a general plan consistent with State law. The City of Sacramento 2035 General Plan (City of Sacramento 2015) provides an overall framework for growth and development in the City. The City of Sacramento 2013–2021 Housing Element (City of Sacramento 2013) of the City General Plan identifies vacant parcels zoned for multifamily dwelling units in the vicinity of Riverside Boulevard and 43rd Avenue, and vacant parcels zoned for single-family dwelling units are identified within the Pocket and Little Pocket areas in the vicinity of Pocket Road.

The levee improvements will increase the levee's resistance to erosion, provide better overall levee stability and reliability, and provide additional flood protection for growth anticipated in the City's General Plan. Growth throughout the Project Area has already been planned for as part of the City of Sacramento 2035 General Plan (City of Sacramento 2015). The Proposed Action will not allow additional growth to occur other than what has already been planned, nor will it change the locations where this growth is planned to occur. Consequently, implementation of the Proposed Action will not affect current and/or

projected population growth patterns within the City of Sacramento as already evaluated and planned for in the City General Plan and, therefore, will not be growth-inducing. The Proposed Action will mitigate flood risks by improving levees to meet engineering standards associated with the National Flood Insurance Program; it will not alter protection for the 100-year event nor does it transfer any such risk to other areas. The Proposed Action will not directly or indirectly support development in the base floodplain.

4.4 Irreversible and Irretrievable Commitment of Resources

The discussion of irreversible and irretrievable commitments of resources in the ARCF GRR Final EIS/EIR adequately describes the effects of the Proposed Action.

5.0 COMPLIANCE WITH STATE AND FEDERAL LAWS AND REGULATIONS

Certain Federal and State laws and regulations require issuance of permits before project implementation; other laws and regulations require agency consultation but may not require issuance of any authorization or entitlements before project implementation. For each of the law and regulation addressed in this section, the description will indicate either full or partial compliance; if partial compliance is indicated, full compliance will be achieved prior to issuance of a NEPA decision document.

5.1 Federal Laws and Regulations

5.1.1 Clean Air Act of 1963, as amended, 42 USC 7401, et seq.

Compliance. The Federal CAA requires EPA to establish NAAQS. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan, referred to as a State Implementation Plan.

An analysis of air quality effects of the Proposed Action is presented in Section 3.3, “Air Quality.” The Proposed Action is not expected to violate any Federal air quality standards and will not exceed general conformity thresholds for construction year 2021. Although the NO_x emissions of the ARCF 16 project as a whole are expected to exceed the EPA’s General Conformity *de minimis* thresholds during several of the ARCF 16 project’s construction years, including 2022, and 2023, ARCF 16 project emissions are not expected to exceed the *de minimis* threshold in 2021, and USACE expects to purchase offsets for NO_x emissions from SMAQMD. USACE released a conformity determination for public notice in March 2020, and USACE will be in compliance with the General Conformity requirements prior to construction of the Proposed Action.

5.1.2 Endangered Species Act of 1973, as amended, 16 USC 1531, et seq.

Compliance. Pursuant to the ESA, USFWS and NMFS have regulatory authority over Federally listed species. Under the ESA, a permit to “take” a listed species is required for any Federal action that may harm an individual of that species. Take is defined under ESA Section 9 as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Under Federal regulation, take is further defined to include habitat modification or degradation where it will be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitat.

Section 7(a)(2) requires Federal agencies to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. A list of threatened and endangered species that may be affected by the Proposed Action was

obtained from the USFWS in 2019 (Appendix B-2). USACE formally consulted with USFWS on the ARCF Project and received a Biological Opinion on September 11, 2015 (08ESMF00-2014-F-0518). The Proposed Action is an element of the ARCF Project. USACE formally consulted with NMFS on the ARCF Project and received a Biological Opinion on September 9, 2015.

USACE is required to reinitiate formal consultation with USFWS and/or NMFS if effects to listed species will vary from what was provided at the time of formal consultation. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF Project actions, and USACE will reinitiate consultation with USFWS and/or NMFS, in accordance with 50 CFR 402.16, if completed design documents and specifications for associated ARCF projects provide more detailed data that “reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.”

5.1.3 Executive Order 11988, Floodplain Management.

Compliance. The project will mitigate flood risks by improving levees to meet engineering standards associated with the NFIP; it will not alter protection for the 100-year event, nor does it transfer any such risk to other areas. Because the project will not directly or indirectly support development in the base floodplain, it will comply with EO 11988.

5.1.4 Executive Order 11990, Protection of Wetlands.

Compliance. As discussed in Section 3.4, “Vegetation and Wildlife,” no wetlands are located within the footprint of the Proposed Action.

5.1.5 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

Compliance. The purpose of EO 12898 is to identify and address the disproportionate placement of adverse environmental, economic, social, or health effects from Federal actions and policies on minority and/or low-income communities. EO 12898 requires that adverse effects on minority or low-income populations be taken into account during preparation of environmental and socioeconomic analyses of projects or programs that are proposed, funded, or licensed by Federal agencies.

Section 2-2 of EO 12898 requires all Federal agencies to conduct programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons the benefits of, or subjecting persons to discrimination because of their race, color or national origin. Section 1-101 of EO 12898 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.

The Proposed Action will reduce the risk of flooding to existing residential, commercial, and industrial development protected by the Sacramento River east levee, and will have no disproportionately

high adverse environmental effect on any minority or low-income population as disclosed in the 2016 EIS/EIR for ARCF 2016.

5.1.6 Executive Order 13112, Invasive Species.

Compliance. EO 13112 directs Federal agencies to take actions to prevent the introduction of invasive species, provide for control of invasive species, and minimize the economic, ecological, and human health impacts that invasive species cause. EO 13112 also calls for the restoration of native plants and tree species. Project construction activities have potential to introduce new invasive plants or spread existing invasive plants on the project site, but temporarily disturbed areas will be hydroseeded with a native seed mix for erosion protection and to prevent colonization of exotic vegetation and mitigation measures will include planting of native riparian species. Additional information is provided in Section 3.4, “Vegetation, Wildlife, Fisheries, and Special-Status Species.”

5.1.7 Farmland Protection Policy Act 7 USC 4201 et seq.

Compliance. The Farmland Protection Policy Act (FPPA) is intended to minimize the effect of Federal programs with respect to the conversion of farmland to nonagricultural uses. It ensures that, to the extent possible, Federal programs are administered to be compatible with State, local, and private programs and policies to protect farmland. The Natural Resources Conservation Service is the agency primarily responsible for implementing the FPPA. There are no prime farmlands in the levee improvement area. A portion of the SRCSD borrow site is on land designated as farmland of local importance, but this is an active stockpile/borrow site, and no agricultural land uses are currently present on the site.

5.1.8 Federal Clean Water Act as amended, 33 USC 1251, et seq.

Compliance. EPA is the lead Federal agency responsible for water quality management including the regulation of disposal of fill material in waters of the U.S. EPA has delegated its authority under Section 404 of the Clean Water Act to the Corps of Engineers and Section 401 to states and sovereign nations with the ability to implement. The CWA of 1972 is the primary Federal law that governs and authorizes the placement of dredge or fill material in waters of the U.S. activities by EPA, as well as the State. The Proposed Action will not involve the placement of fill materials or construction within surface waters, local waterways, or any other Waters of the U.S. Nor does the Project Area contain aquatic resources that fall under the jurisdiction of section 404. If staging areas are located below the ordinary high-water mark they will be temporary and returned to pre-project conditions. Therefore, the project is in compliance with Section 401 and 404 of the Clean Water Act. Prior to construction, the contractor will be required to obtain a NPDES permit for potential effects to storm water discharge, including preparation of a SWPPP. With the implementation of these permits, the Proposed Action will be in compliance with the Clean Water Act.

5.1.9 Fish and Wildlife Coordination Act of 1958, as amended, 16 USC 661, et seq.

Compliance. The Fish and Wildlife Coordination Act ensures that fish and wildlife receive consideration equal to that of other project features for projects that are constructed, licensed, or permitted

by Federal agencies. It requires that the views of USFWS, NMFS, and the applicable State fish and wildlife agency (CDFW) be considered when effects are evaluated and mitigation needs are determined.

In 2015, during preparation of the ARCF GRR Final EIS/EIR, USACE coordinated with USFWS to consider potential effects to vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, the USFWS issued a final Coordination Act Report that provided mitigation recommendations (USFWS File # 08ESMF00-20 13-CPA-0020). USACE considered all recommendations and responded to them in the final ARCF GRR Final EIS/EIR. The Proposed Action will therefore be in compliance with this act.

5.1.10 Magnuson-Stevens Fishery Conservation and Management Act.

Compliance. The Proposed Action will not involve in-water work, and implementing standard water quality protection measures and BMPs will avoid indirect effects on EFH. The Proposed Action will therefore be in compliance with this act.

5.1.11 Migratory Bird Treaty Act of 1936, as amended, 16 USC 703 et seq.

Compliance. The Migratory Bird Treaty Act (MBTA) implements domestically a series of international treaties that provide for migratory bird protection. The MBTA authorizes the SOI to regulate the taking of migratory birds; the act provides that it will be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird ...” (USC Title 16, Section 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

The Proposed Action incorporates mitigation measures that minimize the potential for the take of migratory birds as a consequence of project construction, as discussed in Section 3.4, “Vegetation, Wildlife, Fisheries, and Special-Status Species.” The Proposed Action will therefore be in compliance with this act.

5.1.12 National Historic Preservation Act of 1966, as amended.

Partial Compliance Section 106 of the NHPA and its implementing regulations (36 CFR 800, as amended in 2004) require Federal agencies to consider the potential effects of their proposed undertakings on historic properties. Historic properties are cultural resources that are listed on, or are eligible for listing on, the NRHP (36 CFR 800.16[I]). Undertakings include activities directly carried out, funded, or permitted by Federal agencies. Federal agencies must also allow the Advisory Council on Historic Preservation to comment on the proposed undertaking and its potential effects on historic properties.

Because the ARCF 2016 Project is being implemented in phases, and because implementation of phases of the ARCF 2016 Project may have an effect on Historic Properties, USACE has consulted with the SHPO and other parties and as a result has executed a PA. The PA establishes the process USACE will follow for compliance with Section 106, taking into consideration the views of the signatory and concurring parties and interested Native American Tribes.

The Proposed Action incorporates treatment measures to consider resources listed on or eligible for listing on the NRHP, as discussed in Section 3.7, “Cultural Resources.” Determinations of the specific measures to be implemented to resolve adverse effects to known Historic Properties will be made by USACE, in consultation with SHPO and Consulting Parties to the PA, as required by the PA and as described in detail in the HPMP for the ARCF Project. Specific mitigation measures that are consistent with the PA and the HPMP are also identified in Section 3.7 to address potential impacts to unknown cultural resources that could be discovered during construction.

In accordance with the PA and HPMP procedures, USACE has consulted with Native Americans who attach religious or cultural significance to potential Historic Properties that may be affected by the proposed undertaking. A detailed description of consultation with Native Americans is provided under Native American Consultation in Section 3.7. In accordance with the PA, USACE will consult with the SHPO, requesting concurrence on the delineation of the APE, on the adequacy of inventory methods, the findings of the cultural investigations, the determinations of eligibility, and finding of effect. Consultation regarding the delineation of the APE, the adequacy of inventory methods, the findings of the cultural investigations, the determinations of eligibility, and finding of effect is ongoing and will be completed prior to contract award for the Proposed Action. Accordingly the Proposed Action will comply with Section 106 of the National Historic Preservation Act.

5.1.13 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 USC 4601 et seq.

Partial Compliance. Federal, State, regional, and local government agencies, and others receiving Federal financial assistance for public programs and projects that require the acquisition of real property, must comply with the policies and provisions set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended in 1987 (Uniform Act), and implementing regulation, 49 CFR Part 24. Relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal are provided in the Uniform Act. All or portions of some parcels within the project footprint will need to be acquired for project construction. All property acquisition will be made in compliance with the Uniform Act.

5.2 State Laws, Regulations, and Policies

5.2.1 California Clean Air Act of 1988.

Partial Compliance. Section 3.3 of this document discusses the effects of the Proposed Action on local and regional air quality. ARB is responsible for the development, implementation, and enforcement of California’s motor vehicle pollution control program, GHG statewide emissions and goals, and

development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act requires projects to determine whether emission sources and emission levels significantly affect air quality, based on Federal standards established by the USEPA and State standards set by ARB. SMAQMD has local jurisdiction over the Project Area. The analysis in Section 3.3 shows that expected short-term project-related emissions will exceed local thresholds administered by SMAQMD but will not exceed annual general conformity thresholds. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year; the Proposed Action will exceed this GHG emissions threshold. Additional BMPs will be incorporated to reduce GHG emissions during construction, to the maximum extent feasible.

5.2.2 California Environmental Quality Act of 1970.

Partial Compliance. The CVFPB, as the non-federal sponsor and CEQA lead agency, will undertake activities to ensure compliance with the requirements of this Act. CEQA requires the full disclosure of the environmental effects, potential mitigation, and environmental compliance of the project. Certification of the Final Supplemental EA/EIR by the CVFPB will provide full compliance with the requirements of CEQA.

5.2.3 California Endangered Species Act.

Compliance. This Act requires non-federal agencies to consider the potential adverse effects to State-listed species. As discussed in Section 3.4 of this document, with implementation of mitigation measures, activities associated with the Proposed Action are not anticipated to adversely impact any State-listed species, so no further action is required to achieve compliance with this Act.

5.2.4 California Fish and Game Code §3503.

Partial Compliance. Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests of eggs of any bird. Section 3503.3 states that it is unlawful to take, possess, or destroy any raptors, including nests or eggs. With implementation of mitigation measures described in Section 3.4, activities associated with the proposed project are not anticipated to adversely impact nesting birds, raptors, or their eggs.

5.2.5 Porter-Cologne Water Quality Control Act of 1970.

Partial Compliance. This Act requires that each of the State's nine RWQCBs prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the State's boundaries. With implementation of mitigation measures described in Section 3.4, the Proposed Action will have no effect on waters of the United States or waters of the State.

5.2.6 Delta Plan

Partial Compliance. The Delta Plan includes regulations supporting coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Delta Plan is administered by the Delta Stewardship Council. CVFPB has determined that the Proposed Action is a “covered action” under the Delta Plan, because it will occur in part within the boundaries of the Legal Delta, will be approved and funded in part by State and local agencies, could have a significant impact on implementation of a government-sponsored flood control program, and will be covered by regulatory policies in the Delta Plan. Prior to implementing the Proposed Action, CVFPB will produce a Certification of Consistency with the Delta Plan in accordance with section 85225 of the California Water Code.

5.2.7 City of Sacramento Tree Ordinances.

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

6.0 COORDINATION AND REVIEW OF THE DRAFT SUPPLEMENTAL EA/EIR

The Draft Supplemental EA/EIR and Draft FONSI was circulated for 45 days (July 8 to August 22, 2020) to agencies, organizations, and individuals known to have a special interest in the project. Copies of the Draft Supplemental EA/EIR are posted on the USACE and CVFPB websites, and were made available for viewing by mail upon request due to COVID-19 restrictions. This project was coordinated with all the appropriate Federal, State, and local governmental agencies including USFWS, SHPO, CDFW, and DWR prior to the finalization of this document.

7.0 FINDINGS

This Supplemental EA/EIR evaluates the environmental effects of the Proposed Action. Potential adverse effects to the following resources were evaluated in detail: visual resources; air quality; vegetation and wildlife, special-status species; climate change; cultural resources; geological resources; hazardous wastes and materials; water quality and groundwater resources; noise; recreation; transportation and circulation; and public utilities and service systems.

Results of the Supplemental EA/EIR, field visits, and coordination with other agencies indicate that the Proposed Action will have no significant long-term adverse effects on environmental resources beyond those already addressed in the ARCF GRR Final EIS/EIR. Temporary and short-term effects during

construction have either been addressed in the ARCF GRR Final EIS/EIR or will be less than significant or reduced to less than significant.

As described in 40 CFR, Section 1508.13, A FONSI may be prepared when an action will not have an adverse significant effect on the human environment and for which an Environmental Impact Statement will not be prepared. Based on this evaluation and the CFR definition, the proposed project analyzed within this SEA/EIR qualifies for a FONSI.

8.0 REPORT PREPARERS AND REVIEWERS

This Supplemental EA/EIR was prepared by USACE, Sacramento District and CVFPB and with assistance from GEI Consultants, Inc.

The following is a list of the individuals who prepared the Supplemental EA/EIR, provided important background materials, or provided project description engineering clarifications.

