Draft

Supplemental Environmental Assessment/ Environmental Impact Report
American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 1

State Clearinghouse Number
2005072046

Prepared for:

U.S. Army Corps of Engineers
Sacramento District

Central Valley Flood
Protection Board

August 2019

Prepared by:

GEI Consultants

Consulting
Engineers and
Scientists

Draft

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DRAFT FINDING OF NO SIGNIFICANT IMPACT
Sacramento River East Levee, Contract 1

I have reviewed and evaluated the information presented in this Supplemental Environmental Assessment/Environmental Impact Report (EA/EIR) prepared for the Sacramento River East Levee Contract 1 Project. This project is a portion the American River Common Features (ARCF) 2016 Project. The ARCF 2016 Project was authorized by the Water Resources Development Act of 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707. The U.S. Army Corps of Engineers (Corps), with their non-federal partners the Central Valley Flood Protection Board (CVFPB) and the Sacramento Area Flood Control Agency (SAFCA) will construct levee improvements along the Sacramento River East Levee between O Street and Cosumnes River Boulevard to meet embankment and foundation stability requirements..

The possible consequences of the work described in the EA/EIR have been studied with consideration to environmental, socioeconomic, cultural, and engineering feasibility. I have considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service and the California State Historic Preservation Officer. Best management practices, avoidance protocols, and minimization measures would be used to reduce effects related to noise, air quality, vegetation and wildlife, special-status species, climate change, cultural resources, geological resources, hazardous wastes and materials, water quality and groundwater resources, recreation, traffic, and public utilities and service systems. Mitigation includes planting 7.1-acres of native riparian tree mitigation would be provided to compensate for the removal of 3.55 acres of riparian habitat from the construction footprint..

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

_____ _____

Date

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

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Abbreviations and Acronyms

AB	Assembly Bill
APE	Area of Potential Effects
ARB	California Air Resources Board
ARCF GRR	American River 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
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
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	sulfer 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 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 3.13 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	LTS	None	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: Use the Sacramento Metropolitan Air Quality Management District's Enhanced Exhaust Control Practices 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
Potentially Expose Sensitive Receptors to Substantial Pollutant Concentrations	LTS	None	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
Possible Exposure of Nearby Receptors to Temporary Intermittent Objectionable Odors	LTS	None	LTS
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
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)
Climate Change			
Temporary, Short-term Generation of Greenhouse Gas Emissions	S	Mitigation Measure GHG-1: Implement GHG Reduction Measures	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
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 for Inadvertent Discovery of Human Remains	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
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

1.0 INTRODUCTION

1.1 Proposed Action

The Proposed Action includes the installation of levee improvements to meet embankment and foundation stability requirements. Most of the improvements that are part of the Proposed Action were analyzed in the American River Common Features General Reevaluation Report (ARCF GRR) Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This 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, and has identified specific seepage and stability improvements and locations that constitute the Proposed Action.

1.2 Location of the Project

The project is located in the City of Sacramento (City), California along the east bank of the Sacramento River. **Figure 1-1** in illustrates the project vicinity.

1.3 Background, Purpose of, and Need for Proposed Action

The Proposed Action has been formulated to achieve the purpose of and need for the proposed project, as summarized below. The project needs and objectives, as identified in the ARCF GRR, define the underlying need for the proposed project to which USACE is responding, in conformance with the requirements of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] 1502.13 and 33 CFR Part 325, Appendix B).

1.3.1 Project Purpose

The purpose described in the ARCF GRR is to reduce the overall flood risk within the study area. An unacceptably high risk of flooding from levee failure threatens the public safety of approximately 530,000 people as well as property and critical infrastructures throughout the study area. Additionally, the State Capitol and many state agencies reside within the study area. Historic flooding events have caused loss of life and extensive economic damages. Approximately 83,000 structures throughout the study area are at risk of flooding in a 100-year event (1% annual change of flooding).

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 would 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, because the inundated area is highly urbanized and flooding could be up to 20 feet deep.

The Sacramento Metropolitan area has a high probability of flooding due to its location at the confluence and within the floodplain of two major rivers. Both of these rivers have large watersheds with very high potential runoff which has overwhelmed the existing flood management system in the past. The existing levee system was designed and built many years ago, before modern construction methods were employed. These levees were constructed close to the river to increase velocities which would flush out hydraulic mining debris. This debris is essentially gone now and the high velocities

associated with flood flows are eroding the levees which are critical components of the flood management system necessary to reducing the flood risk in the study area. In addition to the high probability of flooding, the consequences of flooding in the study area would be catastrophic.

The purpose of the Proposed Action is specifically to improve the Sacramento River East Levee to support the broader purpose of reducing flood risk associated with the Sacramento River.

1.3.2 Project Need

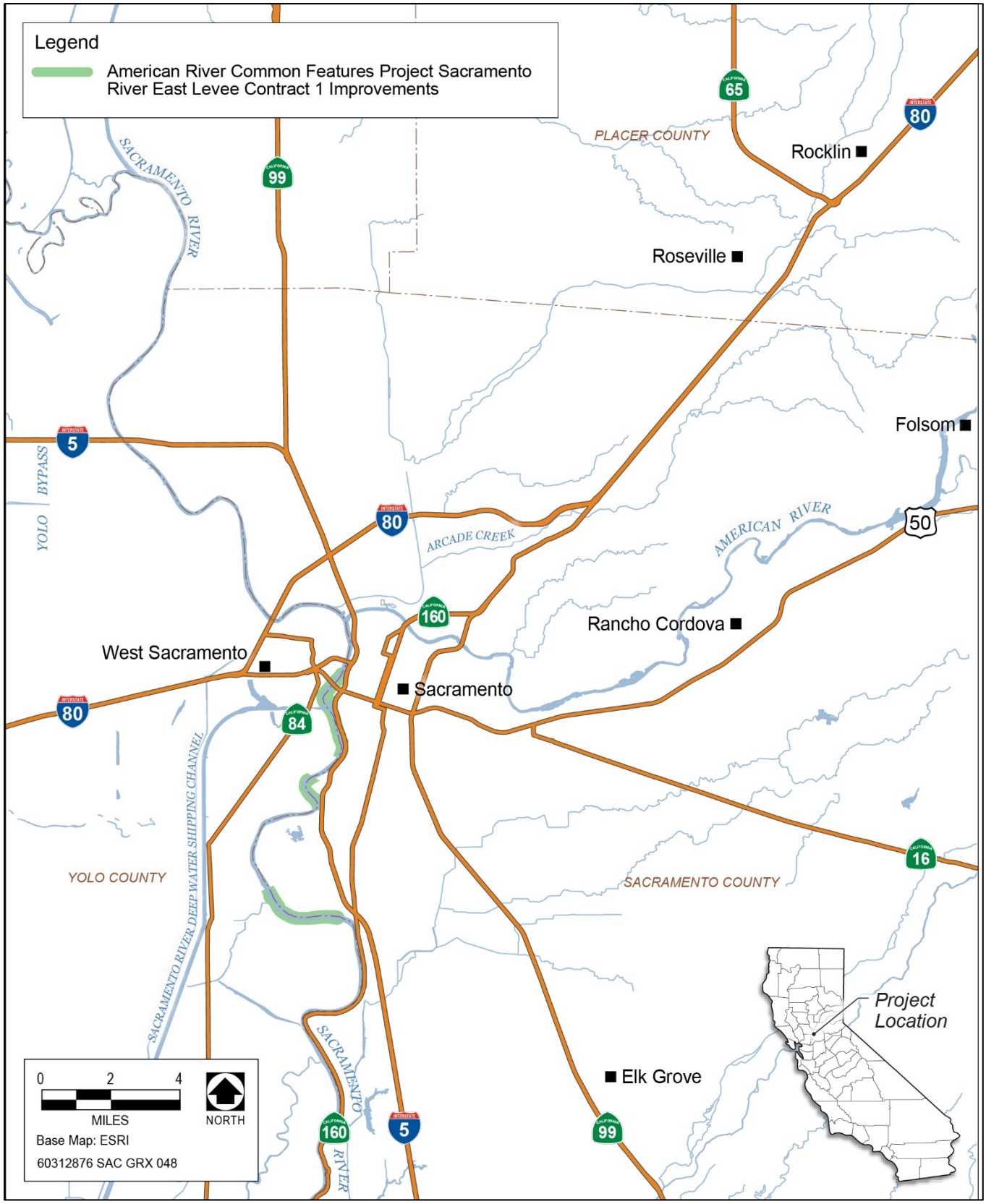
The proposed project is needed to reduce risks of levee failure, especially related to seepage, underseepage, and levee stability. While the crown of the Sacramento River East levee along the reaches identified in Figure 1-1 (below) accommodates a maintenance roadway and/or a paved bike trail, the slope is steep, typically measuring a ratio of 1.8 Horizontal:1Vertical (1.8H:1V) on the landside and 1.6H:1V on the waterside. This steepness, particularly in the case of a levee constructed with unsuitable materials over a porous foundation, significantly increases the risk of instability. Through-seepage also increases the instability of the levee. Constructing stability berms, and 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.

1.4 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;



Source: SAFCA 2016a

Figure 1-1. Project Location

- 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; and

- June 2019 Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site.

1.5 Authority

The proposed levee improvements are proposed under the ARCF 2016 Project. The American River Watershed Common Features Project was originally authorized by Section 101(a)(1)(A) of the Water Resources Development Act (WRDA) 1996, Pub. L. No. 104-303 § 101(a) (1), 110 Stat. 3658, 3662-3663 (1996), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707.

1.6 Purpose of the Supplemental Environmental Assessment/Environmental Impact Report

This Supplemental EA/EIR: (1) describes the existing environmental resources in the Project Area; (2) evaluates the environmental effects of the alternatives (see Section 2.3, below) on these resources; and (3) identifies measures to avoid, minimize, or reduce any effects to a less than significant level. This Supplemental EA/EIR has been prepared in accordance with NEPA and CEQA. USACE and CVFPB anticipate that USACE can implement the portion of the authorized ARCF project described in this document as the Proposed Action without additional NEPA or CEQA analysis beyond this Supplemental EA/EIR if there are no substantial deviations from proposed uses or the conditions of these uses.

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 effect 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 Final 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).

The purpose of a supplemental EIR is to provide the additional information necessary to make the previous EIR adequate for the project as modified. Accordingly, pursuant to the State CEQA Guidelines (CCR Section 15163), 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; and
- update impact analysis and mitigation measures where conditions have changed since the publication of the ARCF GRR Final EIS/EIR.
- provide minor additions and changes to the ARCF 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 identified in Section 3 of this Supplemental EA/EIR, "Environmental Setting, Impacts, and Mitigation 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, CVFPB would 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 Final EIS/EIR), when determining whether to approve the proposed project modifications. This Supplemental EA/EIR has been prepared in accordance with the requirements of CEQA and the State CEQA Guidelines. The Supplemental EA/EIR process is described further in Section 3.1.1, "Approach to Analysis."

This Supplemental EA/EIR supplements the ARCF GRR Final EIS/EIR. The ARCF GRR Final EIS/EIR analyzes many elements of the Proposed Action, including installation of cutoff walls and seepage berms, and other improvements. The analysis in this Supplemental EA/EIR focuses on project modifications and refinements, and details those which were not analyzed in the ARCF GRR Final EIS/EIR, including staging areas, haul routes, borrow sites, and more detailed cultural resources information associated with the Proposed Action. Each topic section includes a summary of the analysis in the ARCF GRR Final EIS/EIR and a discussion of those issues and impacts that were not adequately considered in the ARCF GRR Final EIS/EIR for the Proposed Action because the level of specificity necessary for project implementation was not then known.

1.7 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. The CVFPB must decide whether to certify the Supplemental EIR under CEQA.

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.

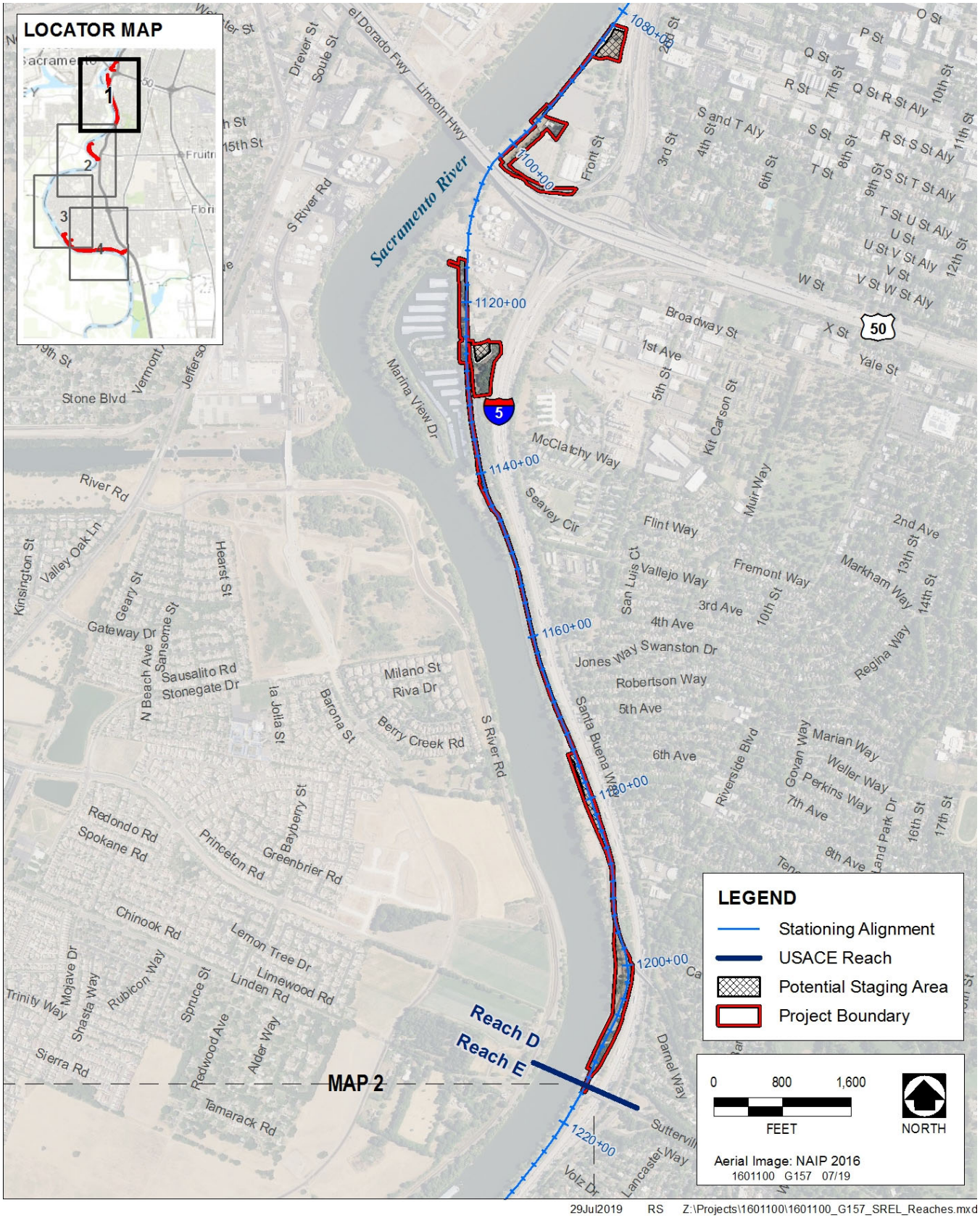
During selection of the proposed improvements for each levee reach along the Sacramento River East Levee in the Project Area, a range of potential engineering alternatives was evaluated for each of the improvement locations. These alternatives included centerline cement-bentonite (CB) or soil-bentonite (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 NFIP.

2.2 No-Action

NEPA requires the lead agency, USACE, to analyze a "no-action" alternative that establishes the benchmark to compare the effects of the action alternatives. Under the No-Action Alternative, CVFPB and USACE would not conduct any work to address identified and critical levee seepage and slope stability concerns that would be addressed by the Proposed Action. There would be no funding of the proposed levee improvements and no levee improvements would be made. 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.

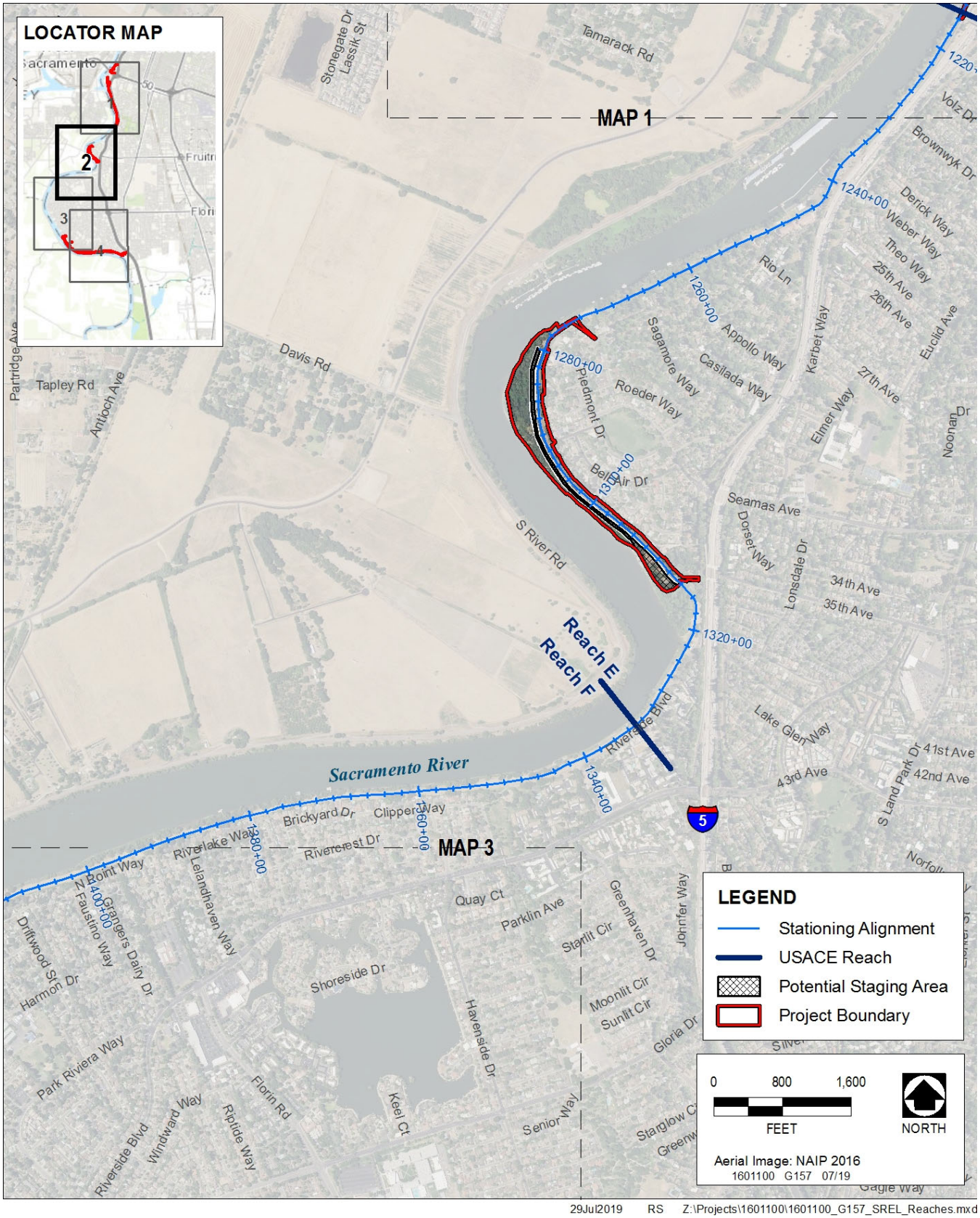
2.3 Proposed Action

This section describes the various 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 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. The proposed levee improvement areas are located in Reaches D, E, and F, as defined in the ARCF GRR. Figures 2-1 through 2-4 illustrate 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 on Figures 2-5 through 2-7.



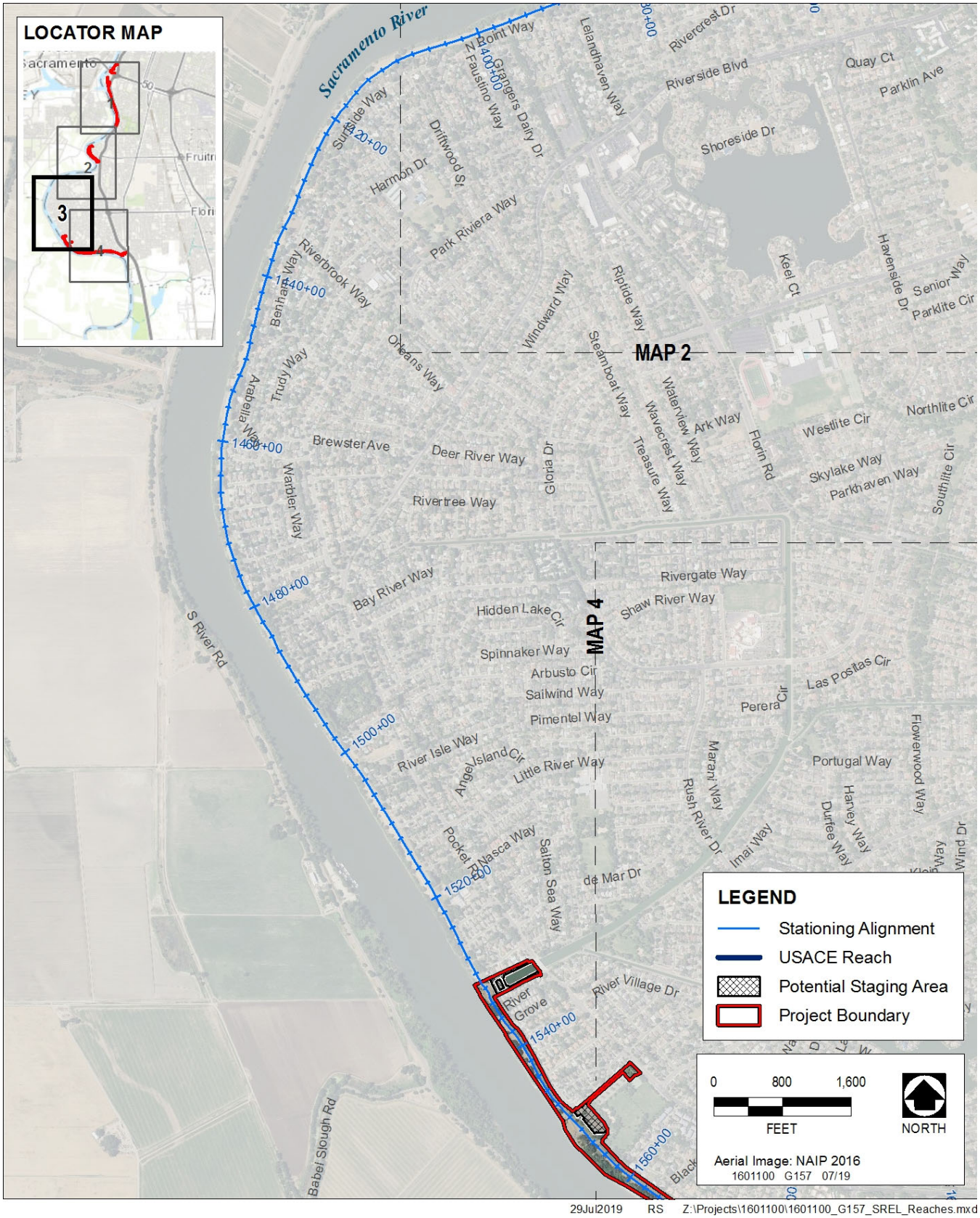
Source: GEI Consultants, Inc. 2019

Figure 2-1. Project Site (Map 1 of 4)



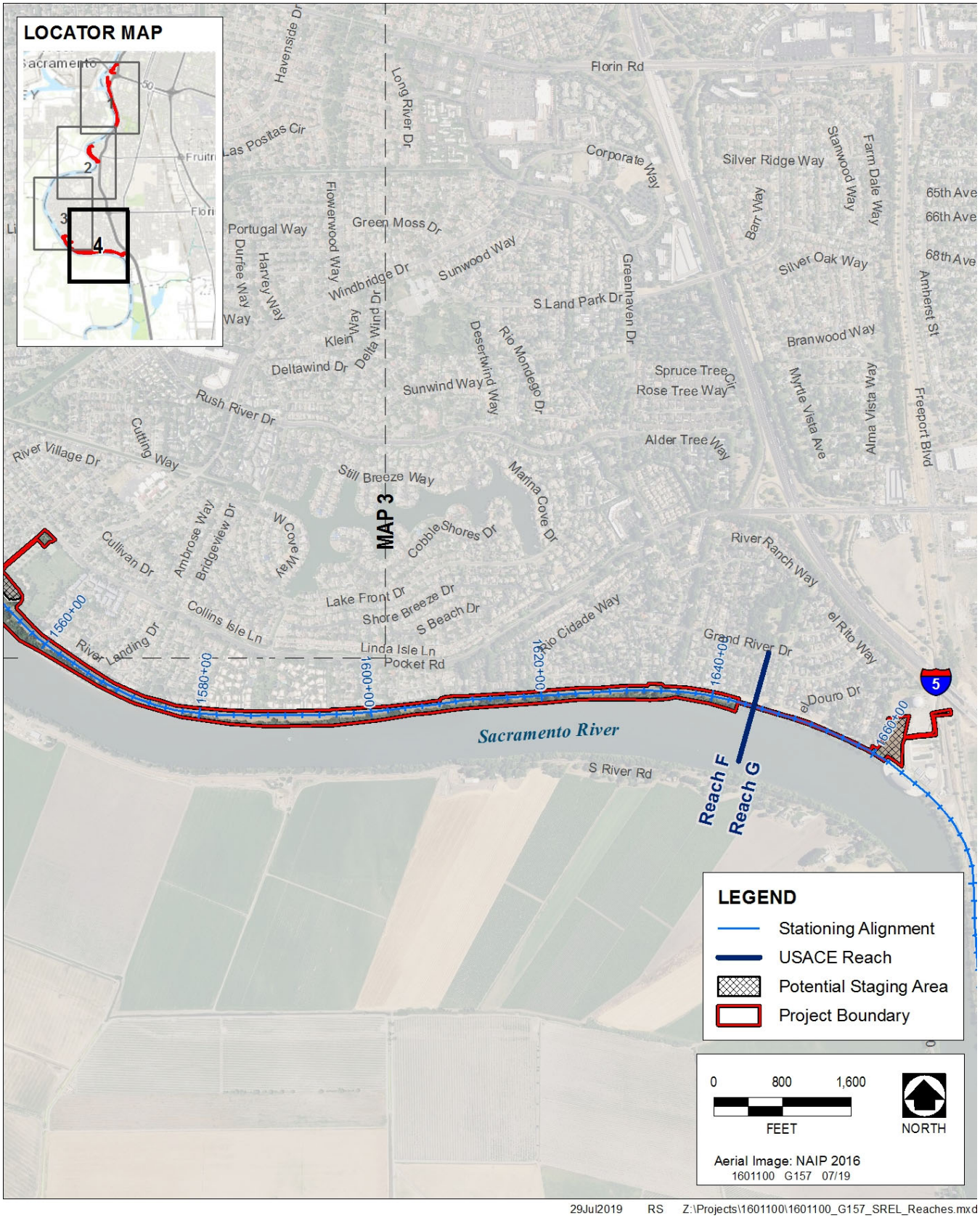
Source: GEI Consultants, Inc. 2019

Figure 2-2. Project Site (Map 2 of 4)



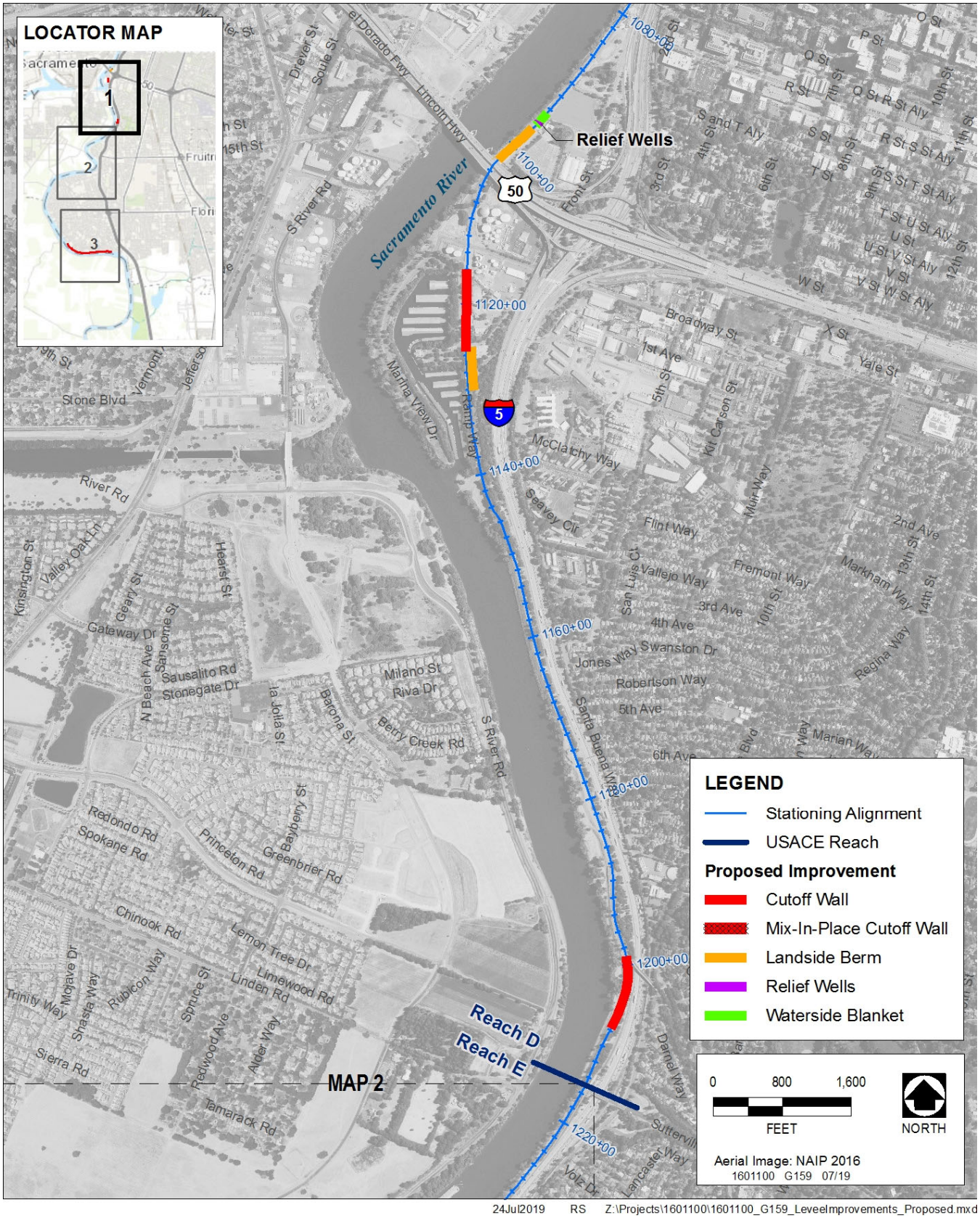
Source: GEI Consultants, Inc. 2019

Figure 2-3. Project Site (Map 3 of 4)



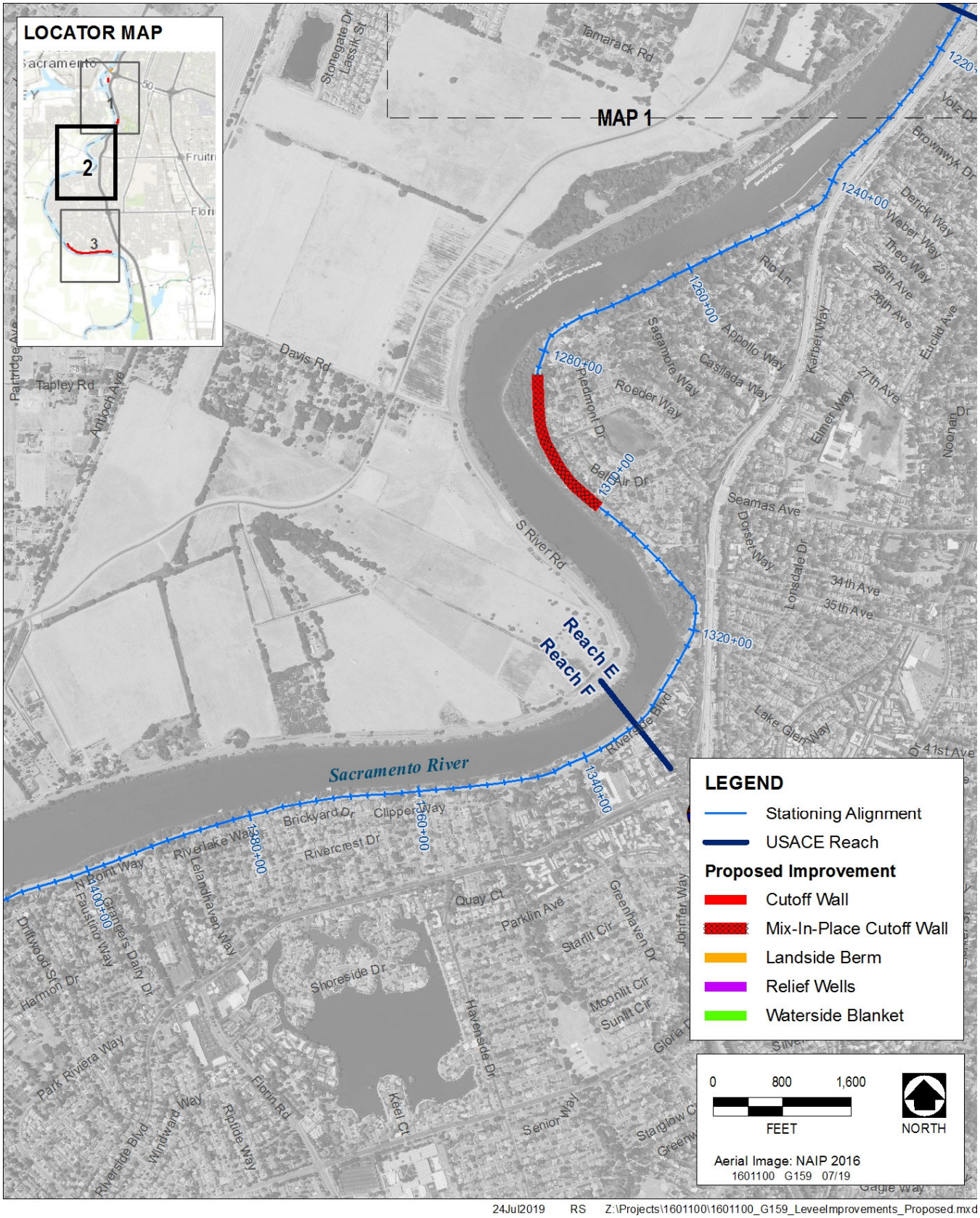
Source: GEI Consultants, Inc. 2019

Figure 2-4. Project Site (Map 4 of 4)



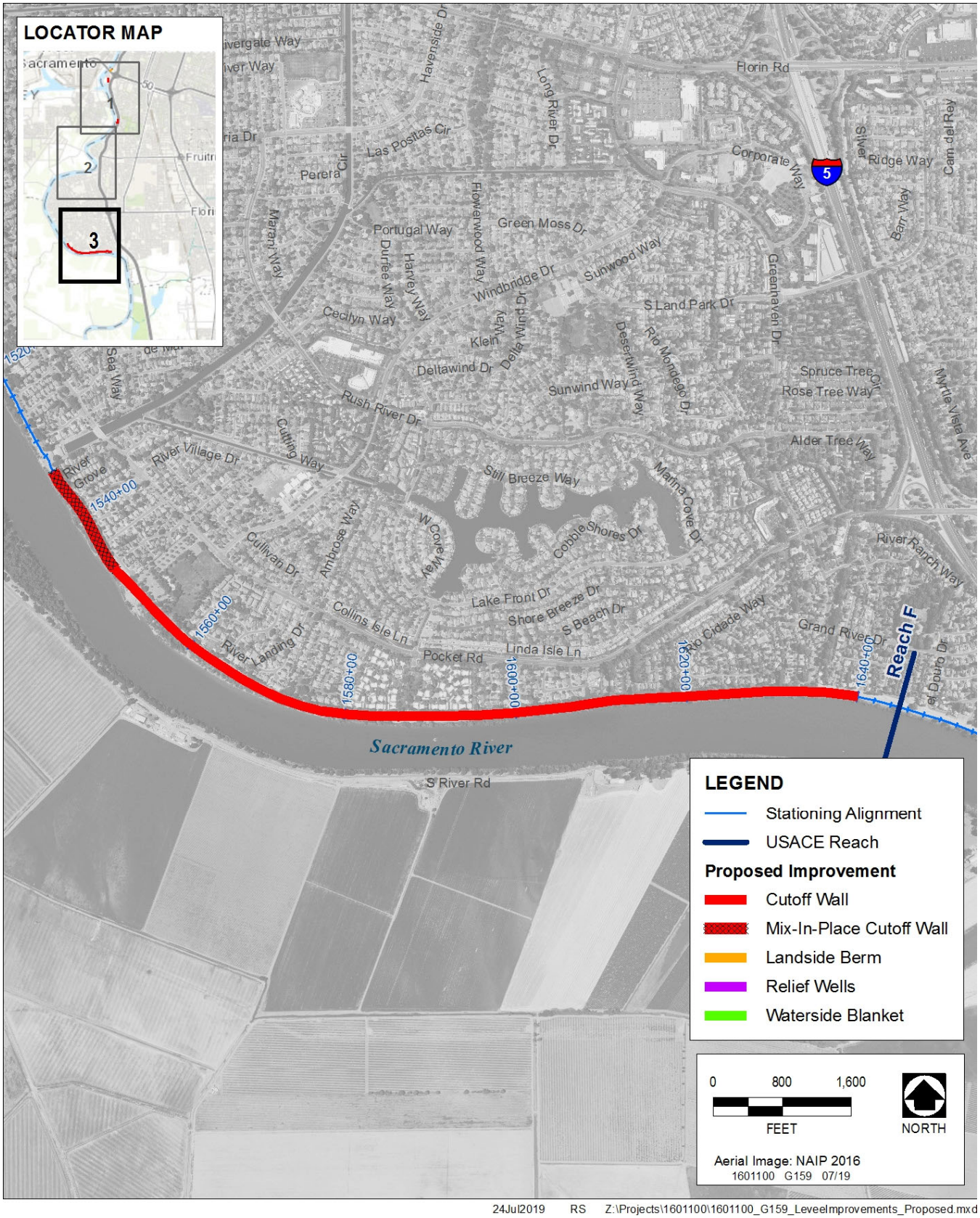
Source: GEI Consultants, Inc. 2019

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



Source: GEI Consultants, Inc. 2019

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



Source: GEI Consultants, Inc. 2019

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

Table 2-1 provides a summary of the proposed improvements by station.