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APPENDIX A. AIR QUALITY MODELING RESULTS

Road Construction Emissions Model Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

Input Type

Project Name	Sac River S/S Contract 2: 2021	Berms and Relief Wells
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)
Project Type	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	4.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.25	miles
Total Project Area	3.00	acres
Maximum Area Disturbed/Day	3.00	acres
Water Trucks Used?	1	1. Yes 2. No



To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	15.00	272.00	71.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml).
		Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.00	0.40	8/1/2020	1/1/2021
Grading/Excavation	4.00	1.80	5/30/2021	1/1/2021
Drainage/Utilities/Sub-Grade	0.00	Program	9/22/2020	5/3/2021
Paving	0.00	0.60	10/30/2020	5/3/2021
Totals (Months)		4		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing		0.00			0	0.00					
Miles/round trip: Grading/Excavation		34.00			23	782.00					
Miles/round trip: Drainage/Utilities/Sub-Grade					0	0.00					
Miles/round trip: Paving					0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Drainage/Utilities/Sub-Grade (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.18	0.75	6.28	0.20	0.09	0.03	2,783.42	0.01	0.09	2,811.74
Tons per const. Period - Grading/Excavation		0.01	0.03	0.28	0.01	0.00	0.00	122.47	0.00	0.00	123.72
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.01	0.03	0.28	0.01	0.00	0.00	122.47	0.00	0.00	123.72

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing					0	0.00					
Miles/round trip: Grading/Excavation					0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade					0	0.00					
Miles/round trip: Paving					0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Drainage/Utilities/Sub-Grade (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker		Default Values		Calculated		Calculated			
User Input		Commute Default Values		Daily Trips	Daily VMT						
Miles/one-way trip		20									
One-way trips/day		2									
No. of employees: Grubbing/Land Clearing		0		0	0.00						
No. of employees: Grading/Excavation		30		60	1,200.00						
No. of employees: Drainage/Utilities/Sub-Grade				0	0.00						
No. of employees: Paving				0	0.00						
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Draining/Utilities/Sub-Grade (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)		0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Draining/Utilities/Sub-Grade (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.17	2.92	0.29	0.12	0.05	0.01	963.31	0.02	0.01	967.47
Tons per const. Period - Grading/Excavation		0.01	0.13	0.01	0.01	0.00	0.00	42.39	0.00	0.00	42.57
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.01	0.13	0.01	0.01	0.00	0.00	42.39	0.00	0.00	42.57

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Truck		Program Estimate of		User Override of Truck		Default Values		Calculated	
User Input		Default # Water Trucks		Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day		Miles Traveled/Vehicle/Day		Daily VMT	
Grubbing/Land Clearing - Exhaust										0.00	
Grading/Excavation - Exhaust		1			40.00					40.00	
Drainage/Utilities/Subgrade										0.00	
Paving										0.00	
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)		0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.01	0.04	0.32	0.01	0.00	0.00	142.37	0.00	0.00	143.82
Tons per const. Period - Grading/Excavation		0.00	0.00	0.01	0.00	0.00	0.00	6.26	0.00	0.00	6.33
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	6.26	0.00	0.00	6.33

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max		Default		PM10	PM10	PM2.5	PM2.5
	Acreage Disturbed/Day		Maximum Acreage/Day		pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing					0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation					30.00	1.32	6.24	0.27
Fugitive Dust - Drainage/Utilities/Subgrade					0.00	0.00	0.00	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
0.00	Program-estimate		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A	Type	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing				pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing				tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
Type				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Excavators	0.59	8.44	5.55	0.27	0.25	0.01	1,290.05	0.42	0.01	1,303.96
0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.45	4.61	3.96	0.21	0.21	0.01	778.79	0.04	0.01	781.53
4.00			Model Default Tier	Graders	3.20	22.52	30.62	1.71	1.57	0.03	3,027.78	0.98	0.03	3,060.33
0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.00			Model Default Tier	Rollers	1.44	14.28	14.61	0.89	0.82	0.02	1,929.49	0.62	0.02	1,950.28
0.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Rubber Tired Dozers	4.43	36.35	45.70	2.09	1.92	0.04	4,308.42	1.39	0.04	4,354.71
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.00			Model Default Tier	Signal Boards	0.43	2.26	2.70	0.10	0.10	0.01	369.85	0.04	0.00	371.73
0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.29	2.44	2.57	0.19	0.17	0.00	307.72	0.10	0.00	311.03
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.47	5.71	4.79	0.28	0.26	0.01	760.01	0.25	0.01	768.19
0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day									
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation			pounds per day	11.29	96.60	110.50	5.74	5.31	0.13	12,772.12	3.84	0.11	12,901.77
	Grading/Excavation			tons per phase	0.50	4.25	4.86	0.25	0.23	0.01	561.97	0.17	0.00	567.68

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab									
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade				pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade				tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles		Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
	0.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Bore/DnH Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions all Phases (tons per construction period) =>					0.50	4.25	4.86	0.25	0.23	0.01	561.97	0.17	0.00	567.68	

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	10.00	8
Air Compressors		78	10.00	8
Bore/Drill Rigs		206	10.00	8
Cement and Mortar Mixers		9	10.00	8
Concrete/Industrial Saws		81	10.00	8
Cranes		226	10.00	8
Crawler Tractors		208	10.00	8
Crushing/Proc. Equipment		85	10.00	8
Excavators		163	10.00	8
Forklifts		89	10.00	8
Generator Sets		84	10.00	8
Graders		175	10.00	8
Off-Highway Tractors		123	10.00	8
Off-Highway Trucks		400	10.00	8
Other Construction Equipment		172	10.00	8
Other General Industrial Equipment		88	10.00	8
Other Material Handling Equipment		167	10.00	8
Pavers		126	10.00	8
Paving Equipment		131	10.00	8
Plate Compactors		8	10.00	8
Pressure Washers		13	10.00	8
Pumps		84	10.00	8
Rollers		81	10.00	8
Rough Terrain Forklifts		100	10.00	8
Rubber Tired Dozers		255	10.00	8
Rubber Tired Loaders		200	10.00	8
Scrapers		362	10.00	8
Signal Boards		6	10.00	8
Skid Steer Loaders		65	10.00	8
Surfacing Equipment		254	10.00	8
Sweepers/Scrubbers		64	10.00	8
Tractors/Loaders/Backhoes		98	10.00	8
Trenchers		81	10.00	8
Welders		46	10.00	8

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	11.65	100.30	117.40	36.08	6.08	30.00	11.70	5.46	6.24	0.17	16,661.23	3.87	0.22	16,824.81
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	11.65	100.30	117.40	36.08	6.08	30.00	11.70	5.46	6.24	0.17	16,661.23	3.87	0.22	16,824.81
Total (tons/construction project)	0.51	4.41	5.17	1.59	0.27	1.32	0.51	0.24	0.27	0.01	733.09	0.17	0.01	740.29

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 3
 Maximum Area Disturbed/Day (acres) -> 3
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	343	0	782	0	1,200	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

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

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

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

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.51	4.41	5.17	1.59	0.27	1.32	0.51	0.24	0.27	0.01	733.09	0.17	0.01	671.59
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.51	4.41	5.17	1.59	0.27	1.32	0.51	0.24	0.27	0.01	733.09	0.17	0.01	671.59
Total (tons/construction project)	0.51	4.41	5.17	1.59	0.27	1.32	0.51	0.24	0.27	0.01	733.09	0.17	0.01	671.59

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

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

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

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	11.58	100.19	113.38	36.05	6.05	30.00	11.67	5.43	6.24	0.17	16,561.68	3.86	0.22	16,723.34
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	11.58	100.19	113.38	36.05	6.05	30.00	11.67	5.43	6.24	0.17	16,561.68	3.86	0.22	16,723.34
Total (tons/construction project)	0.51	4.41	4.99	1.59	0.27	1.32	0.51	0.24	0.27	0.01	728.71	0.17	0.01	735.83

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 3
 Maximum Area Disturbed/Day (acres) -> 3
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	343	0	782	0	1,200	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.51	4.41	4.99	1.59	0.27	1.32	0.51	0.24	0.27	0.01	728.71	0.17	0.01	667.54
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.51	4.41	4.99	1.59	0.27	1.32	0.51	0.24	0.27	0.01	728.71	0.17	0.01	667.54
Total (tons/construction project)	0.51	4.41	4.99	1.59	0.27	1.32	0.51	0.24	0.27	0.01	728.71	0.17	0.01	667.54

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	4.37	85.89	16.03	30.89	0.89	30.00	6.90	0.66	6.24	0.17	16,561.68	3.86	0.22	16,723.34
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	4.37	85.89	16.03	30.89	0.89	30.00	6.90	0.66	6.24	0.17	16,561.68	3.86	0.22	16,723.34
Total (tons/construction project)	0.19	3.78	0.71	1.36	0.04	1.32	0.30	0.03	0.27	0.01	728.71	0.17	0.01	735.83

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 4
 Total Project Area (acres) -> 3
 Maximum Area Disturbed/Day (acres) -> 3
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	343	0	782	0	1,200	40
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Berms and Relief Wells														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.19	3.78	0.71	1.36	0.04	1.32	0.30	0.03	0.27	0.01	728.71	0.17	0.01	667.54
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.19	3.78	0.71	1.36	0.04	1.32	0.30	0.03	0.27	0.01	728.71	0.17	0.01	667.54
Total (tons/construction project)	0.19	3.78	0.71	1.36	0.04	1.32	0.30	0.03	0.27	0.01	728.71	0.17	0.01	667.54

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

Input Type

Project Name	Sac River S/S Contract 2: 2021	Vegetation and Cutoff Wall
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)
Project Type	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	7.20	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	2.20	miles
Total Project Area	69.00	acres
Maximum Area Disturbed/Day	5.00	acres
Water Trucks Used?	1	1. Yes 2. No



To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd/day)	Export Volume (yd/day)
Soil	Grubbing/Land Clearing	15.00	0.00	35.00
	Grading/Excavation	15.00	1978.00	37.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.80	0.72	4/1/2021	1/1/2021
Grading/Excavation	8.40	3.24	4/15/2021	1/28/2021
Drainage/Utilities/Sub-Grade	0.00	Program	9/22/2021	8/9/2021
Paving	0.00	1.08	10/30/2021	8/9/2021
Totals (Months)		7		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input										
Miles/round trip: Grubbing/Land Clearing	26.00			3	78.00					
Miles/round trip: Grading/Excavation	41.00			135	5535.00					
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00					
Miles/round trip: Paving				0	0.00					
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.02	0.07	0.63	0.02	0.01	0.00	277.63	0.00	0.01	280.45
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	2.44	0.00	0.00	2.47
Pounds per day - Grading/Excavation	1.24	5.28	44.48	1.40	0.63	0.19	19,701.07	0.06	0.67	19,901.52
Tons per const. Period - Grading/Excavation	0.09	0.37	3.13	0.10	0.04	0.01	1,386.96	0.00	0.05	1,401.07
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.09	0.37	3.14	0.10	0.04	0.01	1,389.40	0.00	0.05	1,403.53

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input										
Miles/round trip: Grubbing/Land Clearing				0	0.00					
Miles/round trip: Grading/Excavation				0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00					
Miles/round trip: Paving				0	0.00					
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker		Default Values		Calculated					
User Input		Commute Default Values		Daily Trips	Daily VMT						
Miles/one-way trip		20									
One-way trips/day		2									
No. of employees: Grubbing/Land Clearing		14		28	560.00						
No. of employees: Grading/Excavation		100		200	4,000.00						
No. of employees: Drainage/Utilities/Sub-Grade				0	0.00						
No. of employees: Paving				0	0.00						
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Grubbing/Land Clearing (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48	
Grading/Excavation (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48	
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Grubbing/Land Clearing (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35	
Grading/Excavation (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35	
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Paving (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Pounds per day - Grubbing/Land Clearing	0.08	1.36	0.14	0.06	0.02	0.00	449.55	0.01	0.01	451.49	
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.96	0.00	0.00	3.97	
Pounds per day - Grading/Excavation	0.58	9.74	0.97	0.41	0.17	0.03	3,211.04	0.07	0.04	3,224.91	
Tons per const. Period - Grading/Excavation	0.04	0.69	0.07	0.03	0.01	0.00	226.06	0.01	0.00	227.03	
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total tons per construction project	0.04	0.70	0.07	0.03	0.01	0.00	230.01	0.01	0.00	231.01	

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Truck		Program Estimate of		User Override of Truck		Default Values		Calculated	
User Input		Default # Water Trucks		Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day		Miles Traveled/Vehicle/Day		Daily VMT	
Grubbing/Land Clearing - Exhaust		1			40.00					40.00	
Grading/Excavation - Exhaust		2			40.00					80.00	
Drainage/Utilities/Subgrade										0.00	
Paving										0.00	
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92	
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92	
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Paving (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Pounds per day - Grubbing/Land Clearing	0.01	0.04	0.32	0.01	0.00	0.00	142.37	0.00	0.00	143.82	
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	1.27	
Pounds per day - Grading/Excavation	0.02	0.08	0.64	0.02	0.01	0.00	284.75	0.00	0.01	287.65	
Tons per const. Period - Grading/Excavation	0.00	0.01	0.05	0.00	0.00	0.00	20.05	0.00	0.00	20.25	
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total tons per construction project	0.00	0.01	0.05	0.00	0.00	0.00	21.30	0.00	0.00	21.52	

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max		Default	PM10		PM2.5	
	Acreage Disturbed/Day			pounds/day	tons/per period	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing				50.00	0.44	10.40	0.09
Fugitive Dust - Grading/Excavation				50.00	3.52	10.40	0.73
Fugitive Dust - Drainage/Utilities/Subgrade				0.00	0.00	0.00	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default	Mitigation Option		Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)											
0.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Cranes	1.01	4.85	11.86	0.48	0.44	0.01	1,366.61	0.44	0.01	1,381.34
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Excavators	0.59	8.44	5.55	0.27	0.25	0.01	1,290.05	0.42	0.01	1,303.96
0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Signal Boards	0.07	0.38	0.45	0.02	0.02	0.00	61.64	0.01	0.00	61.96
0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.29	2.44	2.57	0.19	0.17	0.00	307.72	0.10	0.00	311.03
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.47	5.71	4.79	0.28	0.26	0.01	760.01	0.25	0.01	768.19
0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab					pounds/day									
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing			pounds per day	2.43	21.81	25.22	1.24	1.14	0.04	3,786.04	1.21	0.03	3,826.48
	Grubbing/Land Clearing			tons per phase	0.02	0.19	0.22	0.01	0.01	0.00	33.32	0.01	0.00	33.67

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles		Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier											
	0.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00			Model Default Tier	Bore/Drill Rigs	1.20	9.67	14.09	0.43	0.39	0.04	4,250.79	1.38	0.04	4,296.74
	0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	4.00			Model Default Tier	Cranes	2.02	9.70	23.72	0.96	0.89	0.03	2,733.23	0.88	0.02	2,762.68
	0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10.00			Model Default Tier	Excavators	2.96	42.19	27.77	1.35	1.24	0.07	6,450.27	2.09	0.06	6,519.82
	0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Generator Sets	0.45	4.61	3.96	0.21	0.21	0.01	778.79	0.04	0.01	781.53
	4.00			Model Default Tier	Graders	3.20	22.52	30.62	1.71	1.57	0.03	3,027.78	0.98	0.03	3,060.33
	0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	16.00			Model Default Tier	Other Material Handling Equipment	5.86	75.32	52.93	2.68	2.47	0.12	11,126.92	3.60	0.10	11,246.88
	0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6.00			Model Default Tier	Rollers	1.44	14.28	14.61	0.89	0.82	0.02	1,929.49	0.62	0.02	1,950.28
	10.00			Model Default Tier	Rough Terrain Forklifts	1.54	28.68	20.15	0.78	0.72	0.04	4,172.12	1.35	0.04	4,217.08
	0.00			Model Default Tier	Rubber Tired Dozers	11.07	90.87	114.26	5.22	4.80	0.11	10,771.06	3.48	0.10	10,886.78
	0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6.00			Model Default Tier	Signal Boards	0.43	2.26	2.70	0.10	0.10	0.01	369.85	0.04	0.00	371.73
	0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Sweepers/Scrubbers	0.29	2.44	2.57	0.19	0.17	0.00	307.72	0.10	0.00	311.03
	6.00			Model Default Tier	Tractors/Loaders/Backhoes	1.42	17.13	14.37	0.85	0.78	0.02	2,280.02	0.74	0.02	2,304.56
	0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab														
	Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Grading/Excavation		pounds per day	31.87	319.65	321.74	15.37	14.17	0.50	48,198.03	15.29	0.43	48,709.44	
		Grading/Excavation		tons per phase	2.24	22.50	22.65	1.08	1.00	0.04	3,393.14	1.08	0.03	3,429.14	

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment														
					If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab									
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
0.00		N/A			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Drainage/Utilities/Sub-Grade		pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Drainage/Utilities/Sub-Grade		tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
0.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Bore/Dnll Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab														
	Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Emissions all Phases (tons per construction period) =>					2.26	22.70	22.87	1.09	1.01	0.04	3,426.46	1.09	0.03	3,462.82

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	10.00	8
Air Compressors		78	10.00	8
Bore/Drill Rigs		206	10.00	8
Cement and Mortar Mixers		9	10.00	8
Concrete/Industrial Saws		81	10.00	8
Cranes		226	10.00	8
Crawler Tractors		208	10.00	8
Crushing/Proc. Equipment		85	10.00	8
Excavators		163	10.00	8
Forklifts		89	10.00	8
Generator Sets		84	10.00	8
Graders		175	10.00	8
Off-Highway Tractors		123	10.00	8
Off-Highway Trucks		400	10.00	8
Other Construction Equipment		172	10.00	8
Other General Industrial Equipment		88	10.00	8
Other Material Handling Equipment		167	10.00	8
Pavers		126	10.00	8
Paving Equipment		131	10.00	8
Plate Compactors		8	10.00	8
Pressure Washers		13	10.00	8
Pumps		84	10.00	8
Rollers		81	10.00	8
Rough Terrain Forklifts		100	10.00	8
Rubber Tired Dozers		255	10.00	8
Rubber Tired Loaders		200	10.00	8
Scrapers		362	10.00	8
Signal Boards		6	10.00	8
Skid Steer Loaders		65	10.00	8
Surfacing Equipment		254	10.00	8
Sweepers/Scrubbers		64	10.00	8
Tractors/Loaders/Backhoes		98	10.00	8
Trenchers		81	10.00	8
Welders		46	10.00	8

END OF DATA ENTRY SHEET

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

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.54	23.29	26.31	51.33	1.33	50.00	11.58	1.18	10.40	0.05	4,655.59	1.22	0.05	4,702.25
Grading/Excavation	33.70	334.75	367.84	67.20	17.20	50.00	25.38	14.98	10.40	0.72	71,394.89	15.42	1.15	72,123.52
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	36.24	358.03	394.15	118.53	18.53	100.00	36.96	16.16	20.80	0.77	76,050.48	16.65	1.21	76,825.77
Total (tons/construction project)	2.39	23.77	26.13	5.18	1.22	3.96	1.89	1.06	0.82	0.05	5,067.17	1.10	0.08	5,118.88

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 7
 Total Project Area (acres) -> 69
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	35	0	78	0	560	40
Grading/Excavation	2,015	0	5,535	0	4,000	80
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

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

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

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

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.20	0.23	0.45	0.01	0.44	0.10	0.01	0.09	0.00	40.97	0.01	0.00	37.54
Grading/Excavation	2.37	23.57	25.90	4.73	1.21	3.52	1.79	1.05	0.73	0.05	5,026.20	1.09	0.08	4,606.27
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	2.37	23.57	25.90	4.73	1.21	3.52	1.79	1.05	0.73	0.05	5,026.20	1.09	0.08	4,606.27
Total (tons/construction project)	2.39	23.77	26.13	5.18	1.22	3.96	1.89	1.06	0.82	0.05	5,067.17	1.10	0.08	4,643.81

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

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

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

The CO2e emissions are reported as metric tons per phase.