Table 2-1. Proposed Levee Improvements Summary

Feature	Stations		Length (feet)	Description of Work
Cutoff Wall	1116+00	1125+50	950	Conventional cutoff wall to El. -10 feet (about 50 to 52 feet below existing ground)
	1199+00	1207+75	875	Conventional cutoff wall to El. -30 feet from Station 1199+00 to Station 1201+60 and El. -35 feet from Station 1201+60 to Station 1207+75 (about 65 to 70 feet below degrade surface)
	1282+90	1300+80	1,790	Mix-in-place cutoff wall to El. -95 feet from Station 1282+90 to Station 1288+50, El. -85 feet from Station 1288+50 to Station 1290+40, El. -80 feet from Station 1290+40 to Station 1291+50, and El. -65 feet from Station 1291+50 to 1300+80 (about 102 to 132 feet below degrade surface)
	1534+00	1547+50	1,350	Mix-in-place cutoff wall to El. -105 feet from Station 1534+00 to Station 1544+00 and El. -60 feet from Station 1544+00 to Station 1547+50 (about 90 to 135 feet below degrade surface)
	1547+40	1640+00	9,260	Conventional cutoff wall to El. -30 feet from Station 1547+40 to Station 1558+00, El. -10 feet from Station 1557+90 to 1561+00, El. -55 feet from Station 1561+00 to 1570+00, and El. -20 feet from Station 1570+00 to 1640+00 (about 35 to 80 feet below degrade surface)
Landside Berm	1096+97	1102+42	545	Drained stability berm
	1124+95	1130+17	522	Seepage berm
Waterside Blanket	1094+49	1096+44	195	Low-permeability waterside blanket

Source: GEI Consultants 2019
Note: All elevations in North American Vertical Datum of 1988 (NAVD88)

One borrow site would be located at the Sacramento Regional County Sanitation District (SRCSD) Wastewater Treatment Plant, southeast of the Sacramento River East Levee Improvement areas (Figure 2-8). Borrow material made available by treatment plant upgrades would be used to construct the proposed levee improvements. Material from other commercial borrow sites could also be used.

Several staging areas would be developed adjacent to and primarily landside of the levee to maximize the efficient use and distribution of materials and equipment. Staging areas would 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 (all staging areas are within the project boundary identified in Figures 2-1 through 2-4). USACE would 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 generally as the Project Area.

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 would 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 2-9.

Cutoff walls can be constructed by a number of methods to suit specific site conditions, required depth of treatment, and schedule requirements. The most common methods to install cutoff walls include the SB mix, CB mix, or soil-cement-bentonite (SCB) mix methods; mix-in-place techniques such as deep soil mixing (DMM), one pass trench (OPT) techniques, and interlocking steel or vinyl sheet piles are less conventional. Additionally, cutoff walls can be constructed at either the levee centerline or at the levee waterside toe. The required working area for construction depends on the method used. For conventional slurry trench methods, the working platform must be at least 30–40 feet wide for shallow cutoff walls, with deeper walls requiring a wider platform.

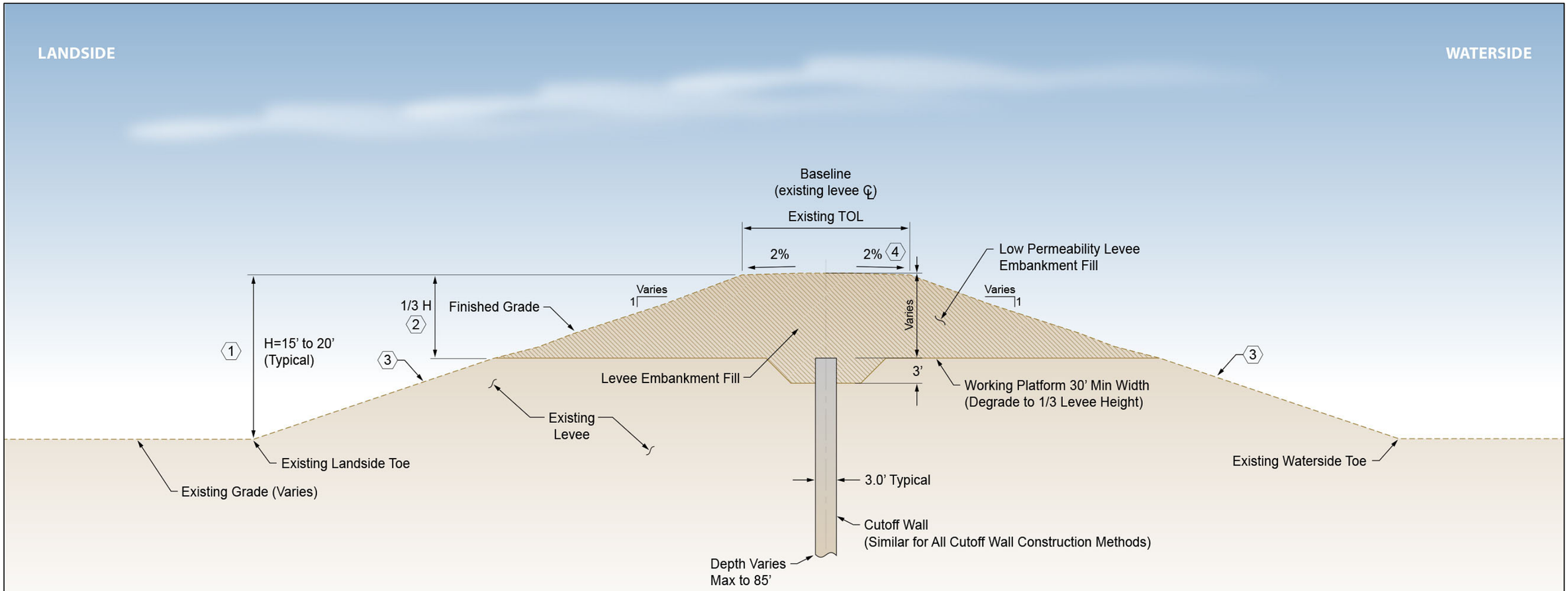
Conventional slurry cutoff walls are typically constructed using an excavator with a long-stick boom capable of digging a trench to a maximum depth of approximately 80 feet. Bentonite slurry is placed in the trench during trench excavation to prevent caving while the backfill material is mixed and placed. Excavated soil is then mixed with bentonite clay (and cement for SCB 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 OPT methods of slurry wall construction differ from the conventional trench method in that the existing subsurface soils are mixed in place, with cement and/or bentonite injected through augers 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.

For cutoff walls constructed using interlocking steel or vinyl sheet piles, the sheet piles are typically driven by a hydraulic or pneumatically operated vibratory pile driving head attached to a crane. Depending on the soil types and depth requirements, pre-drilling may be required before driving. Depending on the subsurface soil conditions, sheeting may also be hydraulically pushed into place to minimize vibration.

Source: GEI Consultants, Inc. 2019

Figure 2-8. Potential Borrow Site and Haul Routes



Notes:

1. Levee height shown at 20 feet. Dimensions will vary based on actual levee height.
2. Levee to be degraded to 1/3 its height for cutoff wall construction and then rebuilt with levee embankment fill.
3. Existing vegetation on the waterside and landside would not be disturbed unless designated to be removed.
4. Crown surfacing not shown.

Source: SAFCA 2016a

Figure 2-9. Typical Conventional Slurry Wall

Footprint and Impact Zone for Cutoff Walls

Constructing a conventional slurry cutoff wall through the center of a levee typically requires degrading the levee by at least 1/3 of its height to provide a working platform of sufficient width and to reduce potential for developing cracks in the levee during cutoff wall installation. Such cracking of the levee is not a problem for sheet pile or mix-in-place cutoff wall installations. Therefore, levee degradation for sheet pile or mix-in-place cutoff wall installations is only needed to develop an adequate working platform to operate the cranes and supporting equipment. Typically, a platform 30–40 feet wide is required, but a platform 20–25 feet can be adequate for the OPT method. Conceptual construction details for mix-in-place cutoff walls are shown in Figure 2-10.

USACE would make every feasible attempt to minimize the footprint and impact zone to the upper 1/3 of the levee for cutoff wall construction. However, depending on levee geometry and available work areas, it is possible that for mix-in-place segments (illustrated on Figures 2-6 and 2-7) up to 1/2 of the levee may have to be degraded. To provide flexibility in the event that a 1/2 degrade is needed in some locations, this Supplemental EA/EIR assumes a 1/2 levee degrade may be implemented for all levee improvements. Characteristics of the lateral design boundary (i.e., limit of work) are as follows:

- assumed average levee height above natural grade: varies 18–24 feet high

- assumed average levee degrade excavation depth from top-of-levee: 11–12 feet deep (equal to 1/2 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 8-foot vertical depth: +20 feet (or 24 feet)
- projected horizontal width of landside slope removal to 8-foot depth: +16 feet
- total width of the top of degraded levee: 16+20+20 (or 24) = 56–60 feet wide

Cutoff wall construction to depths of up to 85 feet along the existing levee would 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 would require a work platform near the trench. A work platform would be established adjacent to the trench by partially degrading (cutting down) the top of the existing levee to provide adequate working width. Excavated soil would be hauled to a relatively nearby mixing area for mixing with bentonite and reintroduction in the trench. The cutoff wall backfill would likely consist of a SB mixture, although alternative materials such as CB may be considered.

After cutoff wall construction, properly selected and moisture-conditioned embankment materials would 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 would 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 would 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 would be placed on the levee crown patrol road, similar to existing conditions, and the disturbed slopes would be planted with approved vegetation.

At least one reach of cutoff wall is expected to extend deeper than 85 feet and would require the DMM method (described previously).

Stability Berms and Blankets

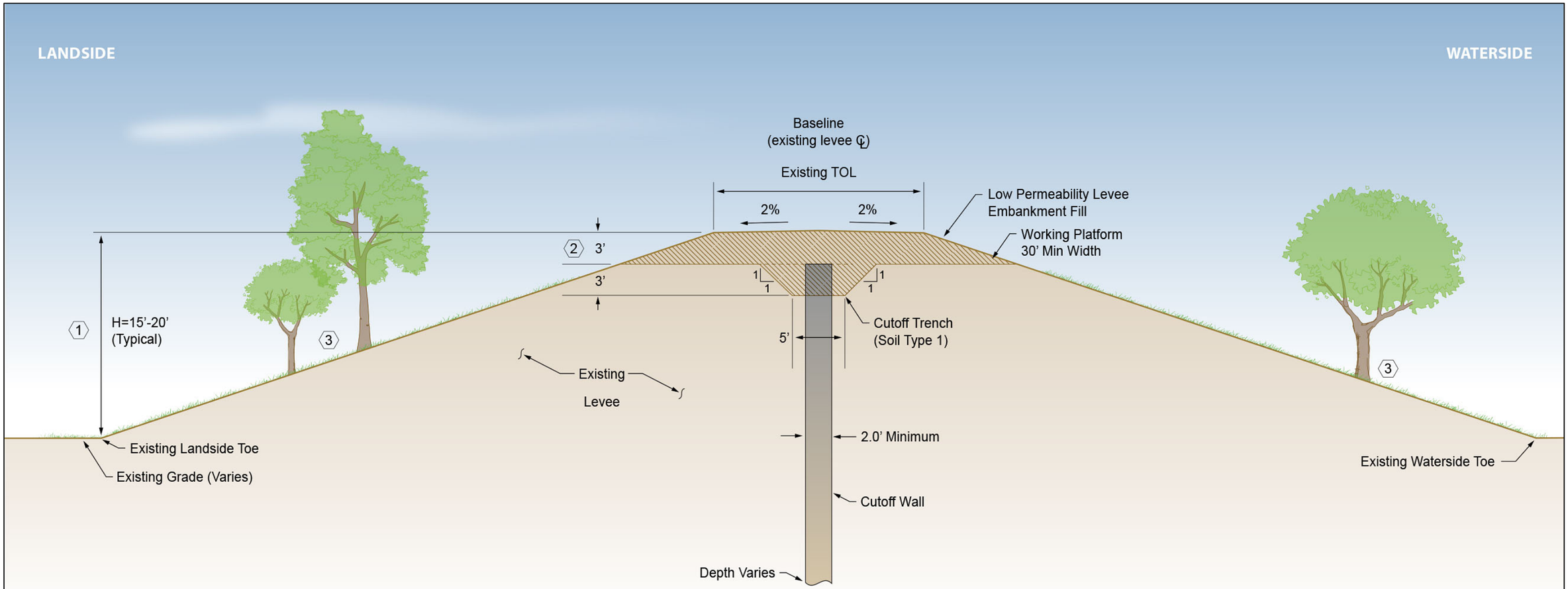
Stability berms and blankets address shallow foundation and/or levee embankment through-seepage. A stability berm or blanket is a prism of compacted soil that acts as a buttress to increase stability factors of safety and, in some cases, includes an inclined filter/drain zone placed on the landside slope of a levee to capture seepage that would otherwise exit on and potentially erode the unprotected levee slope. Typical stability berms are 10–15 feet high (depending of the height of the levee) and 10–25 feet wide and are considered in limited areas that do not have substantial right-of-way issues. Alternatively, the stability berm can be constructed within the existing levee in areas with constrained access along the landside levee toe. The inset stability berm would be constructed by excavating the landside levee slope, constructing the filter/drain zone, then rebuilding the levee slope to approximately the original grade with compacted fill.

Stability berms and blankets would be constructed using engineered fill, with the fill placed in horizontal lifts consistent with USACE and CVFPB requirements for lift thickness and compaction densities. Each lift would be moisture-conditioned and compacted to the specified density using a suitable compactor, such as a tamping-foot or smooth-drum roller.

Toe Drains

The primary purpose of a toe drain is to capture through-levee seepage before it exits on the levee slope, potentially causing erosion and instability, and to filter the discharge in such a way as to reduce velocity and fine soil carrying capacity. A toe drain would typically be used when through-seepage or through-seepage-driven landside slope stability is problematic. Toe drains would be used in several limited reaches where the levee does not have an existing shallow cutoff wall and there is a concern regarding potential seepage breakout on the levee slope or at the levee toe.

Toe drains would be constructed by excavating into the levee prism and constructing a filtered drain within the downstream toe of the levee embankment. The levee would be reconstructed in horizontal lifts consistent with USACE and CVFPB requirements for lift thickness and compaction densities. Each lift would be moisture-conditioned and compacted to the specified density using a suitable compactor, such as a smooth-drum vibratory roller.



Notes:

1. Levee height shown at 20 feet. Dimensions will vary based on actual levee height.
2. Levee to be degraded by 3 feet for cutoff wall construction and then rebuilt with low permeability levee embankment fill (Type 1).
3. Existing vegetation on the waterside and landside would not be disturbed unless designated to be removed.
4. Crown resurfacing not shown.

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Source: SAFCA 2016a

Figure 2-10. Typical Cutoff Wall Mix-in-Place Method

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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 1094+49 to Station 1096+44: Waterside Blanket

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. A 10-foot-diameter pipe runs through the levee, to allow discharge of reservoir contents to the Sacramento River when storage capacity is exceeded. There are two railroad tracks and a paved bicycle and pedestrian trail along the top of the levee. There are also two below-grade Pacific Gas and Electric Company (PG&E) gas mains that parallel the levee landside toe. USACE installed four fully penetrating relief wells and associated discharge piping in 2005 to reduce elevated seepage pressures for the then-defined 100-year design water surface elevation.

Construction in this segment includes a waterside low-permeability blanket to prevent through-seepage in the northernmost portion of the reach, upstream of the Pioneer Reservoir inlet and outlet pipes.

Station 1096+97 to Station 1102+42: Drained Stability Berm

This segment is also adjacent to the Pioneer Reservoir. At this location, downstream of the 10-foot-diameter discharge pipe from Pioneer Reservoir, USACE previously constructed a drained seepage berm that extends from the levee toe to the western wall of the reservoir. USACE also installed two relief wells in the low area south of Pioneer Reservoir.

The proposed measure in this reach consists of adding a drained stability berm along the landside levee slope and raising (thickening) the existing toe berm by approximately 4.75 feet. The stability berm would include an inclined drainage layer that would tie into the existing toe berm's drainage layer. The new drainage layer would include a redundant collector pipe that discharges into the same manhole as the existing drainage layer. The existing drained toe berm would be thickened by raising the grade at the toe of the levee up to 4.75 feet.

Station 1116+00 to Station 1125+50: Cutoff Wall

This levee segment has the following existing penetrations and encroachments:

- an active Kinder Morgan petroleum pipeline,
- an active Chevron petroleum pipeline,
- four additional petroleum pipelines that feed adjacent tank farms,
- water and sewer mains located within Broadway that either cross through or under the levee, and
- a railroad crossing.

The identified improvement at this location is a cutoff wall (to Elevation -10 feet, about 50 to 52 feet below existing ground) from Station 1116+00 to Station 1125+50.

Station 1199+00 to Station 1207+75: Cutoff Wall

This segment parallels I-5 and is the tallest section of levee within the Project Area, with a landside levee height of approximately 28 feet. The railroad diverges from the levee near Station 1201+00 and crosses I-5, as the levee follows the Sacramento River to the southwest. The levee is wide, and the crown is used as a bicycle and pedestrian trail.

The identified improvement at this location is a conventional cutoff wall through the levee crown (to Elevation -30 to -35 feet; about 65 to 70 feet below the degrade surface).

Station 1282+90 to Station 1300+80: Cutoff Wall

This segment is located just downstream of a segment of levee where a deep cutoff wall was previously installed. Residential development abuts the landside toe and environmentally sensitive habitat is located waterside of the levee. USACE previously installed a shallow seepage cutoff wall at this location.

The identified improvement at this location is a deep cutoff wall through the levee crown (to Elevation -65 to -95 feet; about 102 to 132 feet below the degrade surface). A 1/2 levee degrade may be required for this segment.

Station 1534+00 to Station 1547+50: Cutoff Wall

This segment is located just downstream of Sump 132. It is a relatively short and straight portion of levee along the southwest edge of the Pocket area. Residential streets and landscaped areas are located along the landside toe of levee. USACE previously installed a shallow seepage cutoff wall at this location.

The identified improvement at this location is a deep cutoff wall through the levee crown (to Elevation -60 to -105 feet; about 90 to 135 feet below degrade surface). A 1/2 levee degrade may be required for this segment.

Station 1547+40 to Station 1640+00: Cutoff Wall

This segment is located at the southern boundary of the Pocket area. It includes the Garcia Bend Park parking area and residences that abut the landside toe of the levee. A boat launch facility is located waterside of the levee. South of Garcia Bend Park, the levee is paralleled by residences, short lengths of roads, and a series of cul-de-sacs that dead end near the landside toe of the levee. Some of the residences have swimming pools near the landside toe. USACE previously installed a shallow seepage cutoff wall at this location.

The identified improvement at this location is a conventional seepage cutoff wall through the levee crown to address through-seepage (to Elevation -10 to -55 feet; about 35 to 80 feet below degrade surface). The seepage cutoff wall would extend beyond the base of the fine-grained blanket layer to an intermediate aquiclude and would cut off the more permeable granular layers in the blanket that may be conveying seepage to the landside toe and “stitch” the blanket together.

2.3.3 Proposed Borrow Site, Haul Routes, and Materials

A preferred borrow site has been identified to provide suitable material for levee improvements for the Proposed Action. Levee embankment borrow material is expected to be obtained from the SRCSD Wastewater Treatment Plant, southeast of the Sacramento River East Levee Improvements area (Figure 2-6). Material excavated for the treatment plant expansion would be stockpiled on or adjacent to the SCRSD site and made available to construct the levee improvements. Borrow material would be transported to the project site via developed roads such as Franklin Boulevard, Beach Lake Road, and I-5, possibly augmented by locally developed access roads through agricultural parcels. Figure 2-6 illustrates potential haul routes. Not all the routes shown would necessarily be used; final routes would be determined in coordination with the City, based on project construction schedules. Borrow site restoration requirements, if any, would be coordinated with SCRSD 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 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 for Proposed Sacramento River East Levee Improvements

Material Type	Quantity	Borrow/Disposal Source
Type 1 Levee Fill – Low Permeable	150,000 cy	SRCSD Stockpile or Commercial Source
Type 2 Levee Fill – Shells	24,000 cy	SRCSD Stockpile and/or Existing Levee Reuse
Filter and Drain Material	1,500 cy	Commercial Quarry
Aggregate Base	5,000 tons	Commercial Quarry
Asphalt Concrete	1,800 tons	Commercial Plant
Excess Soils	150,000 cy	Approved Off-site Disposal

Notes: cy = cubic yards; SRCSD = Sacramento Regional County Sanitation District
Source: GEI Consultants, Inc. 2019

The Sacramento Railyards, north of the Project Area, has been preliminarily identified for disposal of excess soil. If the Railyards is not available, materials not used onsite would 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[1].

[1] The Railyards SEIR analyzes the potential import of up to 750,000 cubic yards of fill from the SRCSD Wastewater Treatment Plant (City of Sacramento 2016). The air quality effects of disposing approximately 20,000 cubic yards of excess material from the Proposed Action at the Railyards as a portion of the total material demand at the Railyards would be less than air quality effects analyzed in the Railyards EIR, because this material would be hauled a substantially shorter distance, with correspondingly reduced air quality emissions from haul trucks. Similarly, the Railyards EIR analyzed transportation effects from a haul route traveling along I-5 to the Railyards site. The only effects of this hauling not already evaluated in the Railyards would be traffic and noise effects related to hauling from the project site to I-5 entrances.

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 would 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. For many cases, USACE would need to acquire temporary, and possibly permanent, access rights from landowners. Final selection of staging areas would 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 would 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 would not change the intensity or severity of the impacts analyzed in this Supplemental EA/EIR.

Bulk material silos, bentonite hydration facilities, and mixing facilities would be required for both DMM and conventional slurry wall construction. These facilities would 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.

Figures 2-1 through 2-4 illustrate potential staging areas including, but not limited to, the following locations:

- Front Street south of R Street;
- south of Front Street, in Miller Park;
- waterside of the widened levee crest south of 6th Avenue;
- the end of Sutterville Road;
- waterside levee toe south of Yacht Court, extending to the south end of Little Pocket;
- City of Sacramento Sump 132;
- a portion of Garcia Bend Park; and
- west of the water tower at Freeport Boulevard and I-5.

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 would not all be used simultaneously throughout the entire 3-year construction period.

Portions of two City parks (Miller Park and Garcia Bend Park) could be closed simultaneously during portions of the construction period. CVFPB and USACE would 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 would include limited park closure, temporary removal of facilities, and partial closure of parking areas. CVFPB and USACE would return all City parks to pre-project conditions. Other recreational resources that would be affected

during project construction include the Sacramento excursion train and the Sacramento River Parkway bike trail. (See Section 3.12, "Recreation," for further discussion).

2.3.5 Utility Relocations and Removals

The Proposed Action would 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 would 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 would be replaced by the contractor. Conductors and communication lines would be installed by the utility owners after conduits have been modified. Irrigation lines located within the levee would be capped beyond the landside toe and removed within the levee prism during clearing and grubbing activities. Table 2-3 summarizes utility modifications that would occur with the Proposed Action.

Table 2-3. Summary of Utility Modifications

Station	Utility	Improvement	Action
Approx. 1096+90 to 1101+75	24-inch Storm drain	Drained stability berm	Remove and replace
Approx. 115+50 to 1123+00	8-inch water main	Cutoff wall	Relocate
1115+75	Irrigation utilities and valve boxes	Cutoff wall	Remove and replace if required for construction
1120+00	8-inch storm drain	Cutoff wall	Remove and replace
1124+38	8-inch storm drain	Cutoff wall	Remove and replace
1124+48	4-inch electrical	Cutoff wall	Remove and replace
1124+77	6-inch sewer force main	Cutoff wall	Remove and replace
1125+04	2-inch gas	Cutoff wall	Remove and replace
1125+15	Electrical conduit	Cutoff wall	Remove and replace
1549+54	Electrical conduit	Cutoff wall	Remove and replace
1552+68	1,25-inch electrical	Cutoff wall	Remove and replace
1095=50	Pioneer reservoir drain lines and electrical service	Cutoff wall	Remove and replace

Source: GEI Consultants, Inc. 2019
Note: Utilities are shown on construction plan sheets.

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

Levee improvements would include removal and disposal of utilities that are encountered during construction and are not permitted or were previously abandoned. A total of 23 individual utilities and utility groupings have been identified for removal, as summarized in Table 2-4. These utilities would 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 2-4. Summary of Utility Removals

Station	Utility Type	Reason for Removal
1094+49	12-inch Gas	Previously abandoned
1094+59	Three 6-inch Gas	Previously abandoned
1094+93	16-inch Water	Previously abandoned
1095+05	6-inch Oil	Previously abandoned
1095+21	6-inch Steel (unknown)	Previously abandoned
1095+28	10-inch Water	Previously abandoned
1095+56	8-inch Water	Previously abandoned
1118+38	6-inch or 4-inch Water	No longer necessary
1118+49	6-inch or 4-inch Water	No longer necessary
1121+47	8-inch Water	No longer necessary
1534+81	8-inch Irrigation	Previously abandoned
1540+27	6-inch Irrigation	Unpermitted
1549+89 to 1557+50	Irrigation	Unpermitted
1552+10	1.5-inch Irrigation	Unpermitted
1554+44	Unknown	Previously abandoned
1571+84	12-inch Steel	Previously abandoned
1576+52	Irrigation	Previously abandoned
1579+50	2-inch PVC pipe (unknown)	Previously abandoned
1611+09	2-inch Vertical Faucet and piping	Unpermitted
1613+07	4-inch Irrigation	Previously abandoned
1634+00	2-inch Electrical	Unpermitted
1635+16	Irrigation	Previously abandoned

Source: GEI Consultants, Inc. 2019

2.3.6 Construction

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

Construction Schedule and Sequencing

Levee repair construction work is planned to be completed in 2020, after receipt of all environmental clearances, permits, authorizations, and permissions. Construction would occur during daytime hours, generally between 7 a.m. and 7 p.m. No construction is planned outside these hours, and in the event that construction schedules were changed to include work outside these hours, construction would only be permitted at locations that are more than 300 feet from the nearest residence.

Improvements are anticipated to be implemented in a single construction season from April 2020 through November 2020, with vegetation and tree removal occurring over an approximately 3-week period between December 2019 and February 2020. Levee repair construction work would commence

after receipt of all environmental clearances, permits, authorizations, and permissions. The anticipated construction sequence would include:

- *Vegetation and Encroachment Removal:* Trees and other encroachments that affect improvement areas would be removed. These activities would take approximately 3 weeks and be completed between December 2019 and February 2020.

- *Mobilization:* Mobilization would include setting up construction offices and the slurry batch plant and transporting heavy earthmoving and mixing equipment to the site. These activities would take approximately 1 month and begin in April 2020.

- *Levee Degradation for Cutoff Wall Installation:* Levee degradation would begin after vegetation and encroachment removal and precede cutoff wall installation. Degradation would take approximately 3 months but is unlikely to be conducted in one operation. Rather, levee reaches would 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 would begin with constructing the work pad after a sufficient length of levee has been degraded and is available for construction. Assuming four simultaneous work areas (three conventional and one DMM), construction would take approximately 5 months.

- *Stability Berm and Toe Drain Construction:* Stability berms and toe drains would be constructed concurrently with cutoff wall installation.

- *Utility Relocation:* Any required utility relocation would be conducted concurrently with levee degradation and reconstruction, which would take approximately 3 months.

- *Levee Reconstruction:* Levee reconstruction would begin after a sufficient length of cutoff wall has been completed to allow efficient reconstruction. Total time estimated for levee reconstruction is approximately 4 months.

- *Site Restoration and Demobilization:* Upon completion of the main construction activities, the contractor would resurface the levee patrol road, revegetate disturbed areas, restore staging and borrow areas, and demobilize from the site(s). These activities are expected to take up to 2 months and would be completed by November 2020.

To the greatest extent practical to minimize impacts and effects on the community, construction would 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 would 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 would be consistent with National Pollution Discharge Elimination System (NPDES) permit requirements and would be included in a Stormwater Pollution Prevention Plan (SWPPP).

After completion of construction activities, the temporary facilities would be demobilized and the site would 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, and fuel pumps and fuel storage tanks. Mobile construction equipment would depend on the selected contractor's planned operations. Typical equipment that may be used throughout the project, along with an approximation of the duration of each associated activity, is shown in Table 2-5.

Additional equipment would 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 would be shipped to the site in ready-mix trucks.

Construction-related Traffic

Personnel, equipment, and imported materials would 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 100 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 would be needed to remove the equipment from the site as the work is completed.

Necessary aggregate base rock material would be obtained from a commercial sand and gravel operation, most likely in the Sacramento area. Rip rap material would be obtained from quarries located within approximately 30 miles of the Project Area. The construction contractor would select the specific supplier, based on suitability and pricing. Approximately 21,500 highway truck trips would be needed to bring the levee fill to the site from the borrow area. Approximately 1,400 highway truck trips would be needed to bring the aggregate and asphalt material to the site from the supplier. Approximately 600 truckloads would be needed to bring dry bentonite to the site. The bentonite would likely be processed in Wyoming, Utah, or South Dakota and transported to the Sacramento area by rail. Another 100 trailer truckloads would be required to bring other permanent materials to the site, such as geotextile fabric, erosion control materials, piping, well casings, and ancillary equipment. In addition, approximately 2,000 highway truck loads would be required to dispose of surplus material from levee excavation (if

hauled offsite), and 150 highway truckloads may be needed to carry demolition debris, construction debris, and other materials to a suitable landfill.

Table 2-5. Typical Construction Equipment that May Be Used for the Proposed Sacramento River East Levee Improvements

Equipment Type	Construction Activity				
	Vegetation Encroachment Removal; Utility Removal	Berms, Toe Drains, Slope Flattening	Mobilization; Cutoff Wall; Site Restoration and Demobilization	Vegetation Encroachment Removal	Berms, Toe Drains, Slope Flattening
Equipment Transport Trucks	0	1	5	0	1
Hydraulic Excavator	1	1	2	1	1
Long-Stick Excavator	1	0	3	0	0
Front-end Loader	1	1	3	1	1
Bulldozer	1	2	5	0	2
Highway Dump Truck	5	10	20	5	10
Grader	1	2	2	0	2
Water Truck	0	1	2	0	1
Tramping Roller	0	2	2	0	2
Vibratory Smooth Wheel Compactor	0	1	1	0	1
Forklift	0	1	5	0	0
DMM Rig	0	0	2	0	0
Bulk Material and Hydration Silos	0	0	8	0	0
Truck-Mounted Crane	0	0	2	0	0
Concrete Transit Truck	1	1	0	0	0
Lubricating Truck	1	0	1	0	0
Pickup Trick	0	0	0	0	0
Drill Rig (truck-mounted)	0	2	0	0	0
Hydro-seed Truck	0	0	1	0	0

Source: GEI Consultants, Inc. 2019

The primary construction corridor would include the existing levee corridor and local City and residential roads. Within the construction areas, the main sources of construction traffic would 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 berm construction and levee embankment reconstruction. An estimated 215,000 cubic yards (cy) of levee degrade material would be transported to and from the temporary stockpiles, requiring approximately 15,000 haul trips each way (assuming highway haul units). Dust control measures (described in more detail in Section 3.3, "Air Quality) would be applied to roads and work areas on a systematic basis.

The need for temporary stockpiles would be reduced if the levee embankment is reconstructed using low permeable levee fill from the borrow area. Under this scenario, the estimated 215,000 cy of levee degrade material would be taken to the Railyards or another disposal site in approximately 15,000 haul trips. A similar number of highway truck trips would be needed to bring the low permeable levee fill to the work sites from the borrow area.

Figure 2-8 illustrates potential access points and haul routes which could be used to access work areas. Only some of the routes and access points would likely be used. Once the trucks access the levee, they would travel along the levee to conduct repair/improvement work. Trips would 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) would likely be via Dwight Road, Laguna Boulevard, and I-5. The primary access point into the Pocket area would likely be at Meadowview/Pocket Road. From there trucks would travel west on Pocket Road to Garcia Bend Park or Sump 132. Other access to the Pocket would be via Riverside Boulevard, Florin Road, Freeport Boulevard, and Cosumnes River Boulevard. Construction equipment could also access work areas in the Pocket via Greenhaven Drive and Sleepy River Way. To access work areas in the Little Pocket, trucks would enter at Seamas Avenue, Riverside Boulevard, and Piedmont Drive. To access the Miller Park area, trucks would use Q Street, 3rd Street, 5th Street, Front Street, and Broadway, or would 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 would 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 would continue to provide operations and maintenance (O&M) after the Proposed Action is completed. SAFCA would be responsible for maintenance access. At the end of the project construction period, all project lands would be in public ownership and/or would be under the permanent control of a natural resource conservation entity. Reclamation Flood Control Districts, the City, County of Sacramento (County), DWR, and CVFPB would continue their routine O&M responsibilities, as under existing conditions.

Regular O&M activities under the Proposed Action would 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 would 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 would not require heavier or noisier equipment than under current conditions. O&M inspections

would consist of a patrol vehicle traveling along the levee and small machinery for weed abatement such as mowers and weed whackers/trimmers. These activities would only occur periodically, as under existing conditions. O&M activities would 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 resources on which the Proposed Action may have significant effects, mitigation measures are proposed. These mitigation measures are consistent with those identified in the ARCF GRR Final EIS/EIR. For some impacts, mitigation described in the GRR Final EIS/EIR may not apply to the proposed action (for instance, water quality mitigation associated with in-water work). 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.

As described in Section 2.3.7 in Chapter 2, "Alternatives," O&M activities would be unchanged from those that currently occur under pre-project conditions. Therefore, O&M activities would have no adverse effects to any environmental resource area, and would 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 would 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 would 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 would be reduced to less than significant with implementation of water quality BMPs.

Direct injury or mortality of individual fish would not occur as a result of the Proposed Action because there would 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 would be displaced from preferred habitat and made more susceptible to mortality by predation. The Proposed Action would not affect SRA habitat; one black willow tree located approximately 4 feet above the ordinary high water mark of the Sacramento River would be trimmed on the land side of the tree, but other tree removal and trimming required to implement the Proposed Action would 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 would 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 would not change in-channel geometry or characteristics, river hydraulics would not change. As a result, it was determined that the project would not substantially alter erosion or siltation in the system or increase the rate of surface runoff in a manner that would result in any flooding. It was also determined that the project would not affect stormwater drainage systems or create additional sources of runoff. Because the project involves fix-in-place improvements only, the footprint of the levee system would not substantially change. As a result, it was determined that the project would 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 would 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 would impede or redirect flood flows. Therefore, hydrology and hydraulics impacts would not differ from those identified in the ARCF GRR Final EIS/EIR.

Land Use

The 2016 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 would be required for flood protection levee easements. All property acquisitions would 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, would 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 would 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 would occur within the existing levee corridor, and there are no proposed activities that would create a physical barrier within an established community. Lands where staging and levee improvements would 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 would 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 would not differ from those identified in the ARCF GRR Final EIS/EIR.

Mineral Resources

The ARCF GRR FEIS/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 FEIS/EIR determined that no effect would 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 would occur (Sacramento County 2011). Therefore, mineral resources impacts would 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 would be required. Because the project is set in an urban area, no change in population is expected. Any disruptions to the community would be temporary and short-term during construction activities, and would 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 would not include creation of any new developed land uses and would not remove any housing. The Proposed Action would include construction over a single construction season, with an average labor force estimated to be about 50-60 people. These existing residents in the region who are employed in the construction industry would be sufficient to meet the demand for construction workers that would be generated by the project without inducing population growth. Therefore, socioeconomics and population impacts would not differ from those described in the GRR Final EIS/EIR.

Environmental Justice

The GRR Final EIS/EIR analysis found that all improvements would be constructed to the same criteria and standard. The benefits of the project would extend to all of the Sacramento metropolitan area; disproportionate benefits or adverse effects to any minority or low-income populations would not occur, and this effect was determined to be less than significant in the ARCF GRR Final EIS/EIR.

The Proposed Action would have adverse effects on the natural and physical environment in various locations widely spread throughout the Project Area and are expected to affect all segments of the population at all income levels relatively equally. Consequently Environmental Justice impacts would not differ from those described in the ARCF GRR Final EIS/EIR.

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 would 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, 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 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 would be located in the Little Pocket and Pocket areas, which are heavily urbanized with residential housing. Homes abut 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 the Sherwood Harbor 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 Seamus Avenue, and in the Pocket area along Riverside Boulevard, Florin Road, and Pocket Road, would have views of heavy-duty haul trucks along roadways that would be transporting borrow materials to the levee (see Figure 2-6, 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 SRCSD 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 would 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.

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 would 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 would be adjacent to existing residential backyards, and removal of landscaping from the maintenance corridor would degrade the current visual character of the individual properties; no feasible mitigation measures were identified.