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

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust				
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)								
Grubbing/Land Clearing	2.53	23.27	25.73	51.32	1.32	50.00	11.58	1.18	10.40	0.05	4,641.30	1.22	0.05	4,687.68								
Grading/Excavation	33.27	333.97	340.40	67.05	17.05	50.00	25.24	14.84	10.40	0.72	70,714.91	15.40	1.11	71,430.41								
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Maximum (pounds/day)	35.80	357.24	366.13	118.38	18.38	100.00	36.81	16.01	20.80	0.76	75,356.20	16.63	1.16	76,118.09								
Total (tons/construction project)	2.36	23.72	24.19	5.17	1.21	3.96	1.88	1.05	0.82	0.05	5,019.17	1.10	0.08	5,069.95								

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 7
 Total Project Area (acres) -> 69
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	35	0	78	0	560	40
Grading/Excavation	2,015	0	5,535	0	4,000	80
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

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

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

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

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust				
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)								
Grubbing/Land Clearing	0.02	0.20	0.23	0.45	0.01	0.44	0.10	0.01	0.09	0.00	40.84	0.01	0.00	37.42								
Grading/Excavation	2.34	23.51	23.96	4.72	1.20	3.52	1.78	1.04	0.73	0.05	4,978.33	1.08	0.08	4,562.01								
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Maximum (tons/phase)	2.34	23.51	23.96	4.72	1.20	3.52	1.78	1.04	0.73	0.05	4,978.33	1.08	0.08	4,562.01								
Total (tons/construction project)	2.36	23.72	24.19	5.17	1.21	3.96	1.88	1.05	0.82	0.05	5,019.17	1.10	0.08	4,599.43								

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

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

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

The CO2e emissions are reported as metric tons per phase.

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

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)				
Grubbing/Land Clearing	1.33	28.05	5.41	50.24	0.24	50.00	10.58	0.18	10.40	0.05	4,641.30	1.22	0.05	4,687.68				
Grading/Excavation	16.69	342.40	54.26	53.39	3.39	50.00	12.64	2.24	10.40	0.72	70,714.91	15.40	1.11	71,430.41				
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Maximum (pounds/day)	18.03	370.45	59.67	103.63	3.63	100.00	23.22	2.42	20.80	0.76	75,356.20	16.63	1.16	76,118.09				
Total (tons/construction project)	1.19	24.35	3.87	4.20	0.24	3.96	0.98	0.16	0.82	0.05	5,019.17	1.10	0.08	5,069.95				

Notes:
 Project Start Year -> 2021
 Project Length (months) -> 7
 Total Project Area (acres) -> 69
 Maximum Area Disturbed/Day (acres) -> 5
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	35	0	78	0	560	40
Grading/Excavation	2,015	0	5,535	0	4,000	80
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	0	0	0	0	0

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

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

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

Total Emission Estimates by Phase for -> Sac River S/S Contract 2: 2021 Vegetation and Cutoff Wall													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)				
Grubbing/Land Clearing	0.01	0.25	0.05	0.44	0.00	0.44	0.09	0.00	0.09	0.00	40.84	0.01	0.00	37.42				
Grading/Excavation	1.18	24.11	3.82	3.76	0.24	3.52	0.89	0.16	0.73	0.05	4,978.33	1.08	0.08	4,562.01				
Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Maximum (tons/phase)	1.18	24.11	3.82	3.76	0.24	3.52	0.89	0.16	0.73	0.05	4,978.33	1.08	0.08	4,562.01				
Total (tons/construction project)	1.19	24.35	3.87	4.20	0.24	3.96	0.98	0.16	0.82	0.05	5,019.17	1.10	0.08	4,599.43				

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

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

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

The CO2e emissions are reported as metric tons per phase.

APPENDIX B. BIOLOGICAL RESOURCES DATA

Appendix B-1: Land Cover Maps and Sensitive Biological Resources

Appendix B-2: Species Lists

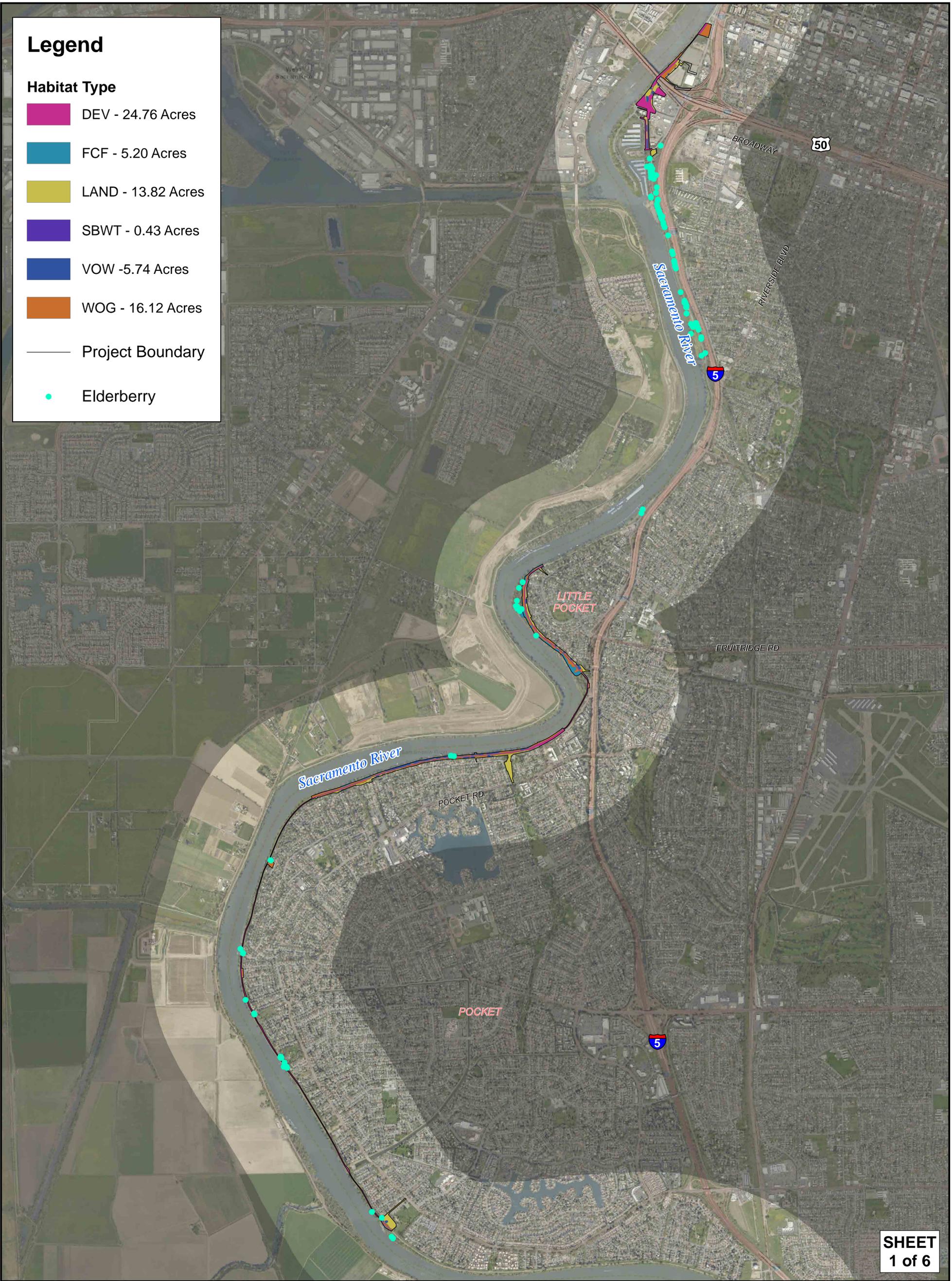
Appendix B-3: Special-Status Species Occurrence Tables

Appendix B-1: Land Cover Maps and Sensitive Biological Resources

Legend

Habitat Type

-  DEV - 24.76 Acres
-  FCF - 5.20 Acres
-  LAND - 13.82 Acres
-  SBWT - 0.43 Acres
-  VOW - 5.74 Acres
-  WOG - 16.12 Acres
-  Project Boundary
-  Elderberry



SHEET
1 of 6



US Army Corps
of Engineers
Sacramento District

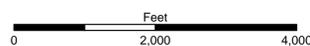


SREL C2 HABITAT/ELDERBERRY

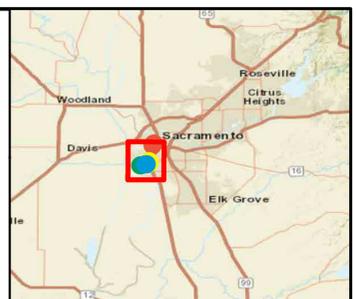
ARCF 2016



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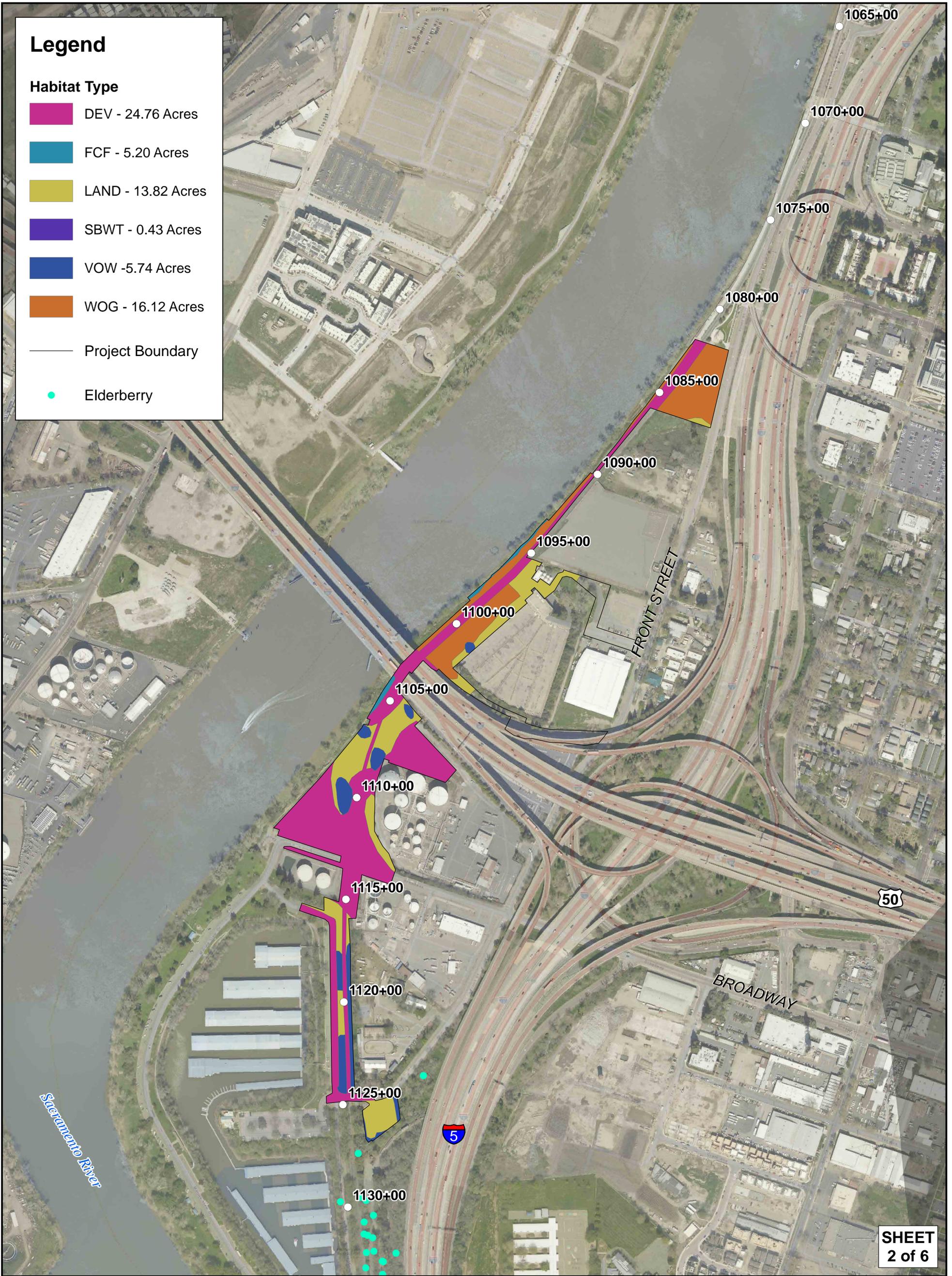
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Legend

Habitat Type

- DEV - 24.76 Acres
- FCF - 5.20 Acres
- LAND - 13.82 Acres
- SBWT - 0.43 Acres
- VOW - 5.74 Acres
- WOG - 16.12 Acres
- Project Boundary
- Elderberry



**SHEET
2 of 6**



**US Army Corps
of Engineers**
Sacramento District



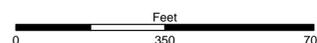
SREL C2 HABITAT/ELDERBERRY

1080+00 - 1125+00

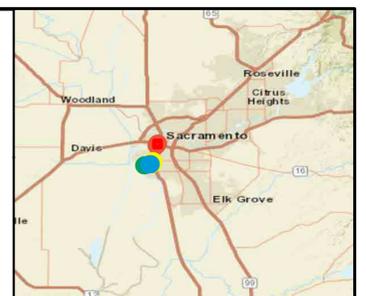
ARCF 2016

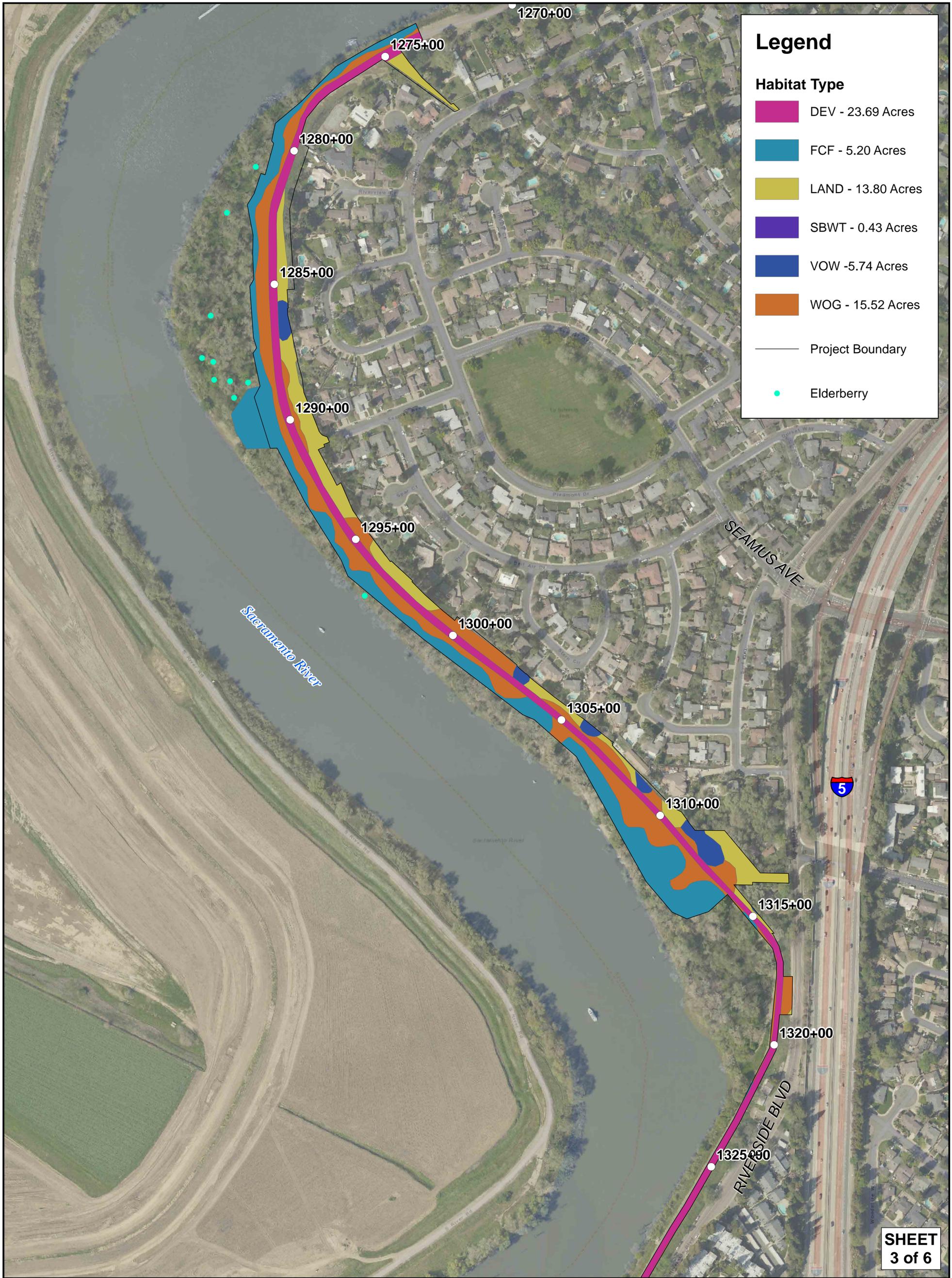


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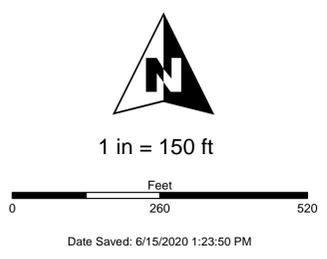
Habitat Type