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

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

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 proposed staging area near the water tower on Freeport Boulevard would be located approximately 1 mile northwest of the portion of State Route (SR) 160 near the community of Freeport, which is a State- and County-designated scenic highway (from the City of Sacramento southern boundary near the community of Freeport, south to Contra Costa County) (Caltrans 2017 and Sacramento County 2011). However, views of project-related work would be blocked by the levee along the west side of SR 160. 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 water tower staging area and 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 would 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 would be rebuilt to their current height using appropriately conditioned soils. After the levee is reconstructed, the levee crowns would be graded and aggregate base or asphalt paving would be placed on the levee crown patrol road to match preconstruction conditions. Following construction, many of the temporary access ramps would be removed and all disturbed levee slopes would be revegetated. Some of the levee access ramps created for the proposed project may remain as permanent access. All of the staging areas would 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 would be replaced so that the park is restored to preproject conditions. A small number of trees and vegetation would be removed from within the footprint of individual levee improvement locations. Approximately 0.13 acres of Fremont cottonwood forest and about 3.04 acres of valley oak woodland would be removed from the approximately 10-mile-long Sacramento River East Levee corridor. This represents a relatively small amount of vegetation in proportion to the existing trees and shrubs present waterside and landside of the levee, and the loss of trees and riparian vegetation would represent a less than significant impact to the existing visual character.

Haul trucks and equipment picking up borrow material at the SRCSD borrow site would 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 would also not be visible to motorists traveling on Franklin Boulevard.

Borrow activities would 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 would travel south on Dwight Road

through a commercial area to Laguna Boulevard, and would 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 would also be present on I-5, which is designed to carry truck traffic. Other smaller local roadways would also experience haul truck trips to deliver levee soils from the SRCSD borrow site to levee segments where work would occur. Haul trucks on the smaller local roadways within individual residential neighborhoods would 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 would 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 would be consistent with the existing visual condition. Thus, the project borrow and hauling activities would have a less-than-significant effect on visual character.

Create New Sources of Substantial Light or Glare

None of the project-related activities would include buildings or other facilities that would require permanent lighting, and therefore no new long-term sources of light or glare would be introduced into viewsheds. No night-time construction work is planned as part of the Proposed Action. The description of the Proposed Action states that construction during night hours could only occur at least 300 feet from the nearest residence, and temporary, short-term effects related to light and glare during construction would therefore be less than significant.

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 would not apply to the impacts of the Proposed Action. No avoidance, minimization, and mitigation measures would be applied to the Proposed Action to reduce visual resources effects.

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 3.3-1 provides current Sacramento Valley Air Basin (SVAB) attainment status designated by U.S. Environmental Protection Agency (EPA) for six air pollutants 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 (PM2.5). 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 3.3-1. Sacramento Valley Air Basin Attainment Status

Pollutant	Federal Attainment Status	State Attainment Status
1-hour Ozone	Not Applicable	**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 $PM_{2.5}$	**Non-attainment**	Not Applicable
Annual $PM_{2.5}$	Not Applicable	**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: PM_{10} = 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: SMAQMD 2017

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 Sacramento Metropolitan Air Quality Management District (SMAQMD) emission threshold for oxides of nitrogen (NOx), depending on the method of material delivery, and that exceeding this threshold would be a significant effect. After accounting for a 20 percent reduction in NOx from implementing mitigation in the form of SMAQMD Basic Construction Emissions Control Practices, construction-related emissions still could exceed the SMAQMD emission thresholds for NOx. Therefore, USACE would obtain an off-site mitigation credit for project-related NOx emissions in the SVAB which would 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 would be implemented in the form of PM10 and PM2.5 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 would 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 would be intermittent and temporary and would 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 would further reduce odorous exhaust emissions.

Significance Criteria

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

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

Some updated information is presented below. The applicable General Conformity de minimis thresholds for the SVAB are shown in Table 3.3-2. The analysis presented below compares the Proposed Action's construction emissions, including the new components, with the applicable de minimis thresholds.

Table 3.3-2. General Conformity *de minimis* Thresholds

Pollutant	Sacramento Valley Air Basin Emissions Thresholds (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; SMAQMD 2013

SMAQMD has identified specific criteria pollutant thresholds to assist lead agencies in determining air quality impacts under CEQA for projects located in Sacramento County. These thresholds are shown in Table 3.3-3.

Table 3.3-3. Air Quality 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

There are no substantial stationary sources of TACs on or in the project vicinity, including the new project components evaluated in this Supplemental EA/EIR (e.g., staging areas, haul routes, borrow site, batch plant, fuel storage tanks). The only TACs that would be present on a regular basis in significant quantities on or near the Project Area would be PM associated with diesel exhaust from trucks on local streets and highways and construction equipment associated with this project and others in the region.

Methodology

Air emissions were modeled for the Proposed Action using the Road Construction Emissions Model, Version 8.1.0. Construction was conservatively modeled over a single 6-month construction season, using updated assumptions for the equipment required and durations of construction. Air Quality modeling data is presented in Appendix A. The ARCF GRR Final EIS/EIR assumed that construction would take place over a longer time period (10 years) and included emissions estimate for all of the seepage and stability improvements proposed along the Sacramento River, while the modeling conducted to support this analysis focuses only on the components of the Proposed Action.

Effects Analysis

No-Action Alternative

The No-Action Alternative is the continuation of the existing conditions along the levee reaches and absence of the implementation of levee alternatives to increase the level of existing flood protection. Current levee operations and maintenance activities would continue, with limited, temporary, intermittent emissions from O&M activities that would not result in a significant level of effect.

Without improvements to the levee system, the risk of levee failure would remain high. Under this alternative, a catastrophic flood event could cause portions of the levees to fail, triggering widespread flooding and extensive damage. 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 likely that pollutants emitted during related activities would violate air quality standards for pollutants (including those for which the area is already considered non-attainment), expose sensitive receptors to toxic air emissions, and expose sensitive

receptors to objectionable odors. 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 Best Management Practices (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

Potential Conflict with Air Quality Plan or Contribute Substantially to Air Quality Violation

Project construction was conservatively modeled over a single 6-month construction season beginning April 15, 2020 and ending October 15, 2020 (as described in the description of the Proposed Action in Chapter 2, "Alternatives," construction would actually occur over a longer period between December 2019 and potentially continuing to November 2020. Multiple construction phases would occur simultaneously throughout the levee reaches. Air emissions were modeled using Road Construction Emissions Model 8.1.0, and model data are presented in Appendix A. The construction emissions estimates shown in Table 3.3-4 conservatively assumes the maximum daily and annual emissions that would occur.

Table 3.3-4. Emissions Estimates for the Proposed Action

Pollutant	Pounds per day Unmitigated/ Mitigated	Tons per year Unmitigated/ Mitigated	CEQA Significance Threshold	General Conformity *de minimis* Thresholds in Tons/year
ROG	56.11/35.24	3.36/2.10	N/A	25
CO	402.4/492.58	24.48/29.65	N/A	100
NO_x	**563.6/185.79**	**33.45**/11.00	85 pounds/day	25
PM_{10}	**94.78**/79.21	6.39/5.44	80 pounds/day and 14.6 tons/year	100
$PM_{2.5}$	36.66/22.34	2.35/1.48	82 pounds/day and 15 tons/year	100

Notes: Bold numbers indicate concentrations above thresholds
CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = 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; SMAQMD = Sacramento Metropolitan Air Quality Management District
Under CEQA, CO is not considered a pollutant of concern by SMAQMD, because construction activities are not likely to generate a substantial quantity of CO (SMAQMD 2018)
CEQA significance thresholds for PM assume that fugitive dust BACT/BPMs are implemented in accordance with SMAQMD guidance.

As shown in Table 3.3-4, the maximum mitigated annual construction emissions for the levee improvements would not exceed any of the applicable de minimis thresholds. However, all of the ARCF project as a whole would exceed the de minimis threshold for NOx during several years, likely including 2021, 2022, and 2023. USACE has been in consultation with SMAQMD and the Yolo-Solano Air Quality Management District and has identified emissions offsets for purchase from these agencies to comply with General Conformity requirements. USACE intends to make a conformity determination with a separate public notice, based on agreements to purchase emissions offsets within the Sacramento Federal Nonattainment Area for the years when emissions above the de minimis threshold would likely occur.

The project's maximum daily and annual construction emissions would exceed the local air agency significance thresholds for NOx and PM10 in 2020. Implementation of Mitigation Measures AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5 would reduce significant fugitive PM dust and equipment exhaust impacts to a less-than-significant level by requiring use of more efficient construction equipment and imposing BMPs to reduce airborne dust.

Potentially Expose Sensitive Receptors to Substantial Pollutant Concentrations

With regards to CO hotspots, because of the temporary and short-term nature of construction activities, a traffic study evaluating hourly construction-related traffic volumes at local intersections was not conducted. However, the maximum hourly volumes associated with levee improvements would be approximately 90 vehicles per hour at a given location. Therefore, the temporary traffic contribution of the Proposed Action would be less than 1 percent of SMAQMD's screening threshold, when determining whether a project would have the potential to exceed the CO ambient air quality standard (SMAQMD 2014). The truck routes are not anticipated to include a substantial distance traveled in limited air mixing areas. Furthermore, although the project would primarily include heavy-duty trucks for material delivery and disposal, when accounting for the different CO emission rates between heavy-duty trucks and average Sacramento County fleet averages, the temporary contribution to local intersections would be minimal. In addition, many of these material delivery and disposal trips would occur throughout the day, including during off-peak hours when intersections tend to operate at a higher level of service. Therefore, the Proposed Action's construction-related trips would not contribute a substantial amount of traffic to existing intersections that would cause a CO hotspot, and this would be a less-than-significant effect.

With regards to TACs, the closest sensitive receptors to construction activities would be located approximately 20 feet away. According to the Office of Environmental Health Hazard Assessment, health risk assessments that determine the health risks associated with exposure of residential receptors to TAC emissions should be based on a 70-year exposure period (OEHHA 2003). However, heath risk assessments must also be limited to the period/duration of activities associated with the emissions activity. As discussed above, project construction activities and haul truck trips would only occur for a total of less than one year (i.e., 1.4 percent of the 70-year exposure period). Therefore, the total exposure time would be less than the minimum number of years (i.e., 9 years for exposure of children) recommended for a health risk assessment. In addition, because most construction activities would move along various levee reaches, the exposure time for a particular receptor would be less than the total construction period, which would be less than 1.4 percent of the total exposure period for typical health risk assessment. Following completion of a particular levee reach, construction emissions would cease and move to a different location along the levee. Local haul routes also would shift to a different location, although travel along portions of the haul routes (e.g., from the SRCSD borrow site to I-5) would continue throughout the levee reconstruction period. Even though these circumstances are too transitory to allow for modeling of a formal health risk assessment using OEHHA standards, the highly dispersive nature of diesel PM emissions (Zhu and Hinds 2002), relatively low exposure period, and the temporary and intermittent nature of construction emissions from temporary and short-term construction activities support a finding that project construction would not result in the exposure of sensitive receptors to TACs at levels that would result in a health hazard or exceed applicable standards. Therefore, the Proposed Action would have a less-than-significant effect.

Possible Exposure of Nearby Receptors to Temporary Intermittent Objectionable Odors

Construction activities would be temporary and short-term and would proceed along the levee in a linear fashion. In addition, construction activities at each particular site would be intermittent, because construction activities at each particular location along the levee would only occur for a fraction of the entire construction period. Although the nearest receptors would be located approximately 20 feet from construction areas and haul routes, it is anticipated that the intermittent nature of construction activities and dispersive properties of diesel PM (Zhu and Hinds 2002) would avoid generating a constant source of odor emissions that could affect receptors. Therefore, it is not anticipated that the Proposed Action's short-term and temporary construction activities would expose nearby sensitive receptors to odor emissions, and this would be a less-than-significant effect.

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 would be used. (Mitigated construction-related emissions are shown in Table 3.3-4.)

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 mph.
- 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 would exceed or contribute to the concentration-based threshold for PM_{10} to implement the Enhanced Fugitive PM Dust Control Practices as applicable to the project. Because the construction activities would involve substantial material movement activities and would 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 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Unpaved Roads (Entrained Road Dust)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at 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: Use the Sacramento Metropolitan Air Quality Management District's Enhanced Exhaust Control Practices for Construction Equipment.

USACE shall require its contractors to implement the SMAQMD's Enhanced Exhaust Control Practices for Construction Equipment to reduce and control construction-related emissions.

- Off-road construction equipment shall use SMAQMD Enhanced Exhaust Control Practices.

- 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 Equipment List Form 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 75 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 Calculator 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 on 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.

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

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

Pursuant to SMAQMD thresholds of significance, if the projected construction-related emissions exceed the NOx threshold of significance based on the equipment inventory, USACE and CVFPB shall contribute to SMAQMD's off-site mitigation fee program sufficiently to offset the amount by which the proposed project's NOx emissions exceed the threshold of 85 pounds per day. If emissions for the ARCF projects in any given year would exceed the de minimis threshold of 25 tons per year, USACE and CVFPB would enter into an agreement with SMAQMD to purchase offsets for all NOx emissions in any year where projected emissions would exceed the threshold. 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. All mitigation fees shall be paid prior to allowing 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 and CVFPB 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. All mitigation fees shall be paid prior to allowing 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 and Staging Areas

The cutoff wall in Miller Park (illustrated on Figure 2-5) would be constructed through the existing parking lot at Miller Park and would not require vegetation removal. The other levee improvements, including conventional cutoff wall, mix-in-place cutoff wall, landside berms, and waterside blankets would occur in vegetated areas. 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.

A number of staging areas have been identified waterside and landside of the levee; these areas support a variety of habitat types. Most of the landside staging areas are dominated by ornamental landscaping and several of the potential staging areas are City parks. Some landside staging areas also

include non-native grassland and are bordered by or adjacent to oak woodland. Most of the potential staging areas have limited habitat value, but those with or adjacent to oak woodland likely support a greater diversity of species. A waterside staging area is proposed south of Miller Park (approximately Station 1180). The levee is wide in this area, and staging would 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) is at the waterside levee toe and dominated by non-native annual grasses (providing marginal to poor habitat value for fish and/or wildlife especially after the levee slopes are annually mowed), with an open canopy of mature Fremont's cottonwood trees. These waterside staging areas are in an important habitat corridor for wildlife species in the Sacramento region, particularly the staging area in the Little Pocket, which is adjacent to riparian vegetation. Although habitat in the Project Area is constrained by the landside urban environment and its value is somewhat diminished by the immediately adjacent and densely populated urban development, it provides a critical remnant corridor of riparian vegetation for resident, migratory, and dispersing wildlife.

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.

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.

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.

Sensitive Habitats

Table 3.5-1 presents the acreage of each habitat type in the Project Area. 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 approximately 3.48 acres jurisdictional waters of the United States. These features are also considered waters of the State, subject to regulation by the Central Valley Regional Water Quality Control Board (RWQCB). 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 35.47

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 3.5-1. Existing Habitat Types in the Project Area

Habitat Type	Acreage
Channel	3.48
Developed	20.38
Fremont Cottonwood Forest	21.48
Industrial/Commercial Landscape	5.23
Public/Parks Landscape	4.04
Residential Landscape	3.76
Valley Oak Woodland/Trees	13.99
Wild Oats Grassland	23.91
Total	**96.27**

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 would be removed by levee degradation for cutoff wall construction. It assumed the upper 1/2 of the levee would be degraded and estimated approximately 750 trees would be removed. The analysis highlighted effects on avian species but indicated surveys for nesting birds would be conducted and trees with active nests would not be removed until the young have fledged. It also indicated tree removal would be compensated by planting up to 95 acres. A System Wide Improvement Framework agreement with the non-Federal sponsor would 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 would benefit vegetation and wildlife. However, because it would take many years for compensation habitat to provide the value of habitat that would be removed, it was concluded that this impact on vegetation and wildlife would remain significant.

Significance Criteria

Effects on vegetation and wildlife would 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 staging and levee improvement areas are located within or adjacent to riparian habitat along the Sacramento River. Activities at these sites would require removal of riparian vegetation within the levee degrade footprint. Vegetation removal within waterside staging areas and on the waterside levee slope would include native and non-native trees and shrubs. An estimated 153 trees would be removed (included within the 750 trees estimated in the ARCF GRR Final EIS/EIR for the entire Sacramento River East Levee), representing 3.55 acres of canopy (1.18 acres on the waterside of the levee and 2.37 acres on the landside). These tree and canopy acre estimates include both riparian habitat and native- and non-native landscaping, and could increase by up to 10 percent. An estimated 178 trees would be trimmed, including 93 on the waterside of the levee, and 85 on the landside.

A total of approximately 3.17 acres of riparian vegetation (Fremont Cottonwood Forest and Valley Oak Woodland/Trees, which also qualifies as forestland as defined in California PRC Section 12220[g]) would be permanently removed as a consequence of the Proposed Action. This would be a significant impact. Implementing Mitigation Measure VEG-1 would compensate for riparian habitat removal by planting 7.10 acres of new riparian habitat at the Beach/Stone Lakes Mitigation Site. However, because it would take many years for compensation habitat to provide the value of habitat that would be removed, the short-term habitat loss would remain significant, as described in the ARCF GRR Final EIS/EIR.

The Proposed Action would not result in fill of Waters of the United States or other state or federally protected wetlands. However, project activities in staging and levee improvement areas waterside of the levee could cause transportation of pollutants via runoff (e.g., erosion, sedimentation, or accidental spills of construction materials) into the Sacramento River. Implementing Mitigation Measure GEO-1 (described in Section 3.8, "Geological Resources") would reduce potentially significant temporary and short-term construction-related indirect effects on waters of the United States to a less-than-significant level by avoiding and minimizing the potential for erosion, excess levels of turbidity, and water quality impairment due to spills, leaks or other sources of toxic substances used during project activities.

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 would be conflict with the City of Sacramento tree preservation policy or ordinance. A habitat conservation planning effort is nearing completion 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 would not conflict with the plan provisions. Therefore, the Proposed Action would cause no impact arising from conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

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.

USACE will implement the following measures to compensate for loss of riparian habitat:

To compensate for riparian habitat removal, replacement habitat shall be created at a 2:1 ratio, in accordance with the ARCF GRR Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP), which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.

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.

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 special-status plants 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 2000, 2014; County of Sacramento et al. 2010). 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 the levee improvement area in August 2016; no special-status plants are expected to have potential to occur at the staging areas, haul routes, borrow site, or soil disposal site. One special-status species, woolly rose-mallow (*Hibiscus lasiocarpos var. occidentalis*), was observed during the survey along the Sacramento River East Levee. A total of five individuals of wooly 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 to evaluate potential impacts of the Proposed Action on valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Approximately 100 elderberry shrubs are present in the Project Area for the Proposed Action based on the result of this survey. 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 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 would include following USFWS standards, including transplanting elderberry shrubs and planting a mix of native riparian/or upland vegetation. It was determined that implementing these measures would 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 would reduce long-term habitat effects to less than significant.

Significance Criteria

Effects on special status-species were considered significant if an alternative would 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 would have no impact on special-status plant populations, because the areas where these activities would be conducted do not provide suitable habitat for wooly rose mallow or Sanford's arrowhead, and these species were not observed during focused surveys conducted in the Project Area for the Proposed Action. Therefore, mitigation measures for special status plant species identified in the ARCF GRR EIS/EIS 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 100 elderberry shrubs are present along the Sacramento River in

the vicinity of the Project Area for the Proposed Action. However, only approximately 14 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 2017, for the purposes of impact analysis it is conservatively assumed that up to 20 elderberry shrubs may be removed during construction activities. These effects are less than those identified in the 2015 BO. Elderberry shrub removal would 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 would 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 would 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 would 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 would 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 would 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 would be removed. Although the likelihood is relatively low, it is possible this habitat would 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 would 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 shall 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.) shall be avoided within 20 feet from the drip-line of the shrub.

- Worker education. A qualified biologist shall 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 shall 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 shall be conducted outside of the valley elderberry longhorn beetle flight season (March - July).

- Trimming. To the extent feasible, elderberry shrub trimming shall 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 shall not be used within the drip-line, and insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.

- Mowing. Mechanical weed removal within the drip-line of elderberry shrubs shall be limited to the season when adults are not active (August - February) and shall avoid damaging the shrub.

- Transplanting. To the extent feasible, elderberry shrubs shall 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 shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.

- Compensation. Effects shall 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 shall be conducted to determine the presence of burrows or signs of burrowing owl at the SRCSD borrow site. The survey shall 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 shall 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 would 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 shall participate in a worker environmental awareness program. A qualified biologist shall inform all construction personnel about the life history of Swainson's hawk and the importance of nest sites.

- A breeding season survey shall be conducted for active Swainson's hawk nests within 0.5 mile of construction activities, including grading. A survey shall 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 shall 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 shall be established and implemented until the nest is no longer active. The size of the buffer shall 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 shall 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 shall not be conducted during the nesting season (generally February 15 through August 31, depending on the species and environmental conditions for any given year).

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 measures to minimize potential for loss of special-status bat maternity roosts:

- Conduct Surveys for Active Bat Maternity Roosts. If removal of trees with suitable roost cavities and/or dense foliage cover must occur during the bat pupping season (April 1 through July 31), 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.

- Establish Appropriate Buffers Around Roosts Sites. 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 (August 1) or until a qualified biologist confirms the maternity roost is no longer active.

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 would 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 would not conflict with or obstruct the implementation of GHG emission reduction plans, its effect was determined to be less than significant. Furthermore, project implementation would increase the likelihood that the flood management system could accommodate future flood events as a result of climate change, and therefore the project would 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 would:

- 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: 1,000 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

Temporary, Short-term Generation of Greenhouse Gas Emissions

The Proposed Action would emit an estimated 4,221 metric tons of CO2e during project construction in 2020. This exceeds the threshold of 1,000 metric tons of CO2e recommended by SMAQMD for construction phases and applied by USACE to this analysis. Implementing Mitigation Measure GHG-1 would 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 would 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 would have an adverse effect on the Proposed Action, rather, the Proposed Action would 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 2009 California Statewide 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 2009). The Updated AB 32 Scoping Plan cites the need to “reinforce and buffer our State from the increasing effects of climate change, including drought, flood, and forest fires” (ARB 2014). The Scoping Plan also acknowledges that potential floods could threaten freshwater supplies in the Delta. The existing levee structures throughout the State not only protect areas such as the City of Sacramento, but also “critical infrastructure such as roads and highways” (ARB 2014). 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 would prevent, avoid, and minimize the detrimental effects of climate change. These types of projects would 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 would be consistent with the goals of the

2009 CAS and the AB 32 Scoping Plan to protect against the detrimental effects of climate change without impeding current economic growth, and the Proposed Action would 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 would 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 shall 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 would 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 would 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 would have 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 would 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 investigations.

Records Search

On February 28, 2019, GEI Consultants, Inc. (GEI) 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

GEI conducted 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

GEI's archaeologists conducted an intensive pedestrian archaeological survey (survey transects spaced no more than 10 meters apart) of the Proposed Action APE on May 3–6, 2016 and on June 11, 2018. Much of the APE along the Sacramento River consists of fill material used during levee construction and O&M. GEI's 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. The archaeological survey was conducted by three GEI archaeologists under the direct supervision of James Mayer, Ph.D., Registered Professional Archaeologist (RPA) and Jesse Martinez, M.A., RPA, both of whom meet the Secretary of the Interior (SOI) Professional Qualifications Standards for Archaeology. The GEI survey crew was accompanied by a monitor designated by United Auburn Indian Community of the Auburn Rancheria (UAIC).

GEI's architectural historians, who meet SOI Professional Qualification Standards in history and architectural history, conducted field surveys of the APE on November 16, 2016, on June 11, 2017 and on June 11, 2018. All built environment resources that were 45 years old or older were recorded with digital photographs and notes.

Native American Surveys

Between May 23 and June 6, 2016, UAIC conducted a pedestrian Native American survey of the APE. The UAIC surveyors were accompanied by a GEI archaeologist who took photographs, maintained a photo log, and recorded locations of finds.

Geoarchaeological Investigations

Sensitivity Assessment

To assess the potential for buried sites, Far Western Anthropological Research Group (FWARG) developed a map illustrating the age of deposits and landforms that make up the modern ground surface (Meyer 2016). Soils mapped at the surface were used to estimate the age and extent of particular landforms based on their degree of soil development, their landscape position and cross-cutting relationships, and radiocarbon evidence, if available. Similar soil types were then combined into specific age groups, based on major climatic periods, to create a map that depicts the age of landforms at the present ground surface.

A buried site potential model was created by integrating the surface site model (described above) with the age of the landforms mapped at the surface. The model is based on two working assumptions: (1) archaeological deposits cannot be buried within landforms that developed prior to human colonization of North America (Rosenthal and Meyer 2004a, 2004b); and (2) there is typically an inverse relationship between maximum-age Holocene surface landforms and their potential to contain buried archaeological deposits.

With these assumptions in mind, the age differences between younger depositional landforms were used as a relative measure of the potential (i.e., probability) for buried archaeological sites by

assigning "age multipliers" to each map unit. Using these concepts, buried prehistoric sites sensitivity was estimated using ranked values and mapped across the entire Sacramento River East Levee south of the confluence with the American River, including the Proposed Action APE (Meyer 2016). Sensitivity rankings of "Highest", "High", "Moderate", "Low" and "Lowest" were assigned.

GEI used the FWARG sensitivity assessment and the results of initial geoarchaeological testing conducted by FWARG to develop follow-on Archaeological Field Investigation Plan specifically for the Proposed Action. The GEI Field Investigation Plan identifies archaeological excavation locations at least 15 feet from the levee toes, based on the following factors:

- areas ranked high or highest in the FWARG sensitivity analysis;
- areas where the Proposed Action includes major ground-disturbing activities, such as levee degrade and cutoff wall construction;
- locations of known archaeological sites;
- areas where the initial geoarchaeological testing conducted by FWARG identified cultural material; and
- areas where there is space to conduct archaeological work (undeveloped areas).

Based on these factors, GEI identified 4 areas where testing was warranted, pending acquisition of rights of entry and other logistical factors. From north to south, the areas selected for testing were:

- The west side of I-5 at Sutterville Road. One location for coring and test excavation, between the levee and Interstate 5. This area was assigned "Highest" sensitivity in the FWARG sensitivity analysis.
- Garcia Bend Park. Southwest edge of Garcia Bend Park near the levee. This area was assigned "Highest" sensitivity in the FWARG sensitivity analysis, and isolated prehistoric period artifacts have been identified at this location.
- Glide Ferry Way. In 2016, FWARG excavated a geoarchaeological core boring landside of the levee adjacent to Glide Ferry Way that showed evidence of archaeological materials. This area was assigned "High" to "Highest" sensitivity in the FWARG sensitivity analysis.
- River Garden Court. In 2016, FWARG excavated four geoarchaeological core borings landside of the levee at the end of Oak Ranch Court and River Garden Court; none showed evidence of archaeological materials. This area was assigned "Highest" sensitivity in the FWARG sensitivity analysis.

Geoarchaeological Fieldwork

The work plan described by FWARG (Meyer 2016) was implemented by FWARG personnel over a 1-week period in November 2016, as defined in the work plan (Meyer 2016). This initial phase of testing included areas outside the APE for the Proposed Action. Exploratory coring was conducted in seven separate areas where deep or extensive project-related earth disturbances were initially planned (i.e., cutoff wall). From North to South the areas included Seymour Park (Clipper Way, outside the

Proposed Action APE), North Point Way (outside the Proposed Action APE), Country River Way (just outside the Proposed Action APE), Glide Ferry Way, Sleepy River Way, Oak Ranch Court, and River Garden Court. All excavation and subsequent analysis were monitored by a representative of UAIC.

On September 25 and 26, 2018, GEI archaeologists oversaw excavation of three archaeological trenches in the Reach D Stability Berm Phase of the ARCF Project APE (GEI 2019), much of which is included in the APE for the Proposed Action. The purpose of the archaeological trenching was to determine the presence or absence of archaeological resources and to observe the stratigraphy to determine sensitivity for presence of archaeological deposits. Two trenches were excavated on City of Sacramento property at 1920 Front Street and the third was excavated on State land on the adjacent lot to the north. The archaeological trenches measured 10 feet long, 3 feet wide, and 5 feet deep. Screens with ¼-inch hardware cloth were used to sift matrix that determined to have potential to include archaeological material. In addition to the three archaeological trenches, two geotechnical trenches excavated on State lands were monitored by an archaeologist. All trench excavation was monitored by a representative of UAIC and by a representative of Wilton Rancheria.

Geoarchaeology Results

Three samples obtained during FWARG exploratory coring conducted in 2016 appeared to contain one or more buried soils and contained archaeological materials (FWARG 2019). All three of these cores containing cultural material are located in the vicinity of archaeological site CA-SAC-41 (see below Identified Cultural Resources for a description of this resource). Identified cultural materials included small pieces of freshwater shell, bits of baked clay or burnt earth, and a piece of fire-cracked rock, all within a dark, organic-rich A-horizon soil. The cultural deposit was capped by at least 20 centimeters of fill material but appears to be intact from 20 to 120 centimeters below the surface. The presence of buried soils, though not directly signaling cultural origin, improves the likelihood that buried, intact deposits of cultural materials may be present at the location of CA-SAC-41.

Geoarchaeological and geotechnical trenching conducted by GEI in 2018 did not identify any cultural resources in the APE for the Proposed Action (GEI 2019). Further archaeological test excavations, guided by the GEI Archaeological Field Investigation Plan, are currently being implemented; results of these excavations are not available for inclusion in this Supplemental EA/EIR.

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. All Native American Tribes identified in the PA have been contacted and provided a description of the Proposed Action. In April 2019, USACE sent a letter to the contacts on ARCF PA Tribal contact list with a notification of the Proposed Action, a description of the APE, and a request for information on resources in the APE; USACE received responses from UAIC and Colusa Indian Community Council, Cachil Dehe Band of Wintun Indians.

In May 2019, USACE transmitted the archaeological field investigation plan (testing plan) and requested comments or requests to be present during testing from the following tribes and interested parties: Shingle Springs Band of Miwok Indians; Buena Vista Rancheria; United Auburn Indian Community; Wilton Rancheria; Mechoopda Indian Tribe of Chico Rancheria; Cachil DeHe Band of Wintun Indians of the Colusa Indian Community of the Colusa Rancheria; Ione Band of Miwok Indians; Estom Yumeka Maidu Tribe of the Enterprise Rancheria; Randy Yonemura; and Roger Aguilar . In June 2019, USACE received a request from Colusa Indian Community Council, Cachil Dehe Band of Wintun Indians to have a representative present during work.

Native American consultation conducted by USACE is on-going.

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. 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 AECOM archaeologists, now with GEI. 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 AECOM archaeologists.

In September 2015, the Native American Heritage Council (NAHC) sent AECOM 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 numerous locations as cultural landscapes and burial grounds within the project APE. These resources are described below under, "Identified Cultural Resources."

Additional Consultation

In May 2019, GEI sent letters requesting information about known cultural resources in the Proposed Action APE to the following organizations, in accordance with the requirements of the ARCF HPMP and as Concurring Parties to the PA:

- California Council for the Promotion of History
- California State Railroad Museum
- Center for Sacramento History
- Portuguese Historical and Cultural Society
- Preservation Sacramento
- Sacramento County Historical Society
- Sacramento History Museum
- Sacramento Room
- Society for California Archaeology

As of the date of this document there have been no responses received.

Identified Cultural Resources

Based on the results of the records search and archival research, archaeological and Native American surveys, Native American consultation and geoarchaeological exploration, the following archaeological resources have been reported within the APE for the Proposed Action. Due to some resources being obscured by fill or development, not all reported resources have been verified by direct observation; such resources are not described below.

Archaeological Resources

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. FWARG posited that CA-SAC-30 no longer exists, unless some portion of the site is under the levee.

Resource CA-SAC-41 was originally recorded by Heizer in 1934. Also known as the "Silva Site" after the name of the landowner at the time of recording, the mound was estimated to be 40 yards in diameter. At some point the site location was incorrectly plotted on NCIC topographic maps and has remained so. Peak and Associates (1979) attempted to locate the site at the mis-plotted location, but the site was not found. Testing at a second location (Peak and Associates 1985) confirmed existence of a cultural deposit; however, it was not confirmed to be the location of CA-SAC-41. During the initial FWARG geoarchaeological study, cultural material was discovered at the original location of CA-SAC-41. CA-Sac-41 has not previously been evaluated for NRHP eligibility.

Resource CA-SAC-43 (34-000070), is a prehistoric site first recorded in 1934. Also known as the "Brazil Mound" after the name of the landowner at the time of recording, the site was described as a habitation mound with burials approximately 200 feet by 100 feet. The site has been excavated several times, and the deposit appears to be intact. The most recent excavations suggest an intact deposit is present below 7–17 inches of fill. CA-SAC-43 was determined to be eligible for listing on the NRHP by a consensus through the Section 106 process in April 1991.

Resource GEI-SREL-2 is a concentration of historic-era bricks and features, extending for approximately 400 yards along the levee slope. Features include concrete wall sections, blacktop/brickwork foundations, steel cables, and laid brickwork, all found along the waterside levee shoulder or buried within the levee as fill. GEI-SREL-2 appears to be the remains of the Sacramento Transportation Company's Riverside Brickyard, which was established in 1879 and became the

Sacramento Brick Company in 1921. The Brickyard occupied a 182-acre parcel immediately east of the levee, mapped as 6240 Riverside Blvd. The company was closed in 1969, and subsequently bulldozed to make way for residential development that currently occupies that site. Brick and associated structures of the Brickyard were apparently used in fill for levee repair, as well as for bank stabilization, subsequent refurbishments of the levee, and opportunistic building projects by local homeowners. The components of this site, while representative of the original historic Brickworks, no longer retain integrity of setting, workmanship, feeling, or association, and therefore the site is not considered eligible for listing in the NRHP.

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 seven areas within or encompassing portions of the Proposed Action APE that the Tribe considers to be sensitive. The UAIC-identified sensitive areas contain three known/recorded prehistoric archaeological sites (CA-SAC-30, CA-SAC-41 and CA-SAC-43). The UAIC-identified areas are confidential. Native American consultation is ongoing, in accordance with the requirements of the PA.

Native American-Identified Sites and Isolated Finds

The Native American pedestrian survey conducted by UAIC between in May and June 2016 resulted in a report of the following finds (Note: the descriptions of the UAIC-identified sites and isolated finds below is based on notes taken and locations plotted by a GEI Consultants, Inc. archaeologist. UAIC has prepared a separate inventory and evaluation report that provides this information in a different format and with some additional information not contained in the GEI Consultants, Inc. notes. The resource names provided below were assigned for the purposes of this document and are not site designations assigned by UAIC.)

- Site UAIC-2 consists of animal bone, ground-stone, baked clay (including a whole cooking ball), a net weight, and at least seven lithic flakes. This location appears to be consistent with the location of site CA-SAC-41.

- Site UAIC-3 consists of animal bone (with evidence of butchering), baked clay, shell, obsidian, ground-stone, and possible midden. Based on the location of these remains, this site appears to be an extension of Site CA-SAC-43.

The UAIC Native American survey also resulted in the report of six isolated artifacts. Isolated artifacts are generally not considered potentially significant resources (i.e. are not generally potentially eligible for listing on the NRHP). In some circumstances, however, they can indicate presence of otherwise obscured archaeological sites and may hold cultural value to Native Americans. Isolated finds also may result from past disturbances where artifacts have been inadvertently moved from their original location during activities such as levee construction, grading, and road construction.

- UAIC-ISO-1 is reported by UAIC to be an isolated lithic core (stone artifact, source material in tool manufacture showing scars where pieces of stone were removed).

- UAIC-ISO-2 is reported by UAIC to be two lithic flakes (pieces of stone removed from a core).

- UAIC-ISO-3 is reported by UAIC to be an isolated lithic core. This isolated find is located outside, but adjacent to the Proposed Action APE.

- UAIC-ISO-4 is reported by UAIC to be one lithic flake.

- UAIC-ISO-5 is reported by UAIC to be one ground-stone fragment.

- UAIC-ISO-6 is reported by UAIC to be one ground-stone fragment.

The locations of UAIC-identified sites and isolates were considered and incorporated into the GEI Archaeological Field Investigation Plan which guides archaeological testing at four locations in the APE for the Proposed Action.

Built-environment Resources

Five 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), the Pocket Drainage Canal, a portion of the Walnut Grove Branch Line Railroad (P-34-1497), and a concrete headwall. Below is a brief discussion of these resources and the NRHP status of each.

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.

Levee Unit 115 appears to meet NRHP Criterion A at the national level of significance as a contributor to a larger district within the context of flood management. The period of significance begins in 1917, the year the U.S. Congress approved the Flood Control Act, marking the first comprehensive plan for flood management in California. The period of significance ends in 1969, a 50-year cutoff date as allowed in the HPMP (GEI 2017: 6-28).

The levee unit does not appear to meet NRHP Criterion B as there is no direct association with individuals who are important to history. The context and research do not indicate that the levee would meet NRHP Criterion C, because it was built from standardized plans developed by USACE. Research also does not indicate that the levee was designed by a notable master engineer (GEI 2017:6-29). Therefore, it does not appear to meet NRHP Criterion C. Under NRHP Criterion D, the levee does not appear to be the sole source of important historical information.

The levee unit retains integrity as identified in the HPMP (location, design, materials, and association) (GEI 2017: 6-30). It is in its original location and continues to reflect its original design (character-defining features include the crown and slopes). The historic function of the levee remains intact and it retains its integrity of materials, because the physical elements that were combined to create the levees remain. Some minor alterations have occurred, such as strengthening and improving the levee to allow it to continue to function as designed. Over time, some non-historic materials were introduced, such as a concrete headwall, but that does not affect the overall integrity of materials, because most of the levee material (silty sand and silt blanket underlain by a sand and gravel aquifer materials) remains.