- DEV - 23.69 Acres
- FCF - 5.20 Acres
- LAND - 13.80 Acres
- SBWT - 0.43 Acres
- VOW - 5.74 Acres
- WOG - 15.52 Acres
- Project Boundary
- Elderberry

SHEET
3 of 6

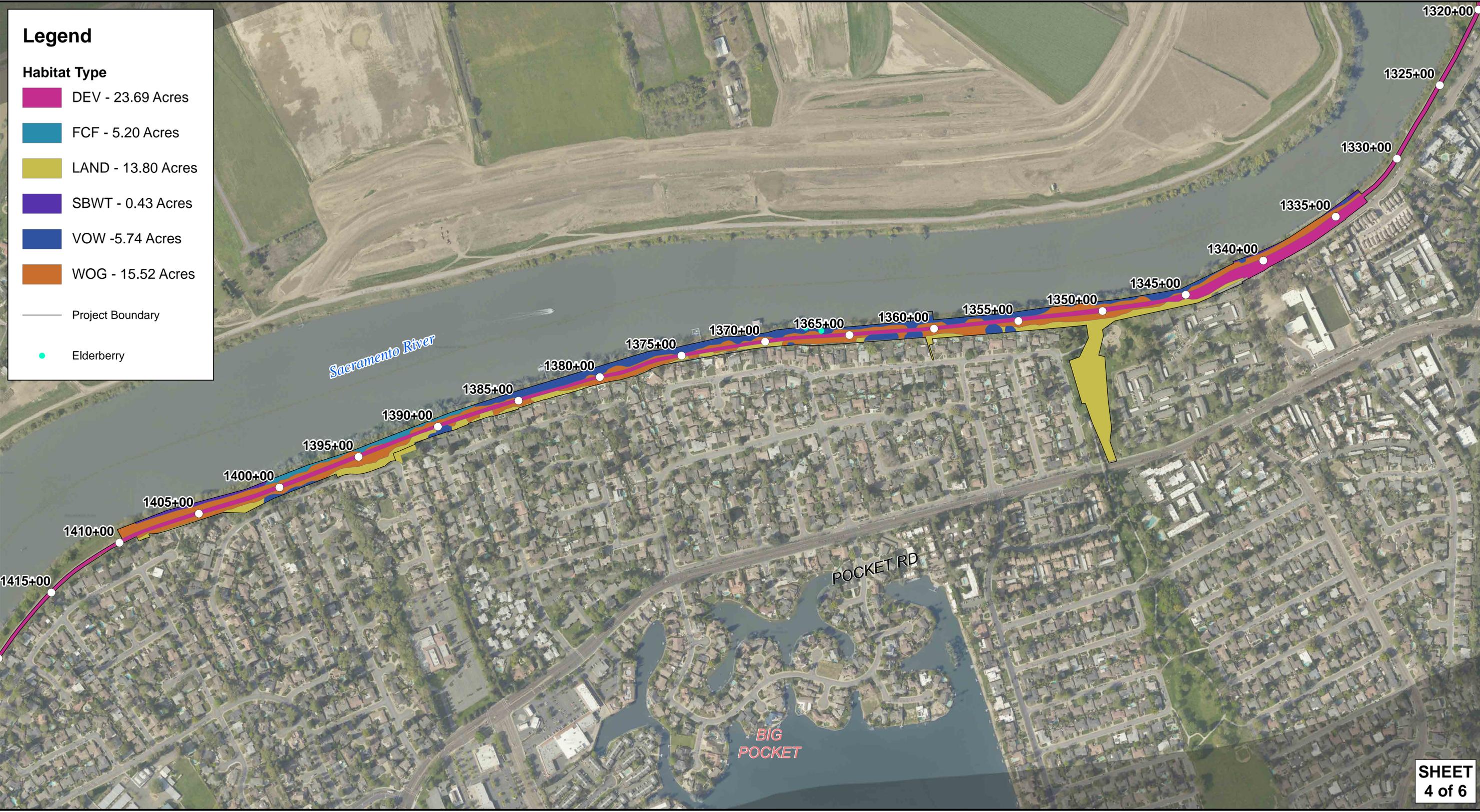


SREL C2
HABITAT/ELDERBERRY/
RARE PLANT
1275+00 - 1325+00
 ARCF 2016



Legend

- Habitat Type**
- DEV - 23.69 Acres
 - FCF - 5.20 Acres
 - LAND - 13.80 Acres
 - SBWT - 0.43 Acres
 - VOW - 5.74 Acres
 - WOG - 15.52 Acres
- Project Boundary
- Elderberry



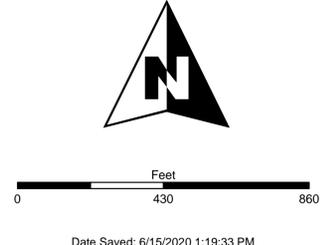
SHEET
4 of 6



SREL C2 HABITAT/ELDERBERRY/RARE PLANT

1320+00 - 1415+00

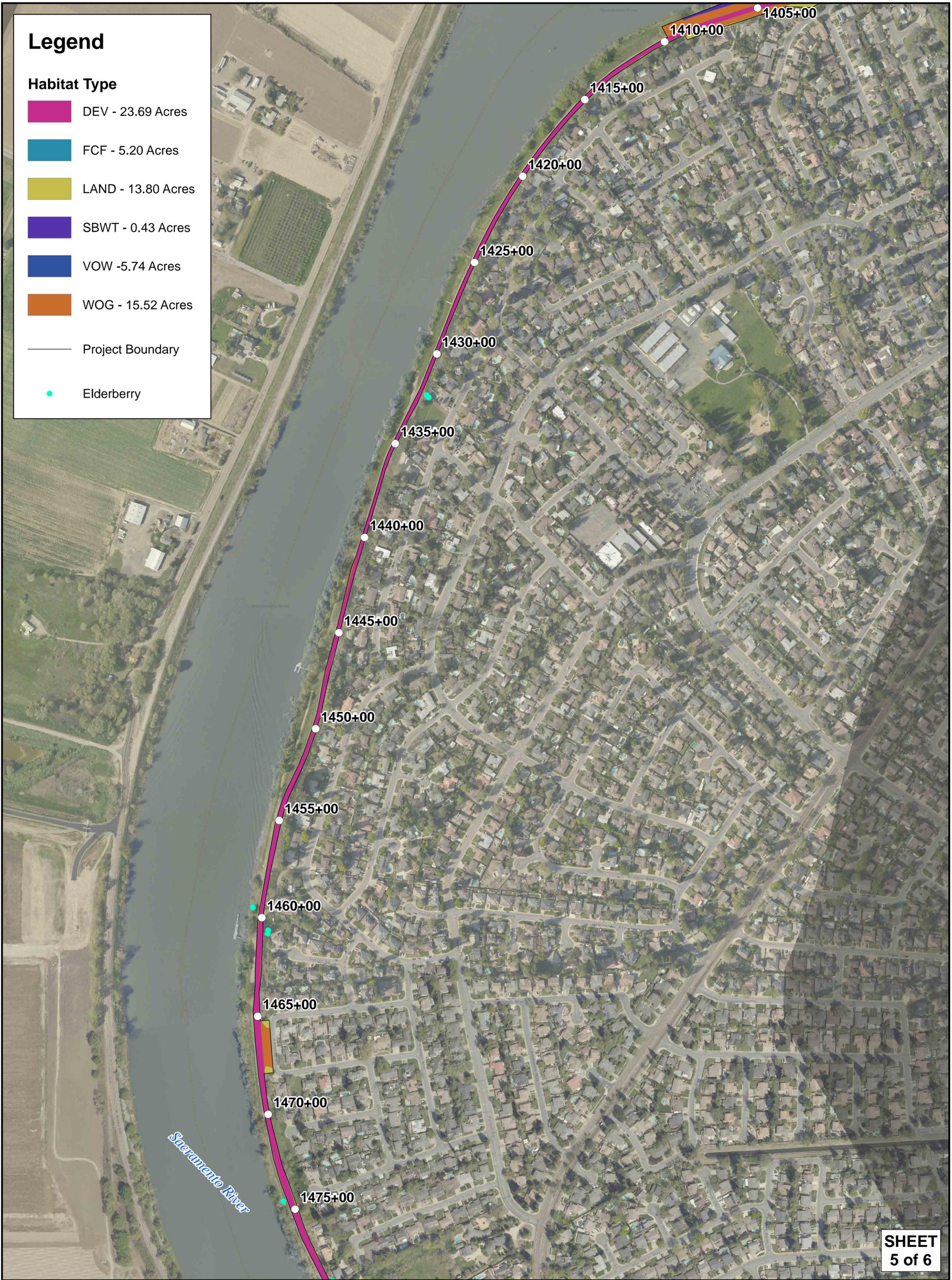
ARCF 2016



Legend

Habitat Type

- DEV - 23.69 Acres
- FCF - 5.20 Acres
- LAND - 13.80 Acres
- SBWT - 0.43 Acres
- VOW - 5.74 Acres
- WOG - 15.52 Acres
- Project Boundary
- Elderberry



SHEET
5 of 6



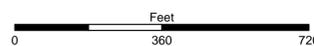
US Army Corps of Engineers
Sacramento District



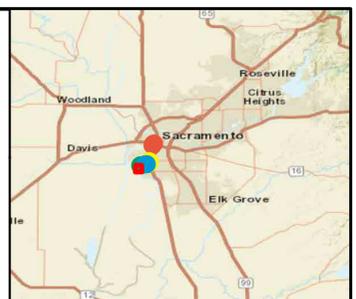
SREL C2 HABITAT/ELDERBERRY/ RARE PLANT 1407+50 - 1475+00 ARCF 2016

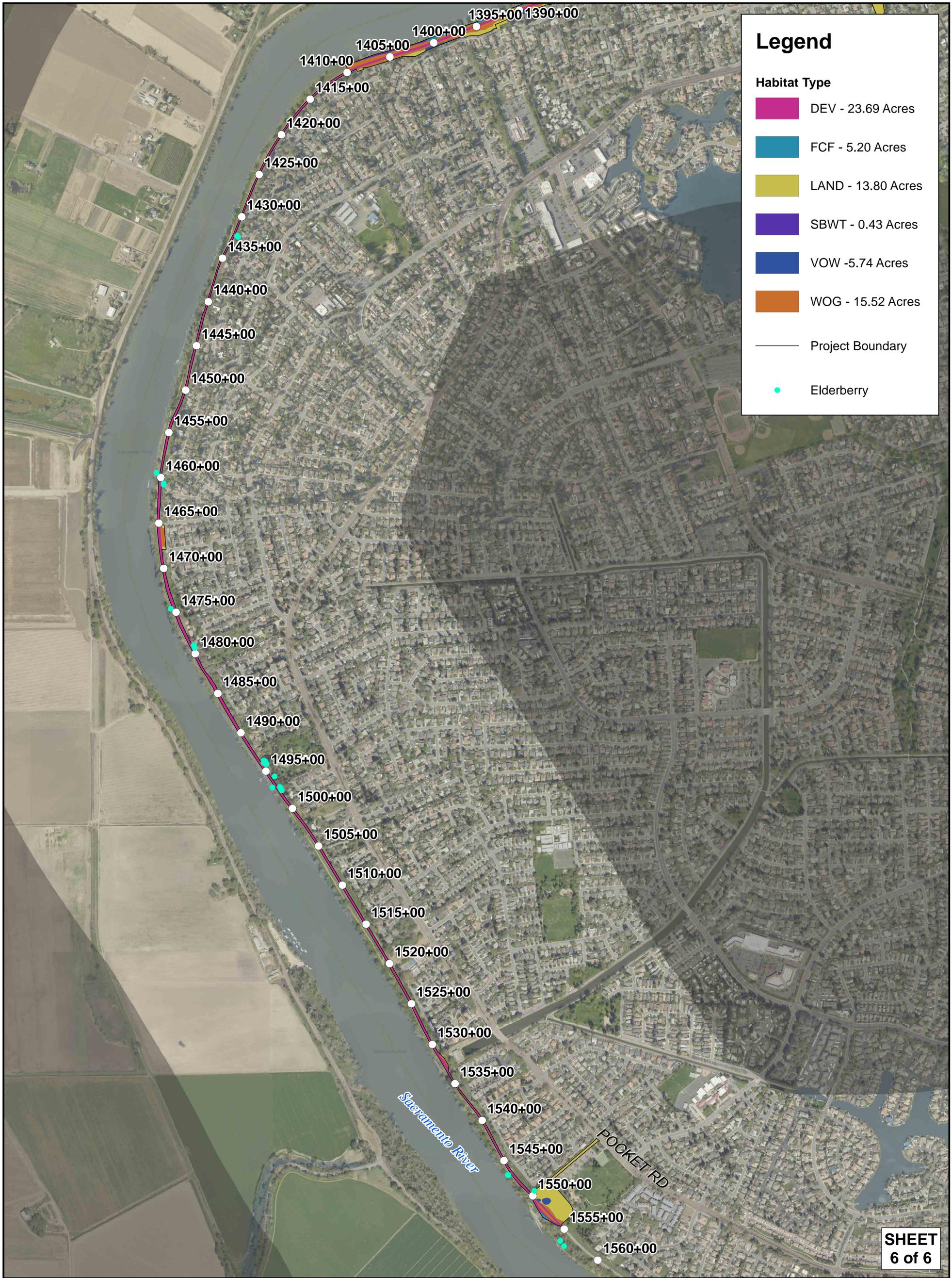


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Legend

Habitat Type

- DEV - 23.69 Acres
- FCF - 5.20 Acres
- LAND - 13.80 Acres
- SBWT - 0.43 Acres
- VOW - 5.74 Acres
- WOG - 15.52 Acres
- Project Boundary
- Elderberry

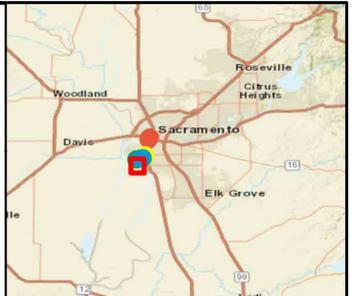
SHEET
6 of 6

US Army Corps of Engineers
Sacramento District

SREL C2 HABITAT/ELDERBERRY/ RARE PLANT 1407+50 - 1555+00 ARCF 2016

1 in = 450 ft

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Appendix B-2: Species Lists



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

June 15, 2020

Consultation Code: 08ESMF00-2020-SLI-0923

Event Code: 08ESMF00-2020-E-06697

Project Name: ARCF 2016 Sacramento River East Levee Contract 2

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08ESMF00-2020-SLI-0923

Event Code: 08ESMF00-2020-E-06697

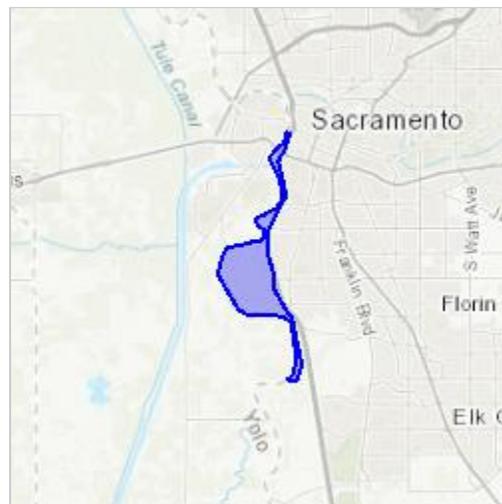
Project Name: ARCF 2016 Sacramento River East Levee Contract 2

Project Type: LAND - FLOODING

Project Description: Levee improvements to address seepage and stability issues along Sacramento River's East Levee. Contract is comprised of cutoff walls.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.50797619605764N121.53828345401654W>



Counties: Sacramento, CA | Yolo, CA

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final



United States Department of the Interior



FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
[http://kim_squires@fws.gov](mailto:kim_squires@fws.gov)

In Reply Refer To:

June 15, 2020

Consultation Code: 08FBDT00-2020-SLI-0090

Event Code: 08FBDT00-2020-E-00455

Project Name: ARCF 2016 Sacramento River East Levee Contract 2

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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Consultation Code: 08FBDT00-2020-SLI-0090

Event Code: 08FBDT00-2020-E-00455

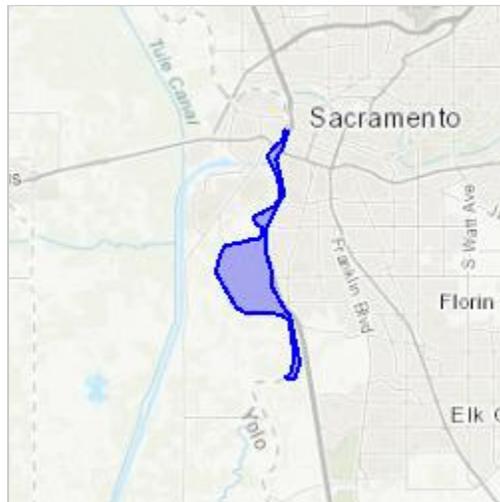
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Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Clarksburg (3812145) OR Sacramento East (3812154) OR Sacramento West (3812155) OR Florin (3812144) OR Grays Bend (3812166) OR Taylor Monument (3812165) OR Rio Linda (3812164) OR Saxon (3812146) OR Davis (3812156))

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Accipiter cooperii, Agelaius tricolor, Ammodramus savannarum, etc.