Finally, the levee retains integrity of association as it is a direct link to the Sacramento River Flood Control Project (SRFCP) and remains in the place where this significant project occurred. In summary, the Levee Unit 115 appears to meet NRHP Criterion A, within the context identified in the HPMP, and retains integrity to convey that significance.

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 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 December 2018, the SHPO concurred with findings that Levee Unit 117 is eligible for the NRHP (Polanco 2018:3).

Walnut Grove Branch Line Railroad of the Southern Pacific Railroad Company (P-34-001497 [CA-SAC-1092H])

A segment of the Walnut Grove Branch Line Railroad of the Southern Pacific Railroad Company (SPRR) is located in the Proposed Action APE. The railroad was constructed between 1908 and 1929. The Walnut Grove Branch Line Railroad of the SPRR was evaluated in 1991 by PAR Environmental Services (PAR) for a USACE undertaking (reference number COE901029A) (California Office of Historic Preservation 2012:80). PAR's evaluation recommended that the railroad was eligible for the NRHP at the local level of significance under Criterion A. It was recommended for its influence on the development of agriculture, canning, and packing operations in the Delta and for its role in the founding of the Delta communities of Locke, Hood, and Freeport. PAR also recommended that the railroad was eligible under NRHP Criterion C, as embodying distinctive characteristics of the methods employed in dredging and levee construction during a short timeframe (PAR 1992). SHPO concurred that the railroad was eligible under NRHP Criterion A for the reasons stated above (Office of Historic Preservation 2012:80). The Historic Property was assigned a California Historical Resources Status Code of 2S2 (Individual Property Determined Eligible for NRHP by a Consensus Through Section 106; Listed in the California Register of Historical Resources [CRHR]). In subsequent years, portions of the railroad were revisited and reassessed as part of the Section 106 process. In 2006, as part of a U.S. Bureau of Reclamation (Reclamation) undertaking, the railroad was recommended as being eligible under NRHP Criteria A and C (reference number BUR030904A). SHPO concurred with Reclamation's recommendation that the railroad was eligible under NRHP Criteria A and C. The Status Code remains 2S2 (California Office of Historic Preservation 2012:80).

Pocket Drainage Canal

Located in the southern portion of the Proposed Action APE, between Pocket Road and the Sacramento River East Levee, is a portion of the Sump 132 Pocket Drainage Canal, a larger drainage canal that is approximately 2.1 miles long. The approximately 382 feet of the canal that is in the APE is partially lined with concrete on both sides; the remaining portion is earthen. The crown of the canal is topped with gravel and is used as a service and maintenance access road. The canal was full when it was investigated by GEI, and the depth of the canal could not be determined. The canal terminates at a pump

and gates, which are concrete and steel. A rectangular building sits on top of the gates; this building appears to be less than 45 years old and therefore is not described further.

The portion of the canal that is in the Proposed Action APE does not appear to meet the criteria for the NRHP. The canal was constructed about 1908 (USGS 1908). During the early 20th century, the Pocket was used for agriculture, with small family farms located along the levee and crops planted landside of the levee. Effective soil drainage was necessary for the livelihood of the farms. In the 1941, the Works Project Administration employed men to improve infrastructure for rain water runoff. The laborers worked along Pocket Road digging ditches, laying pipes, creating culverts, and improving existing drainage infrastructure as necessary (The Sacramento Bee 1941). Additional changes were made to the canal in the 1990s and early 2000s, including raising the concrete lining in 2008 (Sacramento City Council 2008:1). Under NRHP Criterion A, the relevant section of the canal is not associated with significant events or trends in history and does not appear to meet this criterion. The canal was built out of necessity to assist with drainage and only minimally aided the agricultural development of the Pocket in the 19th century. It did not directly impact the region's agricultural development. The structure is also not known to be associated with individuals who played an important role in history at the local, State or national level and does not appear to meet NRHP Criterion B. As an engineered feature, the relevant segment of the Canal is not an important example of its type, period or method of construction, nor does it display distinctive characteristics. Rather, it is a ubiquitous water-related resource found throughout the region. Research also did not reveal that the structure was designed by a master engineer. For these reasons this structure does not appear to meet NRHP Criterion C. The structure is also not the source of important information as required under NRHP Criterion D and does not appear to meet this criterion.

Concrete Headwall

This concrete headwall is located in the northern portion of the Proposed Action APE and was surveyed from the bike path on top of the Sacramento River East Levee. The headwall is approximately 160 feet at its widest point at the base near the river and approximately 100-feet-wide at the top. A chain link fence surrounds the headwall. There was no evidence of the original pipes associated with the headwall.

The concrete headwall was constructed in 1968 as part of the heating and cooling system for central heating and air for 23 State-owned buildings in Sacramento, primarily on Capitol Mall and N, O, and P Streets (DGS 2018). The original Central Plant was built in 1968, at the corner of 7th and P Streets and was designed by the State Office of Architecture. The system consisted of refrigeration machines, boilers, and underground pipes. Most of the distribution system is under 8th and O Streets. Reinforced concrete pipes were built under S Street to carry condensing and cooling water between the Central Plant and the Sacramento River (The Sacramento Bee 1967:65). The system operated in this manner until the early 2000s when the Central Valley RWQCB issued a Cease and Desist Order to stop the State from thermally polluting the Sacramento River (Otto 2001:2). To make the system compliant with State environmental standards, the California Department of General Services constructed a new plant adjacent to the original plant. The new plant was connected to the existing network of underground pipes, but it no longer discharged water into the Sacramento River. When the new plant became fully operational in 2009, the original Central Plant was demolished and replaced by a parking lot (Downing 2009:B1).

The concrete headwall does not appear to meet the criteria for the NRHP. While constructed in 1968, during Sacramento's downtown redevelopment of what was formerly known as the West End, research did not reveal that the headwall has a direct association with that important trend in redevelopment in history. Therefore, it does not appear to meet NRHP Criterion A. The structure is also not associated with persons significant in history and does not appear to meet NRHP Criterion B. The headwall was constructed as part of a complex heating and cooling system that would need to be examined as a historic district, but that is outside the scope of the Proposed Action. Research did not reveal that the system was innovative or an important example. The headwall would not present the work of a master engineer because it is a simple, basic design. As an engineering feature it does not appear to meet NRHP Criterion C. Under NRHP Criterion D, it does not appear to be the source of important history

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 would result in significant adverse effects to Historic Properties. The ARCF GRR Final EIS/EIR also concluded that the significant effects to cultural resources would be reduced to a less-than-significant level under NEPA through implementation of the Stipulations in the ARCF PA. The impact would 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. Effects 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 of 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 adverse 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 would 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 would 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 integrity considerations of Historic Properties in the APE and how the integrity was related to the specific criterion that makes 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 would 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 register listing, and project effects, processes stipulated in the PA and associated HPMP would 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 would be made through consultation between USACE, SHPO and other ARCF PA Parties 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. 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 five historic-era built-environment resources have been identified and evaluated for historical significance: Sacramento River East Levee Units 115and 117, the Pocket Drainage Canal, a portion of the Walnut Grove Branch Line Railroad, and a concrete headwall. Three of these five resources —Levee Units 115 and 117 and the Walnut Grove Branch Line Railroad segment—are considered Historic Properties. Portions of the Sacramento River East Levee (Units 115 and 117) would 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 would 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 would remain in place. The levee would continue to serve its intended purpose within the context of flood control. The Walnut Grove Branch Line would not lose its ability to convey its significance, because the Proposed Action would not alter the integrity of the rail line. Only a small portion of the line travels through the Project Area and the overall alignment, which is more than 20 miles long, would remain in the same location and retain its character-defining features, including its design, setting, feeling, and association. Therefore, the project would have no effect on these Historic Properties.

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

Levee improvement activities would 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. In consideration of these limitations on field investigations at the present time, two prehistoric-period cultural resources identified in the APE are considered to be Historic Properties: CA-SAC-411 and CA-SAC-43. Although specific data are not available, existing information suggests these sites likely extend below the Sacramento River East Levee and that the Proposed Action would adversely affect Historic Properties CA-SAC-41 and CA-SAC-43. Under NEPA, implementing Mitigation Measure CR-1 would reduce significant adverse effects resulting from potential damage to Historic Properties CA-SAC-41 and CA-SAC-43 to a less-than-significant level through implementation of agreed-upon measures to be described in a HPTP prepared as required by the ARCF PA, similar to the conclusion reached in the ARCF GRR Final EIS/EIR that implementation of ARCF PA stipulations would reduce the effect to a less-than-significant level.

Under CEQA, implementation of Mitigation Measure CR-1 would 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 would 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 would 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 would 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 would be a potentially significant effect. Implementing Mitigation Measure CR-6 would 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 CA-SAC-41 and CA-SAC-43, the two Historic Properties which would 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 SOI Professional Qualifications Standards for Archaeology, 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, CVFPB, in consultation with USACE, 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 would avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact specifically address inadvertent discovery of human remains ay 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 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. The responsibilities of CVFPB for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.9 et seq.

- Upon the discovery of Native American human remains, 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 would 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 would 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 would:

- 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-relation 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.

Proposed Action

Potential Temporary, Short-term Construction-related Erosion

The proposed SRCSD borrow site is an active stockpile, and borrow removal would be consistent with existing conditions. Storage and reuse of excess materials excavated from the levee and deposited at the Sacramento Railyards would 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 would be less than significant. Levee improvements and staging area activities would occur between April and October when rainfall is the least likely and stream flows are lowest. However, these activities would 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 would 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 mix-in-place cutoff walls would use augers, which limits the extent of below-ground disturbance to a very small area and leaves surrounding materials intact. Therefore, potential to encounter a unique paleontological resource is very low, and this impact would 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 and CVFPB shall 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 shall identify and specify the following:

- the use of an effective combination of robust erosion and sediment control BMPs and construction techniques that shall 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 would 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 shall 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 shall be in place throughout all site work and construction/demolition activities and shall 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 would 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 would be completed before any construction activities begin. Implementation of this measure would comply with state and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would 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 would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures.

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

- USACE and CVFPB will also prepare an SPCCP. An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would 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 would be completed before any construction activities begin. Implementation of this measure would comply with state and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would 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 would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures

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 2019) 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.

A Phase II site investigation was performed and found that elevated concentrations of lead was found in a limited volume of superficial soil strippings from the levee embankment and foundation that would be excavated for drained stability berm construction in Reach 4, just north of the Highway 50 viaduct (Pioneer Bridge).

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.

Excess soil 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 Camellia Waldorf School is located approximately 600 feet west of Sump 132.

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 work areas and staging 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 would 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 would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations. Work would 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 would also be required to prepare a SWPPP and implement BMPs to prevent discharge from the construction site into drainage systems, lakes, or rivers, which would 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 would do any of the following;

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

- Emit hazardous emissions or involve the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment; or

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency excavation plan.

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 would:

- 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 work areas in Miller Park, and the Camellia Waldorf School is located less than 0.25 mile from work areas near Sump 132. Therefore, small quantities of hazardous materials such as fuels, oils, and lubricants would be used and stored within 0.25 mile of these two schools. However, none of these materials are classified as acutely hazardous. Construction contractors would 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 would not represent a safety hazard for persons who would 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 would 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 would simply involve dumping of loaded haul trucks in areas of the Railyards that are permitted to receive imported fill.

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 would reduce the potentially significant effect associated with possible exposure to hazardous materials to a less-than-significant level because USACE would require testing and investigation to identify and address contaminated sites prior to construction

Interfere with Emergency Response or Evacuation

The project site extends along the Sacramento River, and as a result, levee improvements and associated staging would 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 would not interfere with emergency response or evacuation. The project would have a less-than-significant effect.

Possible Creation of Wildland Fire Hazards

The proposed activities would 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 would occur are not within a very high fire hazard severity zone or a State Responsibility Area. The project would 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 would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Where construction activities would occur in close proximity to sites identified as RECs in the Phase I ESA (HDR 2019), a Phase II site investigation should also be conducted.

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.

Waterside portions of the area where the Proposed Action would be implemented, such as staging areas, 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 3.10-1 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).

Table 3.10-1. Section 303(d)-Listed Pollutants in the Project Area (Sacramento River – Knights Landing to Delta) and Delta Waterways (Northern Portion)

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 (2007)
Dieldrin	Source unknown	Unknown
Invasive Species	Source unknown	Unknown
Group A pesticides	Agriculture	Unknown
Mercury	Resource extraction	TMDL in place (2011)
PCBs	Source unknown	Unknown
Unknown toxicity	Source unknown	Unknown

Notes: DDT = dichlorodiphenyltrichloroethane; TMDL = total maximum daily load; PCBs = polychlorinated biphenyls
Source: SWRCB 2016

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 would 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 would be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor would 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 would 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 would also be prepared and implemented. Surface water quality effects would 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 would 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 would:

- 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 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. Additionally, earthmoving activities associated with overall project construction could result in erosion or siltation.

Construction activities, including use of waterside staging areas, would 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 would 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 would 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 would have to be created: 1) the cutoff wall would 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 would 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 would vary seasonally, and groundwater levels landside of the levee would be lower during the winter and spring, especially during periods of high river stage. The cutoff walls would 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 would be much lower than the maximum decrease, because high stage events have short durations, and effects would be smallest during the irrigation season. Thus, only minor (if any) groundwater level reductions would occur with installation of cutoff walls for the Proposed Action, and this would have a less-than-significant impact.

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

The levee improvements proposed as part of the project would not change the drainage pattern of the Project Area, and do not include creation of substantial new pavement or impervious surfaces. The Proposed Action would therefore not create new runoff water compared to existing conditions. This impact would 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 would not be constructed during the typical flood season (i.e., November through February) and would not reduce the flood protection for adjacent areas; therefore, potential increase in the risk of pollutant release due to project site inundation would be avoided. Additionally, the project would include improvements to the levee system to minimize the risk of levee failure and project site inundation. Therefore, the Proposed Action would 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 shall 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 shall 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 would require treatment or proper disposal of the water prior to discharge if it is contaminated. These measures shall 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 would be subject to approval by the Central Valley RWQCB. USACE and CVFPB shall verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. USACE and CVFPB or its authorized agent shall perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. USACE and CVFPB shall notify its contractors immediately if there is a non-compliance issue and shall 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 2-8 in Chapter 2, "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 would 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 would 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 would be implemented where construction would occur within 500 feet of any sensitive receptor to reduce the impact to less than significant.

Significance Criteria

The proposed project would have a significant impact from noise if construction would 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 groundborne 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 would 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 would 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 2-8 in Chapter 2, "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 would 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 would be 56–57 dBA Leq. Therefore,

the construction-related noise levels at the closest residential uses would 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 would 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 would be perceptible. Implementing Mitigation Measure NOI-1 would 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 shall 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 would 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.), 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 shall 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 shall 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 would 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 shall be conducted to assess potential architectural damage from levee construction vibration at each residence within 75 feet of construction. The survey shall include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation shall be reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures shall be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage shall be documented with photographs and video. This documentation shall 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 potions 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 3.12-1 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 3.12-1.

Table 3.12-1. Parks and Recreational Facilities in or Near the Project Area (Public and Private)

Facility	Location	Features
Bahnfleth Park[1] 959 Seamas Avenue	North of levee improvement area in the Little Pocket	6.2-acre park with two picnic areas and one soccer field
Bill Conlin Youth Sports Complex 7895 Freeport Boulevard	Approximately 0.15 mile southeast of the staging area adjacent to El Rito Way and 0.4 mile southeast of work areas in the southern part of the Pocket	10-acre outdoor sports complex with five baseball fields, basketball court, two soccer fields, picnic area, and a concession stand
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
Marriot Park 1235 Grand River Drive	Approximately 0.1 mile north of levee improvement area in the Pocket	8.2-acre park with two group picnic areas 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
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
Shore Park[1] 7996 Pocket Road	Adjacent to the Sacramento River Parkway at the southern end of the Pocket	2.5-acre park with one picnic area and Sacramento River and Parkway access
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

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 stated that construction vehicles would 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 would 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 would 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 would 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 would be considered significant if implementation of an alternative plan would result in any of the following:

- Eliminate or substantially restrict or reduce the availability, access, or quality of existing recreational sites or opportunities in the Project Area;
- Cause substantial long-term disruption in the use of an existing recreation facility or activity;
- Result in 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.

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

As shown in Table 3.12-1, there are several marinas in the vicinity of the levee improvement area, within the Secondary Zone of the Legal Delta. During construction of the levee improvements, access to the Miller Park Marina and boat ramp, and the Garcia Bend Park boat ramp would be closed temporarily, at different times, during the use of portions of Miller Regional Park and Garcia Bend Park for construction staging. Boat launch ramps at Discovery Park, Verona, and Elkhorn could be used when those at Miller Park and Garcia Bend Park are temporarily closed. Bicycle trails along the Sacramento River Parkway bike path and on-street bicycle routes would require temporary closures and/or detours to accommodate material transport along haul routes and construction. Temporary closure of bicycle and recreational facilities, including the Miller Park Marina and boat ramps at Miller Regional Park and Garcia Bend Park would have a significant effect. Implementation of Mitigation Measure REC-1would 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, as disclosed in the ARCF GRR Final EIS/EIR, this short-term construction impact would remain significant and unavoidable.

3.12.3 Avoidance, Minimization, and Mitigation Measures

The following measure includes modifications to mitigation identified in the ARCF GRR Final EIS/EIR. The modifications are intended to provide clear communication of detours for pedestrians and bicyclists, provide information on alternative boat launch locations to replace facilities that would 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 shall implement the following measures to reduce temporary, short-term construction effects on recreational 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 launch ramps at Miller Park and Garcia Bend Park, 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.

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 2-8 (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 stated that the project would 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 would 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 would 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 would be a significant and unavoidable effect.

Significance Criteria

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

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

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 would:

- 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 would 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 would 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 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, "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 would 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 would not result in substantial changes to operations as compared to current conditions, the project would 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 would 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 would involve slow-moving trucks, which would further affect highway traffic. Construction-generated traffic would temporarily increase the daily and peak-hour traffic along specified routes, including residential streets. Several staging areas (see Figure 2-8 in Chapter 2, "Alternatives"), would be developed adjacent to the levee to maximize the efficient use and distribution of materials and equipment. Staging areas would 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 would be reconstructed with imported material from an existing stockpile at the proposed SCRSD borrow site.

Construction trucks that would 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, would 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, "Alternatives." Additionally, levee improvement activities would require a maximum of 100 construction workers per day during the most active construction periods. Thus, commuting by construction workers would result in a worst-case scenario of approximately 200 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 2-8 (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 1,900 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 would add up to 95 vehicles per hour for local roadways used as haul routes. This level of traffic activity would 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 would be up to 50 trucks per hour. This level of traffic activity would not degrade traffic operations along the roadways used by haul trucks in the vicinity of the proposed SRCSD borrow site. However, construction-related traffic volumes along I-5 northbound and southbound would increase by up to 190 vehicles per hour. This level of traffic increase would potentially degrade traffic operations below the applicable threshold.