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Chloropyron palmatum palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium jepsonii Jepson's coyote-thistle	PDAP10Z130	None	None	G2	S2	1B.2
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Hibiscus lasiocarpus var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G5	S3S4	
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Lepidium latipes var. heckardii</i> Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAP119030	None	Rare	G2	S2	1B.1
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<i>Melospiza melodia</i> song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
<i>Myrmosula pacifica</i> Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<i>Neostapfia colusana</i> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
<i>Nycticorax nycticorax</i> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<i>Oncorhynchus tshawytscha pop. 6</i> chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
<i>Oncorhynchus tshawytscha pop. 7</i> chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
<i>Phalacrocorax auritus</i> double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
<i>Plagiobothrys hystriculus</i> bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
<i>Plegadis chihi</i> white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2	
<i>Sagittaria sanfordii</i> Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
<i>Sidalcea keckii</i> Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Symphotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thamnophis gigas</i> giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 75

*The database used to provide updates to the Online Inventory is under construction. **Inventory of Rare and Endangered Plants** [View updates and changes made since May 2019 here.](#)

Plant List

10 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 3812145 and 3812155;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Remove Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank	Photo
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1	no photo available



2009 Kerry Heise

Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5	
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2007 Christopher Bronny

Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2	
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2003 George W. Hartwell

Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3	
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Hibiscus lasiocarpus var. occidentalis

woolly rose-mallow

Malvaceae

perennial rhizomatous herb (emergent)

Jun-Sep

1B.2

S3

G5T3



2012 Steven Perry

Juglans hindsii

Northern California black walnut

Juglandaceae

perennial deciduous tree

Apr-May

1B.1

S1

G1



2012 Neal Kramer

Lepidium latipes var. heckardii

Heckard's pepper-grass

Brassicaceae

annual herb

Mar-May

1B.2

S1

G4T1



Carol Witham and CNPS

Lilaeopsis masonii

Mason's lilaeopsis

Apiaceae

perennial rhizomatous herb

Apr-Nov

1B.1

S2

G2



2005 Timothy Milliken 2005

Symphotrichum lentum

Suisun Marsh aster

Asteraceae

perennial rhizomatous herb

(Apr)May-Nov

1B.2

S2

G2



2015 John Doyen

Trifolium hydrophilum

saline clover

Fabaceae

annual herb

Apr-Jun

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2005 Aaron Schusteff

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Appendix B-3: Special-Status Species Occurrence Tables

Table 1. Special-status Plant Species with Potential to Occur in the Project Area

Species Name	Legal Status ¹	Habitat, Elevation Range, and Blooming Period	Potential for Occurrence ²
Watershield <i>Brasenia schreberi</i>	CRPR 2B.3	Freshwater ponds, marshes, and swamps, often in association with duckweed (<i>Lemna</i> spp.), from 98 to 7,218 feet in elevation. Blooms April–October.	Unlikely to occur
Bristly sedge <i>Carex comosa</i>	CRPR 2B.1	Marshes and swamps, generally on lake margins and wet places such as ditches, sloughs, and freshwater marsh, from 0 to 2,050 feet in elevation. Blooms May–September.	Unlikely occur
Bolander's water hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	CRPR 2B.1	Coastal, freshwater, or brackish marshes and swamps, from 0 to 650 feet in elevation. Blooms July–September.	Unlikely to occur
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	CRPR 2B.2	Freshwater marshes and swamps; from 49 to 919 feet in elevation. Blooms July–October.	Unlikely to occur
Woolly rose-mallow <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	CRPR 1B.2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs; known from the Delta watershed, also recorded in riprap on levee slopes, from 0 to 390 feet in elevation. Blooms June–November.	Known to occur
Northern California black walnut <i>Juglans hindsii</i>	CRPR 1B.1	Riparian forest and woodland, from 0 to 1,440 feet in elevation. Although there is one documented occurrence along the Sacramento River between Freeport and Walnut Grove (CNDDDB occurrence number 3), it is believed to have been extirpated and the species is believed to be extirpated from Sacramento County. Blooms April–May.	Unlikely to occur
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	CRPR 1B.2	Freshwater and brackish marshes; generally restricted to the Delta, also recorded in riprap on levee slopes, from 0 to 13 feet in elevation. Blooms May–July (rarely into September).	Unlikely to occur
Mason's lilaepsis <i>Lilaeopsis masonii</i>	CR; CRPR 1B.1	Freshwater and brackish marshes, riparian scrub; generally found in tidal zones, on bare depositional soils in the Delta, from 0 to 33 feet in elevation. Blooms April–November.	Unlikely to occur
Delta mudwort <i>Limosella australis</i>	CRPR 2B.1	Riparian scrub, freshwater marsh, brackish marsh; generally occurs on intertidal mud banks of the Delta in marshy or scrubby riparian associations, from 0 to 10 feet in elevation. Blooms April–August.	Unlikely to occur
Sanford's arrowhead <i>Sagittaria sanfordii</i>	CRPR 1B.2	Assorted shallow freshwater marshes and swamps; generally occurs in standing or slow-moving freshwater ponds, marshes, ditches, and sloughs from 0 to 2,000 feet in elevation. Blooms May–October.	Unlikely to occur
Marsh skullcap <i>Scutellaria galericulata</i>	CRPR 2B.2	Lower montane coniferous forest, meadows and seeps, and marshes and swamps; generally occurs in swamps and wet places, also recorded on floating logs and pilings in river and slough channels, from 3,000 to 6,900 feet in elevation. Blooms June–September.	Unlikely to occur

Table 1. Special-status Plant Species with Potential to Occur in the Project Area

Species Name	Legal Status ¹	Habitat, Elevation Range, and Blooming Period	Potential for Occurrence ²
Side-flowering skullcap <i>Scutellaria lateriflora</i>	CRPR 2B.2	Meadows and seeps, marshes and swamps; generally occurs in wet meadows and marshes in the Delta, also recorded on floating logs and pilings in river and slough channels, from 0 to 1,600 feet in elevation. Blooms May–September.	Unlikely to occur
Suisun Marsh aster <i>Symphotrichum lentum</i>	CRPR 1B.2	Brackish and freshwater marshes and swamps; endemic to the Delta; generally occurs in marshes and swamps, often along sloughs, also recorded in riprap on levee slopes and pilings in river and slough channels, from 0 to 10 feet in elevation. Blooms May–November.	Unlikely to occur

Notes: CNDDDB = California Natural Diversity Database; CRPR = California Rare Plant Rank; Delta = Sacramento–San Joaquin Delta

¹ **Legal Status Definitions**

CR = State status of Rare (legally protected).

California Rare Plant Ranks:

1B Plant species considered rare or endangered in California and elsewhere (but not legally protected under the Federal or California Endangered Species Acts).

2B Plant species considered rare or endangered in California but more common elsewhere (but not legally protected under the Federal or California Endangered Species Acts).

California Rare Plant Rank Extensions:

.1 Seriously endangered in California (greater than 80 percent of occurrences are threatened and/or have a high degree and immediacy of threat).

.2 Fairly endangered in California (20 to 80 percent of occurrences are threatened and/or have a moderate degree and immediacy of threat).

.3 Not very endangered in California.

² **Potential for Occurrence Definitions:**

- *No potential to occur:* Potentially suitable habitat is not present.
- *Unlikely to occur:* Potentially suitable habitat present but species unlikely to be present because of very restricted distribution and/or because it was not observed during focused surveys.
- *Known to occur:* The species was observed during focused surveys.

Sources: Baldwin et. al. 2012; CDFW 2019; CNPS 2019

Table 2. Special-Status Fishes With Potential to Occur in the Project Area

Scientific Name Common Name	Status ¹ (Federal/State)	Description
<i>Entosphenus tridentatus</i> Pacific lamprey	-/SSC	Anadromous; expected to occur at the proposed levee improvement sites. Adults and rearing juveniles have the potential to be present year-round.
<i>Lampetra ayresi</i> river lamprey	-/SSC	Anadromous; though the distribution is not well known, the project area is within the species' known range and habitat is present in the Lower Sacramento River. Adults enter the streams in the fall, and spawning is believed to occur in April and May; young hatch in 2–3 weeks and remain in freshwater streams for 3–5 years (Moyle 2002).
<i>Acipenser medirostris</i> green sturgeon	FT, FX/SSC	Anadromous; expected to occur at the proposed levee improvement sites as adults migrating upstream to their spawning habitat (between late February and late July), and as larvae and juveniles, rearing and migrating to the ocean (year-round).
<i>Acipenser transmontanus</i> white sturgeon	-/SSC	Anadromous; expected to occur at the proposed levee improvement sites as adults migrating upstream to their spawning habitat (winter and spring), and as larvae moving downstream to the estuary (spring to early summer).
<i>Mylopharodon conocephalus</i> hardhead	-/SSC	Resident; expected to occur year-round in the Lower Sacramento River. Adults occur in deep, clear pool and run habitats, whereas juveniles are found in shallow water and along the shoreline (Moyle et al. 1982, Moyle 2002).
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	-/SSC	Resident/semi-anadromous; expected to occur in wet years in the project area along the Lower Sacramento River as adults migrating from the Delta to flooded spawning areas in February–June, and as juveniles migrating from upstream spawning habitats to tidal habitat shortly after emergence, primarily in April and May (Sommer et al. 1997; Baxter 1999, 2000, both as cited in Moyle 2002).
<i>Hypomesus transpacificus</i> delta smelt	FT, FX/SE	Semi-anadromous; adults and juveniles are uncommon at the proposed levee improvement sites, but may be present in December–July, though typically restricted to the Delta and the Lower Sacramento River downstream of Isleton (RM 18); juveniles move downstream with the currents (USFWS 1996, Sommer et al. 2001a, Moyle 2002).
<i>Spirinchus thaleichthys</i> longfin smelt	FC/ST, SSC	Anadromous; rare migrant to the project area. Similar to delta smelt, adults and juveniles are uncommon, but may be present along the Lower Sacramento River in December–July when they enter freshwater streams to spawn, though typically restricted to the Delta and the lower Sacramento River downstream of Rio Vista (RM 12) (Moyle 2002, Baxter et al. 2008).
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT, FX/-	Anadromous; expected to occur in the Lower Sacramento River as adults migrating to their upstream spawning habitat, and as juveniles and smolts rearing and migrating towards the ocean. Adult migration to upstream spawning areas occurs in July–March (Hallock 1987). Juveniles typically spend 1–3 years in fresh water before migrating to the ocean, generally in December–August (McEwan 2001).
<i>Oncorhynchus tshawytscha</i> Central Valley spring-run Chinook salmon	FT, FX/ST	Anadromous; expected to occur in the Lower Sacramento River as adults migrating upstream in March–September, (peak May–June) (Yoshiyama et al. 1998), and as juveniles and yearlings migrating downstream from the onset of the winter storm season through June (CDFG 1998, Fisher 1994, S.P. Cramer and Associates 1995, Hill and Webber 1999, NMFS 2014).
<i>Oncorhynchus tshawytscha</i> Sacramento River winter-run Chinook salmon	FE, FX/SE	Anadromous; expected to occur in the Lower Sacramento River as adults, migrating upstream in December–July (peak in March) (Moyle 2002), and as juveniles migrating downstream soon after fry emerge, typically beginning in August and peaking in September and October (Vogel and Marine 1991). Juveniles and smolts (juveniles that are physiologically ready to enter seawater) may migrate through the project area in November–May (Yoshiyama et al. 1998).

Table 2. Special-Status Fishes With Potential to Occur in the Project Area

Scientific Name Common Name	Status ¹ (Federal/State)	Description
<i>Oncorhynchus tshawytscha</i> Central Valley fall-/late fall- run Chinook salmon	FSC/SSC	Anadromous; fall-run are expected to occur throughout the project area, either as adults migrating upstream to their spawning habitat, or as juveniles and smolts rearing and migrating toward the ocean. Late fall-run are expected to occur in the Lower Sacramento River. Fall-run adults migrate through the project area in June–December. Fall-run juveniles rear in fresh water for only a few months after emerging, migrating downstream through the project area in March–July (Yoshiyama et al. 1998). Late fall-run adults migrate through the project area in October–April. Late fall-run juveniles rear in their natal stream during summer; in some streams they remain throughout the year. Late fall-run smolt outmigration can occur in November–May (Yoshiyama et al. 1998).

Notes: CDFG = California Department of Fish and Game; CDFW = California Department of Fish and Wildlife; CESA = California Endangered Species Act; Delta = Sacramento-San Joaquin Delta; ESA = Federal Endangered Species Act; NMFS = National Marine Fisheries Service; USFWS = U.S. Fish and Wildlife Service

¹ Status (CDFW 2016, NMFS 2016, USFWS 2016):

Federal

FE = endangered under the ESA
 FT = threatened under the ESA
 FC = candidate species for listing under the ESA
 FSC = Federal sensitive, or species of concern
 FX = designated critical habitat under the ESA
 – = no status

State

SE = endangered under CESA
 ST = threatened under CESA
 SSC = CDFW Species of Special Concern
 – = no status

Source: Data compiled by Stillwater Sciences in 2016

Table 3. Special-status Wildlife Species Evaluated for Potential to Occur in the Project Area

Species Name	Legal Status ¹		Habitat Associations and Species Occurrences	Potential for Occurrence ²
	Federal	State		
Invertebrates				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	–	Closely associated with blue elderberry (<i>Sambucus</i> sp.), which is an obligate host for the beetle larvae; occurrences along the Sacramento River.	Known to occur
Reptiles				
Giant garter snake <i>Thamnophis gigas</i>	FT	ST	Open water associated with marshes, sloughs, and irrigation/drainage ditches within the Central Valley; requires emergent herbaceous wetland vegetation, grassy banks, and openings in waterside vegetation, and higher elevation upland habitat. A historical occurrence is recorded from Laguna Creek (CDFW 2016), but species experts consider this record to be an error, and there is no reliable evidence of giant garter snake presence in the Upper Beach Lake area (E. Hansen, pers. comm., 2015).	Unlikely to occur
Northwestern pond turtle <i>Emys marmorata</i>	–	SSC	Permanent or nearly permanent water bodies with abundant vegetation and rocky or muddy bottoms in a variety of habitat types; also require basking sites such as logs, rocks, cattail mats, and exposed banks; documented in the levee improvements area and Upper Beach Lake area.	Known to occur
Birds				
California least tern <i>Sterna antillarum browni</i>	FE	SE	Typically found at coastal beaches, bays, estuaries, and other water bodies, but known to occur at several scattered inland sites, including very small numbers in some years at the Sacramento Regional WWTP (SRCSD 2014).	Could occur
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT	–	Primarily a coastal species, but scattered inland breeding populations exist; CNDDDB occurrences of migrant individuals from several wastewater treatment facilities in the region.	Unlikely to occur
Greater sandhill crane <i>Grus canadensis tabida</i>	–	ST	Grasslands, moist croplands with stubble, and open, emergent wetlands; does not breed in the Central Valley but regularly occurs in the Sacramento Regional WWTP Bufferlands in September through March (SRCSD 2014).	Could occur
White-tailed kite <i>Elanus leucurus</i>	–	FP	Nests in woodlands and isolated trees and forages in grasslands, pasture, and agricultural fields; nests documented in the Woodlake area and adjacent to Sacramento Regional WWTP Bufferlands.	Known to occur
Swainson's hawk <i>Buteo swainsoni</i>	–	ST	Nests in woodlands and scattered trees and forages in grasslands and agricultural fields; known to nest and forage in the vicinity of the project area, including potential woodland mitigation sites.	Known to occur

Table 3. Special-status Wildlife Species Evaluated for Potential to Occur in the Project Area

Species Name	Legal Status ¹		Habitat Associations and Species Occurrences	Potential for Occurrence ²
	Federal	State		
Northern harrier <i>Circus cyaneus</i>	–	SSC	Nests and forages in grasslands, agricultural fields, and marshes, mostly within dense patches of vegetation no CNDDDB occurrences in vicinity of project area, but this species is rarely documented in the CNDDDB.	Could occur
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT	SE	Riparian forest with dense deciduous trees and shrubs; migrant individuals are likely to pass through the area in transit to breeding sites along the Sacramento River north of Colusa.	Could occur
Burrowing owl <i>Athene cunicularia</i>	–	SSC	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with natural or artificial burrows or friable soils; known to occur near the Upper Beach Lake potential woodland mitigation area (SRCSD 2000).	Could occur
Bank swallow <i>Riparia riparia</i>	–	ST	Forages in a variety of habitats and nests in vertical banks or bluffs of suitable soil, typically adjacent to water; historical CNDDDB occurrences of nest colonies have been documented along the lower American River, but no documented occurrences along the Sacramento River in the vicinity of the project area.	Could occur
Purple martin <i>Progne subis</i>	–	SSC	Nests in bridges in the Sacramento urban area and forages in adjacent open habitats; nest colonies are documented in the CNDDDB, but no suitable nest sites are present in the project area or vicinity.	Could occur
Loggerhead shrike <i>Lanius ludovicianus</i>	–	SSC	Forages and nests in grasslands, shrublands, and open woodlands; no CNDDDB occurrences in the project area or vicinity, but this species is rarely documented in the CNDDDB.	Could occur
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE	SE	Typically occurs in structurally diverse riparian habitat with dense shrub layer; the subspecies is largely extirpated from the Central Valley, but has recently been documented attempting to nest in the Yolo Bypass Wildlife Area, and a migrant individual has been observed in the Sacramento Regional WWTP Bufferlands (SRCSD 2014).	Could occur
Grasshopper sparrow <i>Ammodramus savannarum</i>	–	SSC	Nests and forages in grasslands, with a mix of grasses, forbs, and scattered shrubs, on rolling hills and lowland plains; CNDDDB occurrences in the project area and vicinity are limited to eastern Sacramento County.	Unlikely to occur
Song sparrow ("Modesto" population) <i>Melospiza melodia</i>	–	SSC	Nests and forages in emergent freshwater marsh and riparian scrub and woodland; several CNDDDB occurrences in the Upper Beach Lake area.	Could occur
Tricolored blackbird <i>Agelaius tricolor</i>	–	SE	Nests in freshwater marsh, riparian scrub, grain crops, and other dense, low vegetation and forages in grasslands and agricultural fields; CNDDDB nesting colony locations nearest to the project area are in the Natomas Basin and Yolo Bypass.	Unlikely to occur

Table 3. Special-status Wildlife Species Evaluated for Potential to Occur in the Project Area

Species Name	Legal Status ¹		Habitat Associations and Species Occurrences	Potential for Occurrence ²
	Federal	State		
Mammals				
Pallid bat <i>Antrozous pallidus</i>	–	SSC	Occurs in a wide variety of habitats and roosts in tree cavities and caves, as well as artificial sites (e.g., bridges and buildings); several historic and recent occurrences from Sacramento (County of Sacramento et al. 2010) and Yolo Counties.	Likely to occur
Western red bat <i>Lasiurus blossevillii</i>	–	SSC	Roosts solitarily in foliage of mature trees associated with woodland borders, rivers, and walnut orchards, especially in mature riparian corridors more than 164 feet wide; numerous historic and recent occurrences from Sacramento County (County of Sacramento et al. 2010).	Likely to occur
American badger <i>Taxidea taxus</i>	–	SSC	Arid, open grassland, shrubland, and woodland with soils suitable for burrowing; historic and recent CNDDDB occurrences from Sacramento County, but none closer to the project area than the former Mather Air Force Base.	Unlikely to occur

Notes: CNDDDB = California Natural Diversity Database; Sacramento Regional WWTP = Sacramento Regional Wastewater Treatment Plant; USFWS = U.S. Fish and Wildlife Service

¹ **Status Definitions:**

- FT = Federally listed as Threatened under the Federal Endangered Species Act
- FE = Federally listed as Endangered under the Federal Endangered Species Act
- ST = State-listed as Threatened under the California Endangered Species Act
- SE = State-listed as Endangered under the California Endangered Species Act
- FP = State fully protected
- SSC = State species of special concern
- = No status

² **Potential for Occurrence Definitions:**

- *No potential to occur:* Potentially suitable habitat is not present.
- *Unlikely to occur:* Potentially suitable habitat present but species unlikely to be present because of very restricted distribution.
- *Could occur:* Suitable habitat is available; however, there are few or no other indicators that the species may be present.
- *Likely to occur:* Habitat conditions, behavior of the species, known occurrences in the vicinity, or other factors indicate a relatively high likelihood that the species would occur.
- *Known to occur:* The species, or evidence of its presence, was observed during reconnaissance-level surveys or was reported by others.

Sources: CDFW 2016; CNDDDB 2016; County of Sacramento et al. 2010; SRCSD 2000, 2014; USFWS 2016a

**APPENDIX C. COMMENTS AND RESPONSES ON
THE DRAFT SUPPLEMENTAL
ENVIRONMENTAL
ASSESSMENT/ENVIRONMENTAL
IMPACT REPORT**

Introduction

This appendix provides responses to public and agency comments on the Sacramento River East Levee (SREL) Contract 2 Draft Supplemental Environmental Assessment /Environmental Impact Report (SEA/EIR) received during the public comment period.

Public Comment Summary

The draft SEA/EIR was posted with the State Clearinghouse (SCH #2005072046) on July 8, 2020. The draft SEA/EIR was circulated at least 45-days for review by Federal, State, and local agencies; organizations; and members of the public from July 8, 2020 through August 22, 2020. The draft SEA/EIR was made available on the Sacramento District, Corps of Engineers and Central Valley Flood Protection Board websites. Hard copies of the draft SEA/EIR were provided upon request.

A virtual public meeting was held on July 22, 2020 to provide additional opportunities for comments on the draft SEA/EIR. All comments received during the public review period were considered and incorporated into the final SEA/EIR as appropriate.

The virtual meeting was held, instead of the typical in-person meetings, due the restrictions on meeting sizes during the Covid-19 pandemic. During the virtual meeting, the chat function was available for the public to send comments to the meeting moderator. Attendees were also given an opportunity to voice comments at the end of the presentation. No comments were received during the public meeting, the public asked clarifying questions the project and impacts. Additionally, comments could be submitted through mail or electronic mail.

During the draft SEA/EIR public review period, a total of fourteen comments (four comment letters) were received from five different parties, including:

- (4) U.S. Environmental Protection Agency
- (8) State agencies (Delta Stewardship Council)
- (1) Local/regional agencies (Sacramento Regional County Sanitation District)
- (1) private citizen/company

Comments and Responses

The following pages include all public comments received and the responses to those comments. The responses are annotated to refer back to the corresponding letters and comments that precede them.



July 29, 2020

Mr. Miles Claret
 Department of Water Resources
 3464 El Camino Avenue – Room 150
 Sacramento, CA 95821

Subject: Notice of Availability of a Draft Supplemental EA/EIR for the American River Watershed Common Features, Water Resources Development Act of 2016, Sacramento River East Levee Contract 2 Project

Main Office

10060 Goethe Road
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Treatment Plant

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Board of Directors

Representing:

- County of Sacramento
- County of Yolo
- City of Citrus Heights
- City of Elk Grove
- City of Folsom
- City of Rancho Cordova
- City of Sacramento
- City of West Sacramento

Prabhakar Somavarapu
District Engineer

Ruben Robles
Director of Operations

Christoph Dobson
Director of Policy & Planning

David O'Toole
Director of Internal Services

Joseph Maestretti
Chief Financial Officer

Nicole Coleman
Public Affairs Manager

www.regionalsan.com

Dear Mr. Claret,

Sacramento Regional County Sanitation District (Regional San) has reviewed the subject application and has the following comments.

The U.S. Army Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB) propose to construct approximately 9,540 cumulative feet of levee improvements by installing a series of cutoff walls along the eastern levee of the Sacramento River from north and south of the Pioneer Bridge on US Highway 50 and from the southern end of the Little Pocket Neighborhood to the northern end of the Big Pocket Neighborhood.

Although the proposed project will have no significant impacts on Regional San infrastructure, there is reference within the EA/EIR pertaining to the potential for the use of the Sacramento Regional Wastewater Treatment Plant (SRWTP) as a borrow site utilizing the current SRWTP expansion project's excavated material to construct the proposed levee improvements.

Regional San and the USACE have had preliminary discussions on the potential use of the SRWTP's excavated materials. As mentioned within the EA/EIR, testing is required to be performed by the USACE and an agreement in place between Regional San and the USACE for acquisition of the subject fill material.

If you have any questions regarding this letter, please feel free to contact me at (916) 876-6104 or by email: armstrongro@sacsewer.com.

Sincerely,

Robb Armstrong

Robb Armstrong
 Regional San Development Services & Plan Check



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

August 13, 2020

Nikole May
Project Manager
U.S. Army Corps of Engineers, Sacramento District
1325 J Street, Room 1513
Sacramento, California 95814

Subject: Draft Supplemental Environmental Assessment/Environmental Impact Report for the American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 2, Sacramento County, California

Dear Nikole May:

The U.S. Environmental Protection Agency has reviewed the above-referenced document. Our review is pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

Thank you for the opportunity to provide comments on the Proposed Action. We note that several elements of the Proposed Action were identified in the 2016 American River Watershed Common Features Environmental Impact Statement as actions that could not be fully analyzed at that time because the temporal scope of that analysis was necessarily vague and this specific project required further design refinement. The current document analyzes impacts from the construction of cutoff walls at the levee centerline to prevent seepage and improve the stability along five miles of the Sacramento River East Levee. Additionally, it identifies the locations of staging areas, haul routes, and potential spoils disposal areas. Please consider the following recommendations to assist in completing the Final EA.

Air Quality

The source of the Sacramento Valley Air Basin Attainment Status data in Table 3-1 (p. 59) is from the Sacramento Metropolitan Air Quality Management District dated 2020. However, in the cumulative effects analysis, the Supplemental EA says that no single project is sufficient in size to result in nonattainment of regional air quality standards according to 2014 SMAQMD data (p.137).

Recommendation: Please clarify/update which set of standards – 2020 or 2014 – are being used to support these statements.

2-1

The Supplemental EA implies uncertainty about whether the thresholds for PM₁₀ and PM_{2.5} will be exceeded (p. 60). The Supplemental EA says it will periodically survey off-road diesel-powered equipment to ensure that emissions do not exceed 40% opacity for more than 3 minutes

in any 1 hour period (pgs. 60, 65). However, the Western Regional Air Partnership¹ limits visible dust emissions to 20% opacity for many construction, demolition, and materials handling activities as well as in areas where wind erosion may cause particulate emissions from agricultural and open areas (See Handbook at pgs. 3-18 through 3-20, 4-6, 7-13 and 8-20).

Recommendation: For the Final EA, the EPA recommends that the Corps consult with the Sacramento Metropolitan Air Quality Management District to determine whether there are additional control measures not already identified in Mitigation Measures AIR 1-3 available on this and future American River Common Features projects that could reduce fugitive PM dust to the recommended 20% opacity limit.

2-2

Water Quality

The Supplemental EA notes that potential dewatering to facilitate construction activities (e.g., removing groundwater that may fill trenches dug for cutoff wall construction) could result in erosion and/or release of sediment into surface or groundwater. Excavation could extend to a depth that would expose the water table, creating an immediate and direct path to groundwater that could allow contaminants to enter the groundwater system and indirectly affect water quality. While the Supplemental EA acknowledges that damage to these drying beds could result in the release of sediment into surface or groundwater (p. 107), there is also the possibility that dissolved nitrates, ortho-phosphate, or dissolved organic carbon could be part of the infiltrate into groundwater.

Recommendation: Consider the potential need for low-threat general waste discharge permit² coverage for construction dewatering offered by the Central Valley Regional Water Quality Control Board.

2-3

Impacts to Riparian Habitat

The Proposed Action would remove up to 60 trees from the top of the levee, with 1.86 of 2.51 canopy acres lost from the water side of the levee (pgs. 37, 56). Although the Supplemental EA determined that the temporal loss of shaded riverine aquatic habitat upon fisheries would not be expected to result from tree removal, it also noted that impacts caused by project removal of valley oaks and other woodland riparian habitat would be significant (p. 69).

Mitigation to compensate for removal of these trees is proposed by planting 5.02 acres (2:1 ratio) of new riparian habitat at the Beach/Stone Lakes Mitigation Site. The Corps has guidance for setting mitigation ratios in areas where constructed habitats would take time to mature and replace lost functions.³ Where there is a lag between when the impacts occur and the time when constructed

¹ The Western Regional Air Partnership's Fugitive Dust Handbook estimates uncontrolled fugitive dust emissions and emission reductions achieved by demonstrated control techniques for eight major fugitive dust source categories, including sources from heavy construction and erosion in agricultural or open areas.

https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf

² https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

³ *Instructions for Preparing Mitigation Ratio Setting Checklist*, No. 8 Temporal Loss,

[https://www.spa.usace.army.mil/Portals/16/docs/civilworks/regulatory/Mitigation/12501-SPD.02%20Instructions_for_Preparing_Mitigation_Ratio_Setting_Checklist_20160726_CORRECTIONS.pdf?ver=](https://www.spa.usace.army.mil/Portals/16/docs/civilworks/regulatory/Mitigation/12501-SPD.02%20Instructions_for_Preparing_Mitigation_Ratio_Setting_Checklist_20160726_CORRECTIONS.pdf?ver=2017-01-20-121857-760)

[2017-01-20-121857-760](https://www.spa.usace.army.mil/Portals/16/docs/civilworks/regulatory/Mitigation/12501-SPD.02%20Instructions_for_Preparing_Mitigation_Ratio_Setting_Checklist_20160726_CORRECTIONS.pdf?ver=2017-01-20-121857-760)

mitigation is expect to replace lost functions, the instructions increase the mitigation ratio for the loss of trees or woodlands to 3:1.

Recommendations: For the Final Supplemental EA and subsequent levee projects, account for the time required for full replacement of functions and consider replacing lost tree/woodland functions earlier, before impacts occur, or consider increasing the amount of compensatory mitigation to the recommended 3:1 ratio.

2-4

We appreciate the opportunity to review this Supplemental Draft EA and are available to discuss our comments. Please send one electronic copy of the Final Supplemental EA when it becomes available to Robin Truitt, the lead reviewer for this project, at truitt.roberta@epa.gov. If you have any questions, please contact me at (415)947-4167 or prijatel.jean@epa.gov, or Robin at (415)972-3742.

Sincerely,

Jean Prijatel
Manager, Environmental Review Branch

cc: Miles Claret, Department of Water Resources
Karen Huss, Sacramento Metropolitan Air Quality Management District
Scott Hatton, WDR Program, Central Valley Regional Water Quality Control Board

From: Maggie Beddow
Sent: Friday, August 7, 2020 6:54 PM
To: DWR Public Comment ARCF 16 <PublicCommentARCF16@water.ca.gov>
Subject: Pocket/Greenhaven 95831 projects on the levee - thank you and make the levees publicly accessible to ALL!

Short and sweet - the sooner, the better to make the Pocket/Greenhaven levees safe and fortified, and make the levees public and accessible to all. Do not issue any permits to allow fences to go up again, ever! Make it a walking/bike trail.

3-1

Thank you,

Maggie Beddow

Pocket homeowner



980 NINTH STREET, SUITE 1500
 SACRAMENTO, CALIFORNIA 95814
 HTTP://DELTACOUNCIL.CA.GOV
 (916) 445-5511

DELTA STEWARDSHIP COUNCIL

A California State Agency

August 21, 2020

Chair
 Susan Tatayon

Miles Claret
 California Department of Water Resources
 Division of Flood Management
 3464 El Camino Avenue Room 150
 Sacramento CA 95821

Members
 Frank C. Damrell, Jr.
 Michael Gatto
 Maria Mehranian
 Oscar Villegas
 Ken Weinberg

Executive Officer
 Jessica R. Pearson

Sent via email: PublicCommentARCF16@water.ca.gov

RE: Comments on Draft Supplemental Environmental Assessment/Environmental Impact Report for the American River Common Features, Water Resources Development Act 2016, Sacramento River East Levee Contract 2 Project

Dear Miles Claret:

The Delta Stewardship Council (Council) appreciates the opportunity to comment on the Draft Supplemental Environmental Assessment/Environmental Impact Report (Draft Supplemental EA/EIR) for the American River Common Features, Water Resources Development Act 2016, Sacramento River East Levee Contract 2 (Project). The purpose of the Project is to reduce the flood risk associated with through and under-seepage of water from the Sacramento River to the City of Sacramento. The Project proposes to construct approximately 9,540 cumulative feet of levee improvements along the Sacramento River by installing a series of cutoff walls to reduce seepage and improve levee stability.

Most of the levee improvements included in the Project were analyzed in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The Draft Supplemental EA/EIR addresses project modifications and refinements since publication of the ARCF GRR EIS/EIR. The Council previously submitted comments to the Central Valley Flood Protection Board (Flood Board) on the ARCF GRR Draft EIS/EIR (see **Attachment 1**). That comment letter explained the Council's regulatory authority under the Sacramento-San Joaquin Delta Reform Act of 2009 (SBX7 1; Delta Reform Act (Wat. Code, section 85000 et seq.)); identified Water Code section 85225 requirements for the Flood Board to determine whether the Project is a covered action and, if so, submit a certification of consistency to the Council before implementing the Project; and identified Delta Plan regulatory policies that would be potentially implicated by the Project.

"Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."

– CA Water Code §85054

Miles Claret

Comments on Draft Supplemental Environmental Assessment/Environmental Impact Report for the American River Common Features, Water Resources Development Act 2016, Sacramento River East Levee Contract 2 Project

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Page 2

Council staff appreciated the opportunity to discuss the Project and the covered action process with you and other project partners from the U.S. Army Corps of Engineers and Sacramento Area Flood Control Agency at a July 30, 2020 early consultation meeting for the Project. Early consultation represents a critical step in the process for determination of consistency with the Delta Plan for covered actions; it also provides a state or local public agency the opportunity to discuss possible impacts on and benefits to the coequal goals, the Council's regulatory processes, and the Delta Plan (including adaptive management plans and use of best available science) as they pertain to the Project.

Covered Action Determination and Certification of Consistency with the Delta Plan

As explained in the Council's comment letter on the ARCF GRR Draft EIS/EIR and noted in the Draft Supplemental EA/EIR (page 151), the Project appears to meet the definition of a covered action. As defined in Water Code section 85057.5 subdivision (a), a covered action is a plan, program, or project as defined pursuant to Section 21065 of the Public Resources Code that meets all of the following conditions:

1. Will occur in whole or in part within the boundaries of the Delta (Water Code, §12220) or Suisun Marsh (Pub. Resources Code, § 29101). The Project would occur in part within the boundaries of the Delta.
2. Will be carried out, approved, or funded by the State or a local public agency. The Project would be approved by the Flood Board, which is a State agency.
3. Will have a significant impact on the achievement of one or both of the coequal goals or the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta. The Project would have a significant impact on the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta.
4. Is covered by one or more of the regulatory policies contained in the Delta Plan (Cal. Code Regs., tit. 23, §§ 5003-5015). Delta Plan regulatory policies that may apply to the Project are discussed below.

Prior to implementing the Proposed Action, the Flood Board would submit a Certification of Consistency with the Delta Plan to the Council in accordance with section 85225 of the California Water Code. (Draft Supplemental EA/EIR p. 151)

Comments Regarding Delta Plan Policies and Potential Consistency Certification

The following section describes the Delta Plan regulatory policies that may apply to the Project. The Council offers this information to assist the Flood Board to prepare a certification of consistency for the Project.

Miles Claret

Comments on Draft Supplemental Environmental Assessment/Environmental Impact Report
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General Policy 1: Detailed Findings to Establish Consistency with the Delta Plan

Delta Plan Policy **G P1** (Cal. Code Regs., tit. 23, § 5002) specifies what must be addressed in a certification of consistency by the state or local public agency for a plan, program, or project that is a covered action. This policy applies only after a proposed action has been determined by the agency to be a covered action because one or more of the Delta Plan regulatory policies (Cal. Code Regs. tit. 23, §§ 5003-5015) is implicated. The following policy requirements under G P1 may apply to the Project:

Mitigation Measures

4-1

Delta Plan Policy **G P1(b)(2)** (Cal. Code Regs. tit. 23, § 5002(b)(2)) requires that covered actions not exempt from the California Environmental Quality Act (CEQA) must include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan as amended April 28, 2018 (unless the measure(s) are within the exclusive jurisdiction of an agency other than the agency that files the certification of consistency), or substitute mitigation measures that the agency that files the certification of consistency finds are equally or more effective. Mitigation measures in the Delta Plan's Mitigation Monitoring and Reporting Program (MMRP, Appendix O to the Delta Plan) are available at <https://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf>.

The Draft Supplemental EA/EIR identifies significant impacts that require mitigation for visual resources, air quality, vegetation and wildlife, special status species, climate change, cultural resources, geological resources, hazardous wastes and materials, water quality and groundwater resources, noise, recreation, transportation and circulation, and public utilities and service systems. The Flood Board should review Delta Plan Appendix O and ensure that the Final Supplemental EA/EIR includes all applicable feasible mitigation measures adopted and incorporated into the Delta Plan or identifies substitute mitigation measures that the agency finds are equally or more effective.

Best Available Science

4-2

Delta Plan Policy **G P1(b)(3)** (Cal. Code Regs., tit. 23, § 5002(b)(3)) states that actions subject to Delta Plan regulations must document use of best available science as relevant to the purpose and nature of the project. The Delta Plan defines best available science as “the best scientific information and data for informing management and policy decisions.” (Cal. Code Regs, tit. 23, § 5001(f).) Best available science is also required to be consistent with the guidelines and criteria in Appendix 1A of the Delta Plan (<https://deltacouncil.ca.gov/pdf/delta-plan/2015-appendix-1a.pdf>).

Miles Claret

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The Final Supplemental EA/EIR should document the use of best available science, as relevant to the Project.

Ecosystem Restoration Policy 4: Expand Floodplains and Riparian Habitats in Levee Projects

4-3

The Council's comments on the Draft ACRF GRR EIS/EIR highlighted Delta Plan Policy **ER P4** (Cal. Code Regs., tit. 23, § 5008), which requires levee projects to increase floodplains and riparian habitats where feasible. The policy also requires the evaluation of setback levees in several areas of the Delta, including urban levee improvement projects in the City of Sacramento. The Flood Board should consider including information in the Final Supplemental EA/EIR to document how the Project evaluated the feasibility of incorporating floodplain and riparian habitats, including setback levees where required, into the design and construction of the Project.

The Flood Board should also consider including information in the Final EA/EIR that explains and substantiates how other alternatives that would increase riparian habitats were evaluated and incorporated, where feasible.

Ecosystem Restoration Policy 5: Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species

4-4

Delta Plan Policy **ER P5** (Cal. Code Regs., tit. 23, § 5009) requires that covered actions fully consider and avoid or mitigate the potential for new introductions of, or improved habitat conditions for, nonnative invasive species, striped bass, and bass in a way that appropriately protects the ecosystem. The Flood Board should consider including information on Policy ER P5 in the Vegetation and Wildlife section of the Final Supplemental EA/EIR. That section should analyze how the Project would address both nonnative wildlife species as well as terrestrial and aquatic weeds. It should also analyze how the project would avoid or mitigate conditions that would lead to establishment of nonnative invasive species. In the event that mitigation is warranted, mitigation and minimization measures must include Delta Plan Mitigation Measure 4-1 (available at: <https://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf>) or a substitute mitigation measure that is equally or more effective.

Delta as Place Policy 2: Respect Local Land Use when Siting Water or Flood Facilities or Restoring Habitats

4-5

Delta Plan Policy **DP P2** (Cal. Code Regs., tit. 23, § 5011) reflects one of the Delta Plan's charges to protect the Delta as an evolving place by siting water management facilities, ecosystem restoration, and flood management infrastructure to avoid or reduce conflicts with existing or planned future land uses when feasible, considering comments from local agencies and the Delta Protection Commission.

Miles Claret

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The Draft Supplemental EA/EIR identifies a variety of significant impacts to existing uses that could result from the Project, including temporary impacts on visual character, temporary and short-term recreational opportunities during construction, and vegetation removal. The Flood Board should consider including information in Final Supplemental EA/EIR on how the specific proposed flood management infrastructure, as well as rights-of-way, staging areas, borrow disposal areas, and other areas would be sited to avoid or reduce these impacts. In addition, the Flood Board should consider including information on any changes in project design or siting that were made to reduce impacts to existing or planned uses.

We appreciate the modification of ARCF GRR EIR/EIS Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordinate with the City of Sacramento to Repair of Damage to Bicycle Facilities, based on Council guidance to provide clear communication of detours for pedestrians and bicyclists, and to provide information on alternative park and boat launch locations to replace facilities that will be temporarily closed.

Risk Reduction Policy 1: Prioritization of State Investments in Delta Levees and Risk Reduction

4-6

Delta Plan Policy **RR P1** (Cal. Code Regs., tit. 23, § 5012) calls for the prioritization of State investments in Delta flood risk management, including levee operation, maintenance and improvements. Delta Plan Policy RR P1 includes three high-level goals that are to be implemented across three benefit analysis categories. For the Project, Goal 1, *Protect existing urban and adjacent urbanizing areas by providing 200-year flood protection*, is particularly relevant. The Flood Board should consider including information in the Final Supplemental EA/EIR on how the Project meets this and other priorities identified under RR P1.

In addition, as part of the Delta Levees Investment Strategy (DLIS), the Council is currently working to update the investment priorities set forth in RR P1. This process is anticipated to be completed in 2021-2022. In the interim, the priorities described under RR P1 remain in effect.

CEQA Regulatory Setting

4-7

For each resource section in which a Delta Plan policy is applicable, the Final Supplemental EA/EIR regulatory setting should describe the Delta Plan and reference specific applicable regulatory policies.

Conclusion

4-8

As the Flood Board has determined that the Project is a covered action (Draft Supplemental EA/EIR p. 151), the Flood Board should submit a certification of consistency with the Delta Plan to the Council. We encourage the Flood Board to continue to engage in early consultation with Council staff prior to developing and submitting a certification of consistency for the Project. Please contact Erin Mullin at Erin.Mullin@deltacouncil.ca.gov with any questions.

Miles Claret
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Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Henderson", with a long horizontal flourish extending to the right.

Jeff Henderson, AICP
Deputy Executive Officer
Delta Stewardship Council

Comment 1: Sacramento Regional County Sanitation District

- 1-1 Comment acknowledged. USACE will continue to coordinate with the Sacramento Regional County Sanitation District regarding using excavated material from the Sacramento Regional Wastewater Treatment Plant as borrow material for the Proposed Action.

Comment 2: U.S. Environmental Protection Agency

- 2-1 2020 standards were used in the analysis. In response to this comment, the Corps proposes the following update to the text in the first paragraph under "Air Quality" on page 137:

By its nature, air pollution is largely a cumulative impact. Ambient air quality standards are violated or approach nonattainment levels because of past activities, and increasing emissions-generating activity across the region may jeopardize attainment (SMAQMD 2020). Air quality is inherently a cumulative effect because existing air quality is a result of past and present projects. No single project will be sufficient in size, by itself, to result in nonattainment of the regional air quality standards (SMAQMD 2014).

- 2-2 The Draft SEA/EIR's estimated mitigated PM10 emissions in Table 3-4 did not include adjustments to the RCEM model results to account for use of the SMAQMD Enhanced Fugitive PM Dust Control Measures, which the project will implement in accordance with Mitigation Measure AIR-2. In the Final SEA/EIR, the mitigated emissions for PM10 are corrected from 126.5 pounds per day to 71.5 pounds per day, and from 5.7 tons per year to 3.0 tons per year. The estimated mitigated emissions for PM10 will therefore not exceed the SMAQMD thresholds of significance for PM10, which are 80 pounds per day and 14.6 tons per year.

Mitigation Measure AIR-3 includes a requirement for periodic surveys to ensure that vehicle exhaust does not exceed 40 percent opacity. The Western Regional Air Partnership requirement identified in the comment limits visible dust emissions to 20% opacity. PM emissions from the SREL C2 project are not expected to exceed local air district standards. Furthermore, SMAQMD prohibits visible dust emissions leaving construction sites under its Rule 401.

- 2-3 All appropriate Regulatory Permits (e.g. a Low Threat Discharge permit, Dewatering permit, or Individual Permit from the Central Valley Regional Water Quality Control Board) will be obtained before discharging any effluent to surface water, as referenced in Mitigation Measures GEO-1 and HWQ-1. Acquiring the appropriate regulatory permits will prompt mitigation measures to prevent potential groundwater contamination in the event of drying bed damage.
- 2-4 The 2015 Biological Opinion from the USFWS states: "Compensation for impacts to native riparian habitat will occur on a 2:1 basis on-site or in close proximity to the impact

area.” The Beach Stone Lakes Mitigation site being used for the Proposed Action is within close proximity to the project. USACE’s guidance for setting mitigation ratios at 3:1 applies specifically to impacted wetlands or other waters of the U.S. The proposed project does not impact wetlands or other waters of the U.S.

Comment 3: Maggie Beddow

- 3-1 This comment does not refer to an action of the project and remarks on the future use of the project site that is beyond the scope of this SEA/EIR.

Comment 4: Delta Stewardship Council

- 4-1 Comment acknowledged. Delta Plan Appendix O was considered during preparation of the Final Supplemental EA/EIR.
- 4-2 Comment acknowledged. The Proposed Action was designed in accordance with the latest USACE engineering standards.
- 4-3 Comment acknowledged and considered. Given the urban location of the Proposed Action, levee setback alternatives are not feasible. Additional information regarding the feasibility of setback levee alternatives can be found in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement / Environmental Impact Report (EIS/EIR).
- 4-4 Comment acknowledged and considered. The Proposed Action does not affect aquatic environments or nonnative aquatic species. The Proposed Action will disturb existing habitat that is currently dominated by nonnative species. Areas disturbed by the Proposed Action will be re-seeded using native grasses and/or forbs. Additional information addressing this comment can be found in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement / Environmental Impact Report (EIS/EIR). Based on the analysis provided in the ARCF GRR EIS/EIR and this supplemental document, the Proposed Action will not lead to the increased establishment of nonnative invasive species compared to existing conditions.
- 4-5 Comment acknowledged and considered. The Proposed Action includes improvements to existing levee infrastructure and does not include expansion or changes to the footprint of these facilities or acquisition of private property beyond the existing flood control infrastructure. Additional information addressing this comment can be found in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement / Environmental Impact Report (EIS/EIR) and in Chapter 3 of this document.
- 4-6 Comment acknowledged and considered. The Proposed Action will improve levees and protect existing urban development in an area defined as a “very high priority” (the highest priority category) for risk reduction improvements in Chapter 7 of the Delta Plan. The geotechnical design criteria adopted for the Proposed Action followed published

USACE and DWR Urban Levee Design Criteria (ULDC). A 200-year water surface profile was used in the design analysis to evaluate project compliance with geotechnical criteria under DWR's ULDC 200-year level of protection. Additional information addressing the project purpose can be found in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement / Environmental Impact Report (EIS/EIR) and in Chapter 1 of this document.

- 4-7 Comment acknowledged. Additional information addressing this comment can be found in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement / Environmental Impact Report (EIS/EIR) and Chapters 3 and 5 of this document. As described in Chapter 3 of this document, supplemental information on existing conditions, including environmental and regulatory setting, is provided for resource topics only where necessary to support the supplemental impact analysis. Otherwise, the document relies on the regulatory setting as described in the ARCF GRR EIS/EIR and is not repeated.
- 4-8 Comment acknowledged. As stated in the Supplemental EA/EIR, CVFPB will submit a certification of consistency with the Delta Plan to the Council.

**APPENDIX D. REVISIONS TO THE DRAFT
SUPPLEMENTAL ENVIRONMENTAL
ASSESSMENT/ENVIRONMENTAL
IMPACT REPORT**

Introduction

This appendix presents corrections and revisions made to the proposed project's Draft Supplemental Environmental Assessment/Environmental Impact Report (Supplemental EA/EIR). This appendix does not identify administrative changes to the Supplemental EA/EIR text which do not affect the analysis contained in the Supplemental EA/EIR (for example, updates to the public review process). New text is indicated with an underline and text to be deleted is indicated by a strike through. Text changes are presented in the page order in which they appear in the Supplemental EA/EIR.

The changes identified below are clarifications or amplification of the information and analysis contained in the Supplemental EA/EIR. None of the changes identified below results in a significant impact that was not already identified in the Supplemental EA/EIR. Furthermore, none of the impacts identified in the Supplemental EA/EIR were found to be substantially more severe as the result of the following changes. For these reasons, recirculation of the Supplemental EA/EIR is not warranted.

Section 1.4 Project Purpose

The first paragraph on page 20 is revised as follows:

The purpose of the Proposed Action is to reduce the flood risk associated with through and under-seepage of water from the Sacramento River near Broadway, Pioneer Reservoir, and the in the Pocket and Little Pocket neighborhoods in the City. The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States. There is a high probability that flows in the Sacramento River will stress the network of levees protecting central and southern Sacramento to the point that levees could fail. The consequences of such a levee failure would be severe in the Pocket area since the inundated area is highly urbanized and the flooding could be up to 20 feet deep.

Section 2.3 Proposed Action

The last paragraph on page 24 is revised as follows:

This section describes the ~~levee improvement project components~~, features of levee improvements, borrow areas, staging areas, haul routes, and spoils disposal sites that comprise the levee improvement alternative (Proposed Action). Although the ARCF GRR EIS/EIR analyzed the general design and impacts of the Proposed Action, design specifics were not available until the SREL Contract 2 design was complete. Although this Supplemental EA/EIR focuses on specific components of the elements of the Proposed Action analyzed in the ARCF GRR Final EIS/EIR but later characterized in greater detail through project design and refinement (staging areas, haul routes, borrow site, and spoils disposal), the entire project is described below, for completeness. For clarity, the entirety of SREL Contract 2, including those components described in the ARCF GRR EIS/EIR, are described below. The proposed levee improvement areas are located in Reaches D, E, and F as defined in the ARCF GRR; Reaches 4-2, 5-2, 6-1, 13b, 15, 16, and 17 in this contract. Figure 2-1 through Figure 2-4 illustrates the

overall project boundary and potential staging areas. The proposed types of improvements are described in detail in Section 2.3.1. The specific types of levee improvements considered for individual levee improvement sites (along with preferred improvements for each site) are discussed in detail in Section 2.3.2; and the proposed improvements are illustrated in Figure 2-5 through Figure 2-7. Table 2-1 provides a summary of the proposed improvements by station.

Table 2-1 ‘Proposed Levee Improvements Summary’ on page 25 is revised as follows:

Feature	Reach	Stations	Stations	Length (feet)	Description of Works
Cutoff Wall	4- 2	1092+50	1099+50	500 400	Jet grout cutoff wall to El. -75 feet (about 115 feet below existing ground) <u>and lowering the elevation of three (3) existing relief wells</u>
Cutoff Wall	5-2	1104+50	1112+50	800	Jet grout cutoff wall to El. -15 feet (about 55 feet below existing ground)
Cutoff Wall	6-1	1113+80	1116+20	240	Jet grout cutoff wall to El. -15 feet (about 55 feet below existing ground)
Cutoff Wall	13b	1300+50	1310+00	950	Conventional cutoff wall to El. -30 feet (about 70 feet below degrade surface)
Cutoff Wall	15	1336+00	1348+00	1,200	Conventional cutoff wall to El. -45 feet (about 82 feet below degrade surface)
Cutoff Wall	15	1348+00	1366+50	2,150	Mix-in-place cutoff wall to El. -88 feet (about 120 feet below degrade surface)
Cutoff Wall	15, 16, & 17	1366+50	1407+50	3,800	Conventional cutoff wall to El. -25 feet from Station 1369+50 to Station 1381+00, El. -15 feet from Station 1381+00 to 1400+00, and El. -10 feet from Station 1400+00 to 1407+50 (about 40 to 55 feet below degrade surface)

Source: GEI Consultants 2020

Note: All elevations in North American Vertical Datum of 1988 (NAVD88)

Figures 2-1 and 2-5 on pages 27-31 are updated to include the Chevron property grading within construction limits.

The following paragraph is added to the end of subsection 2.3.1 ‘Proposed Types of Levee Improvements’ on page 37:

Relief Wells

Relief wells are used adjacent to levees to safely release seepage pressures caused by the differential water surface elevations during flood conditions between the riverside and landside of the levee and thus to prevent the collapse of the levee. Higher water elevations in the river during a flood creates a pressure gradient, causing water to infiltrate the soil of the levee and its foundation. Water may then flow through the soil towards the dry side of the levee and can result in the formation of boils, piping, and ultimately the failure of the levee. Relief wells act like valves to relieve the water pressure before boils form and allow excess water to be diverted safely to a canal or other drainage feature.

The first paragraph under ‘Station 1092+50 to Station 1099+50: Jet Grout Cutoff Wall’ on page 38 in subsection 2.3.2 ‘Proposed Levee Improvements’ is revised as follows:

The identified improvement in this segment is a jet grout cutoff wall installed through the levee crown from Station 1093+50 to Station 1098+50. The purpose of the jet grout cutoff wall is to prevent through-seepage and underseepage in the portion of the reach between the landfill and the Pioneer Reservoir inlet and outlet pipes. The wall is proposed to extend to Elevation -73 feet, which is about 110 feet below the existing levee crown. Additionally, to reduce the length of the jet grout cutoff wall feature, improvements in this segment will also include modification of three of the four existing relief wells, allowing them to relieve seepage pressures sooner. The modification entails lowering the elevation of each of the relief well discharge pipes by approximately three feet.

The following paragraph is added to ‘Station 1105+00 to Station 1112+40: Jet Grout Cutoff Wall’ on page 38 in subsection 2.3.2 ‘Proposed Levee Improvements’:

This reach also includes the re-grading of a low spot located near the landside levee toe at Station 1107+00 within the Chevron petroleum storage tanks containment basin. Re-grading would be performed with existing onsite material only within the containment basin and will be focused on balancing the cut and fill such that there is no net gain or loss of material on the site, only shifting the low spot further landward.

Section 3.1 Introduction

The second paragraph on page 50 in subsection 3.1.1 ‘Approach to Analysis’ is revised as follows:

Each resource topic section includes a brief summary of the analysis of this topic in the ARCF GRR Final EIS/EIR. Supplemental information on existing conditions (environmental and regulatory setting under CEQA) is provided for particular resource topics, where necessary to support the supplemental impact analysis. Thresholds used to evaluate the significance of impacts are carried forward from the GRR Final EIS/EIR, with additional thresholds identified where necessary. Only those thresholds requiring an updated analysis due to new information are discussed. Under each resource, any significance criteria lacking an evaluation section remains

unchanged from the GRR Final EIS/EIR, and previous analyses remain sufficient. For some impacts, mitigation described in the GRR Final EIS/EIR may not apply to the proposed action. For other impacts, additional or different mitigation actions are required to reduce effects of the project refinements described in the Proposed Action. In either case, the proposed change to mitigation from the ARCF GRR Final EIS/EIR is identified. Overall, environmental impacts are not more severe than those addressed in the ARCF GRR EIR/EIR.

Section 3.2 Visual Resources

The third paragraph on page 53 in subsection 3.2.1 ‘Existing Conditions’ is revised as follows:

The northern portion of the levee improvements area consists primarily of industrial developments. Levee improvements and staging areas will take place in the vicinity of a City of Sacramento overflow wastewater treatment facility, rail lines, the California Automobile Museum, and above ground diesel and gasoline fuel storage tanks and associated pipelines operated by Chevron and Union 76. The visual quality in this area is low due to the presence of these industrial structures, including tall white fuel storage tanks, buildings, trains, pavement, fencing, overhead power lines, prominent night lighting, and other elements associated with industrial development that represent a lack of vividness, intactness, and unity. The viewer sensitivity is considered high, because this area is visible to recreational users of the Sacramento River Parkway bike trail and Miller Park.

The second paragraph on page 55 under ‘Summary of ARCF GRR Final EIS/EIR Effects’ in subsection 3.2.2 ‘Environmental Consequences’ is revised as follows:

Short-term visual effects during construction activities along the Sacramento River were determined to be significant and unavoidable, because the presence of construction crews and equipment will degrade the existing visual character and obstruct scenic vistas; no feasible mitigation measures were identified. Long-term visual effects from maintaining the new landside levee maintenance corridor were determined to be significant and unavoidable, because the corridor will be adjacent to existing residential backyards, and removal of landscaping from the maintenance corridor will degrade the current visual character of the individual properties; no feasible mitigation measures were identified. Construction of the Proposed Action, including the addition of night work that was not addressed in the ARCF GRR EIS/EIR, will not result in visual resources impacts that are more severe than stated in the ARCF GRR EIS/EIR. The GRR EIS/EIR did not analyze the impacts of night work.

The last paragraph on page 57 under ‘Create New Sources of Substantial Light or Glare’ in subsection 3.2.2 ‘Environmental Consequences’ is revised as follows:

None of the project-related activities will include buildings or other facilities that will require permanent lighting, and therefore no new long-term sources of light or glare will be introduced into viewsheds. Temporary 24-hour lighting ~~will be necessary~~ for the night work

related to the jet grout cut off wall installation, not addressed by the GRR EIS/EIR, ~~that~~ is limited to the industrial area ~~related~~ along the City of Sacramento's Pioneer Reservoir (from levee stations 1093+50 to 1098+50), and the Chevron and Phillips 66 oil tank facilities (from levee stations 1105+00 to 1116+15). During construction of the Proposed Action, staging areas will have lighting for the purposes of security of construction equipment and stored materials resulting in new sources of nighttime light that will be visible by neighboring residences and vehicles passing near the staging areas, however these light sources will in some cases be adjacent to existing bright lights. However, some lights will potentially illuminate adjacent residences. This will result in an unavoidable short-term temporary significant impact, however the impacts of the 24-hour night work fall within the visual resource impacts previously described and analyzed in the GRR EIS/EIR and do not represent a new significant impact related to the SREL Contract 2 work. However, Mitigation Measure LIGHT-1 will reduce the impact of nighttime light ~~to less than significant.~~ sensitive fish species in the Sacramento River.

In subsection 3.2.3 'Avoidance, Minimization, and Mitigation Measures' on page 58, Mitigation Measure 'LIGHT-1: Minimize Disturbance to Nocturnal Wildlife' is revised as follows:

LIGHT-1: Minimize Disturbance to ~~Nocturnal Wildlife~~ Wildlife at Night

The Corps will minimize or avoid the effects of nighttime lighting on special-status fish species by implementing the following actions in the area of 24-hour night work near Pioneer Bridge.

- Avoiding construction activities at night, to the maximum extent practicable.
- Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas.
- Shielding and focusing lights on work areas and away from the water surface of the Sacramento River, to the maximum extent practicable.
- Temporary and permanent lighting will have correlated color temperatures and under 3000K to minimize disturbance to ~~nocturnal wildlife~~-wildlife at night.
- A qualified biologist will monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented. Mitigation Measure BIRD-1 applies to night work as well.

Section 3.3 Air Quality

The Draft SEA/EIR's estimated mitigated PM10 emissions in Table 3-4 in subsection 3.3.2 'Environmental Consequences' did not include adjustments to the RCEM model results to account for use of the SMAQMD Enhanced Fugitive PM Dust Control Measures, which the project would implement in accordance with Mitigation Measure AIR-2. Thus, Table 3-4 on Page 62 is revised as follows:

Table 3-4. Emissions Estimates for the Proposed Action

Pollutant	Unmitigated/ Mitigated (pounds per day)	Unmitigated/ Mitigated (tons per year)	Significance Threshold
ROG	47.9/24.9	2.9/1.5	N/A
CO	458.3/456.5	28.2/28.1	N/A
NO _x	511.6/116.1	31.3/7.0	85 pounds/day
PM ₁₀	154.6/ 126.5 <u>71.5</u>	6.8/ 5.7 <u>3</u>	80 pounds/day and 14.6 tons/year
PM _{2.5}	48.7/32.0	2.4/1.4	82 pounds/day and 15 tons/year

Notes: Bold numbers indicate concentrations above thresholds CO = carbon monoxide; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; Sacramento Metropolitan Air Quality Management District (SMAQMD) considers construction activities unlikely to generate substantial quantities of CO (SMAQMD 2018) CEQA significance thresholds for PM assume that fugitive dust Best Available Control Technology/Best Management Practices are implemented in accordance with SMAQMD guidance.

Section 3.4 Vegetation and Wildlife

The third and fourth paragraphs on page 67 in subsection 3.4.1 ‘Existing Conditions’ are revised as follows:

Borrow Site

Much of the SRCSD borrow site has been previously disturbed and is now barren of vegetation. Areas around the perimeter of and adjacent to the site support non-native grassland habitat that provides some value for wildlife species that occur in open grassland habitats and are tolerant of disturbance associated with the City’s wastewater treatment facilities. An alternative borrow site chosen at the contractor’s discretion must demonstrate environmental compliance is complete.

Soil Disposal Site

The Railyards disposal site has undergone extensive excavation and grading and is essentially barren soil. The site is surrounded by urban development and provides almost no biological resource habitat value. An alternative disposal site chosen at the contractor’s discretion must demonstrate environmental compliance is complete.

The first paragraph on page 69 under ‘Adverse Effects on Riparian Habitat and Waters of the United States’ in subsection 3.4.2 ‘Environmental Consequences’ is revised as follows:

Implementing Mitigation Measure VEG-1 will compensate for removing 2.51 canopy acres of riparian habitat at a 2:1 ratio by planting 5.02 acres of new riparian habitat at the Beach/Stone Lakes Mitigation Site (BSLMS). However, because it will take many years for

compensation habitat to provide the value of habitat that will be removed, the short-term habitat loss will remain significant, and thus will not be more severe than those addressed in the ARCF GRR EIS/EIR. Therefore, the construction-related impacts on visual resources are already adequately addressed in the ARCF GRR EIS/EIR.

Section 3.8 Geological Resources

The third paragraph on page 96 in subsection 3.8.2 ‘Environmental Consequences’ is revised as follows:

Under this alternative, no temporary or short-term construction-related erosion effects would occur. However, catastrophic levee failure could result in collapse of miles of levee slopes and alteration of regional and local flows that would result in substantial increases in erosion and sedimentation. Erosion causing the loss of the levee foundation and eroded topsoil from banks of a river or sloughs would increase turbidity and total dissolved solids in the Sacramento River and ultimately affect the environmental resources of the Delta by impairing the beneficial uses of waters of the Delta. Levee failure would require immediate flood fighting efforts that would not include BMP measures to reduce erosion. A flood event could lead to widespread bank erosion, loss of soil, could comprise existing riparian habitat and could result in siltation of existing channels. ~~A flood event could also lead to widespread bank erosion, loss of soil, and could substantially alter the Sacramento River channel.~~ If a levee breach were to occur, emergency repair activities would be implemented and could result in the loss of channel capacity and alteration of present-day geomorphic processes with the placement of large quantity of rock in the river to close the breach. All of these effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable, and therefore a precise determination of significance is not possible.

The last bullet on page 99 in subsection 3.8.3 ‘Avoidance, Minimization, and Mitigation Measures’ is removed.

Section 3.9 Hazard Waste and Materials

The second-to-last bullet on page 100 in subsection 3.9.1 ‘Existing Conditions’ is changed to a new paragraph and revised as follows:

A Phase II site investigation (HDR 2018) was performed and found that elevated concentrations of lead in a limited volume of superficial soil strippings from the levee embankment and foundation that will be excavated for drained stability berm construction in Reach 4, just north of the Highway 50 viaduct (Pioneer Bridge), which is a part of SREL Contract 1. Phase II sampling also verified arsenic impacts along the rail lines as well as aerially deposited lead near Broadway. Additional contamination testing was completed in summer 2020 by Kleinfelder and GEI Consultants with results and analysis forthcoming.

The first paragraph under ‘Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites’ on page 103 is revised as follows:

Excess soil from the project may be transported and deposited at the Sacramento Railyards, for use at the Railyards project site. Most of the contaminated soil at the Railyards has been remediated, although groundwater remediation is ongoing (City of Sacramento 2016). Deposition of excess soil from the Proposed Action at the Railyards site will simply involve dumping of loaded haul trucks in areas of the Railyards that are permitted to receive imported fill. If applicable, the contractor will be required to test fill to show imported fill requirements are met prior to dumping.

The following paragraph is added after the last paragraph under ‘Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites’ on page 103:

Contaminants are likely to exist within the soil to be re-graded on the Chevron property, such as hydrocarbons, lead, arsenic, cyanide (location was formerly a manufactured gas plant facility), and other common contaminants found in and around petroleum facilities. However, all soil worked will remain within the same area on the property, thus no disposal of contaminants will be necessary. The construction Contractor is required to quantify the nature of the contaminants and develop a work plan for review and approval by the Government and other applicable Federal, State, and local agencies to ensure they perform the work in an appropriate manner and follow the appropriate safety protocols.

Section 3.11 Noise

The first paragraph on page 111 under ‘Summary of ARCF GRR Final EIS/EIR Effects’ in subsection 3.11.2 ‘Environmental Consequences’ is revised as follows:

The GRR Final EIS/EIR found that ground vibration could cause a significant effect if construction is required within 40 feet of a vibration-sensitive building (defined as a building with either plaster or wallboard for internal walls and ceilings). Mitigation to prepare a vibration control plan will be implemented prior to construction.

Although Sacramento County has a construction noise exemption during daylight hours, noise levels above 55 dBA are generally considered to be a significant effect on sensitive receptors. Noise levels could range from 83–95 dBA at 50 feet from the source. Therefore, based on projected construction equipment noise estimates (including haul trucks), the GRR Final EIS/EIR found effects to sensitive receptors to be significant during construction of the Sacramento River east levee improvements. A suite of mitigation measures to reduce construction noise will be implemented where construction will occur within 500 feet of any sensitive receptor to reduce the impact to less than significant. Construction noise will be generated 24-hours per day to install the jet grout cut off wall along the City of Sacramento’s Pioneer Reservoir (from levee stations 1093+50 to 1098+50) and the Chevron and Phillips 66 oil

tank facilities (from levee stations 1105+00 to 1116+15). This is an industrial area near Interstate 5 and US Highway 50 with the nearest sensitive receptor greater than 1000 feet away, thus there will not be a significant increase to ambient noise levels at the closest residences. The impacts of the 24-hour night work fall within the noise impacts previously described and analyzed in the GRR EIS/EIR.

The second-to-last bullet on page 114 in subsection 3.11.3 ‘Avoidance, Minimization, and Mitigation Measures’ is revised as follows:

- A voluntary pre- and post-construction survey will be conducted to assess potential architectural damage from levee construction vibration at each residence within ~~75~~100 feet of construction. The survey will include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation will be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures will be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage will be documented with photographs and video. This documentation will be reviewed with the individual property owners.

Section 4.2 Cumulative Effects

The first paragraph on page 137 in subsection 4.2.2 ‘Air Quality’ is revised as follows:

By its nature, air pollution is largely a cumulative impact. Ambient air quality standards are violated or approach nonattainment levels because of past activities, and increasing emissions-generating activity across the region may jeopardize attainment (SMAQMD 2020). Air quality is inherently a cumulative effect because existing air quality is a result of past and present projects. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards (SMAQMD 2014). The Federal attainment status in the SVAB for pollutants of concern is shown in Table 3-1. Several other construction projects are expected to occur simultaneously in the SVAB during the planned construction period for the Proposed Action. The related projects have the potential to generate construction-related emissions that individually exceed SMAQMD’s threshold of significance. However, all construction projects in the SMAQMD, including the Proposed Action are required to offset emissions that have the potential to negatively affect air quality in the SVAB through implementation of SMAQMD emissions reductions practices. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit).

Section 5.0 Compliance with State and Federal Laws and Regulations

The first paragraph on page 146 under ‘5.1.2 Endangered Species Act of 1973, as amended, 16 USC 1531, et seq.’ is revised as follows:

USACE is required to reinitiate formal consultation with USFWS and/or NMFS if effects to listed species will vary from what was provided at the time of formal consultation. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF Project actions, and USACE will reinitiate consultation with USFWS and/or NMFS, in accordance with 50 CFR 402.16, if completed design documents and specifications for associated ARCF projects provide more detailed data that “reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered.”