Construction-related traffic could also delay or temporarily obstruct the movement of emergency vehicles. Therefore, the project would have a potentially significant effect. Furthermore, construction

would 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 would 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 would be prepared and implemented. However, as described in the GRR EIS/EIRGRR Final EIS/EIR, this temporary construction impact would remain significant and unavoidable. Additionally, USACE and CVFPB would provide public notice in advance of closures and detours/routes and would 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 would occur within the project footprint, temporary road closures would 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 would be closed during project-related activities. Implementing Mitigation Measure TR-1 would reduce the significant effect associated with alternative modes of transportation to a less-than-significant level because USACE and CVFPB would provide public notice in advance of closures and detours/routes and would 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 existing construction sites; periodic road and lane closures associated with construction traffic; and potential damage to pavement would increase traffic hazards on local roadways during the construction period. Implementing Mitigation Measure TR-1 would 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 would 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 shall 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 would be required to comply with the local jurisdiction's standard construction specifications. The items listed below shall 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 shall 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 shall be coordinated with the appropriate jurisdiction and be minimized to the extent possible during the morning and evening peak traffic periods. Construction specifications shall 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 shall be made to accommodate traffic flows. Signs shall 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 shall 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 shall be made available at all times.

- The construction contractor shall 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 shall 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 stated 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 would 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 would reduce this effect to a less-than-significant level.

The location of the landfill used for disposal of construction-related waste would be determined by the construction contractor prior to initiation of construction activity and would be approved by USACE. This disposal site would 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 would be used. Project construction would 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 would be considered significant if implementation of an alternative plan would 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 would 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 would be conducted concurrent with the proposed construction activities. Although steps would 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 would reduce the potentially significant effect associated with disruption of utility service to a less-than-significant level because USACE and CVFPB would coordinate with utility service providers and consumers to minimize utility interruptions to the maximum extent feasible, and a response plan to address service interruptions would 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 shall 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 shall 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 shall 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 (Corps, 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 2020, and projects that are under construction in 2020.

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 would 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 the Corps, 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 Common Features 2016 Project

The greater ARCF 2016 project is scheduled for construction from 2019 through 2024. The project would 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 would widen the Sacramento Weir and Bypass. The project would 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 (planned for 2019);
- additional improvements to the Sacramento River East Levee between downtown Sacramento and Freeport (planned for 2021-2023);
- erosion protection on the American River (planned for 2021-2023);
- erosion protection on the Sacramento River (planned between 2020 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 2023);
- 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 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, with Reach H anticipated to begin in 2018. Reaches A, B, E, F, G, and are still in design. Construction on Reaches D, H, and I is expected to continue in 2020, and construction in Reach B is planned to begin in 2020 and continue into 2021. Construction and construction traffic effects of this project have the potential to contribute to cumulative impacts with the Proposed Action.

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

West Sacramento General Reevaluation Report

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

system. Measures to address these concerns would include: (1) seepage cutoff walls; (2) stability berms; (3) seepage berms; (4) levee raises; 5) flood walls; (6) relief wells; (7) sheet pile walls; (8) jet grouting; and (9) bank protection. The GRR was authorized in WRDA 2016, and in the Fiscal Year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency (WSAFCA) Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along Sacramento River in the northern portion of the city near the neighborhood of Bryte, and the south levee of the Sacramento Bypass. In addition, the Southport setback levee is currently under construction as part of a local effort, which includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin. 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 would 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 would 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 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 Freemont 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 would 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 would 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 would 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 would 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 would 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 would 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 would likely follow completion of the JFP and the WCM projects The Dam Raise project includes raising the right- and left-wing dams, Mormon Island Auxiliary Dam, and dikes 1-8 around Folsom Reservoir by 3.5 feet. 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 is scheduled to begin in 2019 with Dike 8 construction, followed by Dike 7 in 2020; MIAD, the Left and Right wing of Folsom Dam, and Dikes1-3 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.

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 would be transformed into a dynamic, urban environment featuring a state-of-the-art mass transit hub that would 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, an estimated 250,000 square feet of hotel and

commercial uses, and an estimated 4,900 residential units. Most of the project site is located east of I-5 at Cosumnes River Boulevard, east of Freeport and north of the SRCSD Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to the Delta Shores southern boundary (east of I-5). Approximately 100 acres of the Delta Shores project site is west side of I-5 and abuts the Sacramento River East Levee in the northwest corner and near the southwest corner. In this western portion of Delta Shores, medium- and high-density residential housing will be developed on the north side of Stonecrest Avenue. Adjacent to and north of the housing, and adjacent to Freeport Boulevard on the west side, a park will be developed. Medium- and low-density residential housing will be developed on the south side of Stonecrest Avenue.

Cosumnes River Boulevard was recently extended by approximately 3.5 miles (from the east side of SR 99 to I-5), and a new I-5 interchange was constructed to provide regional connectivity for local residents and access to the future Delta Shores development (particularly the shopping center); the road and interchange improvements were completed in 2015. Construction on the shopping center began in 2016, and the complex opened in 2017. Construction, road construction, and construction traffic associated with Delta Shores have the potential to contribute to cumulative impacts with the Proposed Action.

4.2 Cumulative Effects

4.2.1 Visual Resources

Most project-related activities would 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 would 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 would be no significant cumulative impact related to damage to scenic resources within a State- or County-designated scenic highway, and the project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect.

Construction crews, equipment, and haul trucks would be visible to residents adjacent to local streets, and staging areas, and to residences adjacent to the work sites. In addition, construction would be visible to recreationists where portions of parks would be used as staging areas, and potentially along portions of the Sacrament River Parkway bicycle and pedestrian trail. However, construction would be temporary in nature, and because construction would proceed along the levee in a linear fashion, the views of construction crews, equipment, and haul trucks would be of short duration, and related projects would 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 would look the same or substantially similar to existing conditions. Therefore, there would be no significant cumulative effect related to short-term temporary or long-term permanent degradation of visual character or adverse changes to scenic vistas, and the Proposed Action would not result in a cumulatively considerable incremental contribution to a significant cumulative effect.

4.2.2 Air Quality

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 3.3-2. 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 meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NOx emissions. As discussed in Section 3.4, "Air Quality," the Proposed Action would result in a cumulatively considerable incremental contribution to a significant cumulative effect related to regional air quality, and this contribution would be mitigated through implementation of Mitigation Measures described in Section 3.4.

With respect to localized air pollutants such as CO, TACs, and odors, the Proposed Action and the related projects would generate these pollutants only during construction, and they would 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 3.4, the Proposed Action would not generate CO, TACs, or odors at levels that would represent a health hazard. Therefore, the proposed project would 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 would 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 would 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 would be associated with construction disturbances of habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.4.3, "Vegetation and Wildlife," would 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 would be significant, the Proposed Action would 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 would 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 would generally continue to adversely affect special-status species. Most potential adverse effects of the Proposed Action and the related levee projects related to wildlife would be associated with construction disturbances of wildlife and their habitats, but permanent loss of habitat would 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 3.5.3, "Special-Status Species," would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal ESA and CESA. Therefore, the Proposed Action would 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 would 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 would generate GHG emissions in excess of threshold levels would implement the mitigation measures set forth in their respective CEQA/NEPA documents to reduce emissions and/or purchase carbon offsets. Furthermore, the Proposed Action would not exceed CEQ GHG threshold guidance levels and the Proposed Action would be consistent with Statewide climate change adaptation strategies. Therefore, the Proposed Action would 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 would 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," would 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 would remain, and the project would 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, would 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 would disturb 1 acre of land or more are required by law to comply with NPDES discharge permits from the Central Valley RWQCB, which require preparation of a SWPPP and implementation of erosion control BMPs. Therefore, there would be no significant cumulative effect related to construction-related erosion, and the project would 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 would implement seepage control measures that would reduce the risk of levee failure. Therefore, the Proposed Action and the related projects would not cumulatively increase the risk of levee failure. This effect would be cumulatively beneficial.

All Proposed Action improvements, as well as improvements proposed as part of the related levee projects, would 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), would also apply to project design and construction. Therefore, it is assumed that the design and construction of all levee modifications would 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 would 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, would 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 would 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, would encounter unique, scientifically important fossils. Therefore, the Proposed Action would 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 would 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 would be localized to the area where the materials are being used and would not be additive to other hazardous materials-related effects associated with the Project Area. None of the materials would be acutely hazardous, and they would not be used in quantities that pose a hazard to schools within 0.25 mile of construction sites. Thus, the project would 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,” would minimize potential exposure to unknown hazards and hazardous materials during implementation of the Proposed Action. Therefore, the Proposed Action would 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, would be implemented in urbanized areas, similar to the Proposed Action, with a relatively low risk of wildland fire. Therefore, there would be no significant cumulative impact related to wildland fire risk, and the Proposed Action would 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 would 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 would 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 would limit noise-generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the Proposed Action would 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," would 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 would 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 would be less than significant, and the Proposed Action would 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 would 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) would 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 2-8 (see Chapter 2, "Alternatives"). Other levee projects would occur at locations that are relatively distant. There are no known projects that would affect the local haul routes shown in Figure 2-8. 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 would have traffic volumes that would cumulatively affect traffic during these same time periods. If other projects substantially affect traffic during these peak construction periods, the potential cumulative effects would be significant on segments of I-5, and the Proposed Action would 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. Because other major construction projects would also implement traffic control plans specifically designed to provide appropriate emergency access, the Proposed Action would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to emergency vehicle access or response times.

Bicycle and pedestrian paths affected by the Proposed Action would 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 would 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) would also implement traffic control plans specifically designed to provide continued safe routes for alternative modes of transportation during construction. Therefore, the Proposed Action would 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 would be geographically isolated, short in duration, and occur on a project-by-project basis. Thus, these disruptions would not combine to form cumulative effects. Therefore, the Proposed Action would 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 would generate organic and non-organic solid waste. Waste material that is not suitable for disposal onsite or at the Railyards would 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 would 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 would not involve construction of housing, the action would not directly induce growth. Project-related construction activities would generate temporary and short-term employment, but these construction jobs are anticipated to be filled from the existing local employment pool and would not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the project would not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action would not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements would 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 would 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 would not allow additional growth to occur other than what has already been planned, nor would it change the locations where this growth is planned to occur. Consequently, implementation of the Proposed Action would 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, would not be growth-inducing. The Proposed Action would mitigate flood risks by improving levees to meet engineering standards associated with the National Flood Insurance Program; it would not alter protection for the 100-year event nor does it transfer any such risk to other areas. The Proposed Action would 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 FEDERAL AND STATE 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 would 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.

Partial Compliance. The Federal CAA requires the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, 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. 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 2021, 2022, and 2023, USACE expects to purchase offsets for NO_x emissions from SMAQMD and/or the Yolo-Solano Air Quality Management District. USACE expects to release a conformity determination for public notice in August 2019, and USACE would 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 would 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 would 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 would reinitiate consultation with USFWS and/or NMFS if completed design documents and specifications for associated ARCF projects provide more detailed data concerning anticipated adverse effects on listed species.

5.1.3 Executive Order 11988, Floodplain Management.

Partial Compliance. This Executive Order (EO) directs all Federal agencies approving or implementing a project to avoid, to the extent possible, the long- and short-term adverse effects associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Guidelines for implementing the EO include an eight-step process that agencies should carry out as part of their decision-making on projects that have potential effects to or within the floodplain. The decision-making process required in Section 2(a) of the EO is reflected in the eight steps that are listed below, along with information on how each step is being addressed for the project.

1. Determine if a proposed action is in the base floodplain (that area which has a 1 percent or greater chance of flooding in any given year (i.e., the 100-year floodplain). The project includes levee improvements, some of which form the boundary of the base (FEMA's 100-year) floodplain.

2. Conduct early public review, including public notice. Public review is being accomplished through the NEPA Supplemental EA and the CEQA Supplemental EIR process; SAFCA previously conducted extensive public outreach for an earlier iteration of the project prior to authorization by Congress.

3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain. Alternatives to the Proposed Action are discussed in Chapter 2, "Alternatives."

4. Identify effects of the proposed action. This Supplemental EA/EIR analyzes the environmental effects potentially resulting from the project, per NEPA requirements. Effects of the Proposed Action are described in Chapter 3, "Affected Environment and Environmental Consequences." Effects are also being evaluated in compliance with the CWA, and other Federal and State environmental regulations.

5. Minimize threats to life and property and restore and preserve natural and beneficial floodplain values. The project would reduce flood risk to life and property by ensuring the Sacramento River East Levee meets engineering standards associated with the NFIP. The project includes mitigation to maintain or improve habitat values along the Sacramento River East Levee.

6. Reevaluate alternatives. USACE is conducting an extensive engineering review of SAFCA's initial designs for improvements to address through-and under-seepage hazards on the Sacramento River East Levee. The Proposed Action includes those portions of SAFCA's initial design which were initially reviewed and approved, in addition to several modifications that were developed as a result of USACE's reevaluation of the alternatives. The alternatives are also evaluated and may be refined through consultation with the resource agencies for compliance with CWA, and other project authorizations.

7. Present the findings and a public explanation. As part of the NEPA and CEQA process, the public would be able to review and comment on this Supplemental EA/EIR.

8. Implement the action. USACE intends to implement the Proposed Action in 2020, assuming receipt of all necessary approvals, clearances, permits, and permissions.

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

5.1.4 Executive Order 11990, Protection of Wetlands.

Compliance. The purpose of EO 11990 is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." To meet these objectives, EO 11990 requires Federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. EO 11990 applies to:

- acquisition, management, and disposition of Federal lands and facilities construction;
- improvement projects which are undertaken, financed, or assisted by Federal agencies; and
- Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

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 would reduce the risk of flooding to existing residential, commercial, and industrial development protected by the Sacramento River East Levee. This benefit would accrue to all segments of the population in the Project Area and would have no disproportionately high adverse environmental effect on any minority or low-income population.

5.1.6 Executive Order 13112, Invasive Species.

Partial 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 would be hydroseeded with a native seed mix for erosion protection and to prevent colonization of exotic vegetation and mitigation measures would 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.

Partial Compliance. EPA is the lead Federal agency responsible for water quality management. The CWA of 1972 is the primary Federal law that governs and authorizes water quality control activities by EPA, as well as the State. The Proposed Action would not involve the placement of fill materials or construction within surface waters, local waterways, or any other Waters of the U.S., therefore, the project is in 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 would 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.

Partial 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 would therefore be in compliance with this act.

5.1.10 Magnuson-Stevens Fishery Conservation and Management Act.

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

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

Partial 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 shall 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 would 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[l]). 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 shall 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 3.6, "Cultural Resources." Determinations of the specific mitigation measures to be implemented to reduce impacts to known Historic Properties would be made by USACE, in consultation with SHPO and other PA Parties, 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 3.6 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 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 3.6. 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, and on the findings of the cultural investigations. Accordingly the Proposed Action would comply with 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 would need to be acquired for project construction. All property acquisition would 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 would exceed local thresholds administered by SMAQMD but would 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 would exceed this GHG emissions threshold. Additional BMPs would 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, would 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 would 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 would have no effect on waters of the United States or waters of the State.

5.2.6 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 would apply to the Proposed Action.

6.0 COORDINATION AND REVIEW OF THE DRAFT SUPPLEMENTAL EA/EIR

The Draft Supplemental EA/EIR and Draft FONSI will be circulated for 45 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the Draft Supplemental EA/EIR will be posted on the USACE and CVFPB websites, made available for viewing at local public libraries, or provided by mail upon request. This project will be 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 would 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 would be less than significant or reduced to less than significant.

Based on this evaluation, the Proposed Action supports a Finding of No Significant Impact (FONSI), as described in 40 CFR, Section 1508.13. A FONSI may be prepared when an action would not have an adverse significant effect on the human environment and for which an Environmental Impact Statement would not be prepared. Accordingly a Draft FONSI has been prepared and accompanies this Supplemental EA/EIR.

8.0 REPORT PREPARERS AND REVIEWERS

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

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

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 1: 2020 Berms and Relief Wells

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total 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	17.38	117.02	172.08	27.26	7.26	20.00	10.74	6.58	4.16	0.32	30,877.39	9.29	0.31	31,203.15
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)	17.38	117.02	172.08	27.26	7.26	20.00	10.74	6.58	4.16	0.32	30,877.39	9.29	0.31	31,203.15
Total (tons/construction project)	0.76	5.15	7.57	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1,358.61	0.41	0.01	1,372.94

Notes:

Project Start Year ->	2020
Project Length (months) ->	4
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	1,042	0	306	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 1: 2020 Berms and Relief Wells

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total 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	0.76	5.15	7.57	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1,358.61	0.41	0.01	1,245.52
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 (tons/phase)	0.76	5.15	7.57	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1358.61	0.41	0.01	1,245.52
Total (tons/construction project)	0.76	5.15	7.57	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1358.61	0.41	0.01	1,245.52

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 1: 2020 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	7.08	49.17	76.61	3.24	3.24	0.00	2.80	2.80	0.00	0.15	15,229.00	3.37	0.25	15,387.72
Grading/Excavation	31.65	236.00	314.89	64.28	14.28	50.00	23.12	12.72	10.40	0.57	55,892.99	15.04	0.68	56,471.62
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)	38.73	285.17	391.50	67.52	17.52	50.00	25.92	15.52	10.40	0.73	71,121.99	18.42	0.93	71,859.33
Total (tons/construction project)	2.60	19.33	25.88	5.19	1.17	4.02	1.88	1.04	0.84	0.05	4,605.47	1.23	0.06	4,653.16

Notes:

Project Start Year ->	2020
Project Length (months) ->	8
Total Project Area (acres) ->	64
Maximum Area Disturbed/Day (acres) ->	64
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	32	0	26	0	560	1,200
Grading/Excavation	1,703	0	574	0	4,000	1,200
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 1: 2020 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	0.05	0.38	0.59	0.02	0.02	0.00	0.02	0.02	0.00	0.00	117.26	0.03	0.00	107.49
Grading/Excavation	2.54	18.95	25.29	5.16	1.15	4.02	1.86	1.02	0.84	0.05	4,488.21	1.21	0.05	4,113.83
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)	2.54	18.95	25.29	5.16	1.15	4.02	1.86	1.02	0.84	0.05	4488.21	1.21	0.05	4,113.83
Total (tons/construction project)	2.60	19.33	25.88	5.19	1.17	4.02	1.88	1.04	0.84	0.05	4605.47	1.23	0.06	4,221.32

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 1: 2020 Berms and Relief Wells

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total 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	17.36	116.97	170.04	27.25	7.25	20.00	10.73	6.57	4.16	0.32	30,831.31	9.29	0.31	31,156.22
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)	17.36	116.97	170.04	27.25	7.25	20.00	10.73	6.57	4.16	0.32	30,831.31	9.29	0.31	31,156.22
Total (tons/construction project)	0.76	5.15	7.48	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1,356.58	0.41	0.01	1,370.87

Notes:

Project Start Year ->	2020
Project Length (months) ->	4
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	1,042	0	306	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 1: 2020 Berms and Relief Wells

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total 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	0.76	5.15	7.48	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1,356.58	0.41	0.01	1,243.65
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)	0.76	5.15	7.48	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1356.58	0.41	0.01	1,243.65
Total (tons/construction project)	0.76	5.15	7.48	1.20	0.32	0.88	0.47	0.29	0.18	0.01	1356.58	0.41	0.01	1,243.65

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 1: 2020 Vegetation and Cutoff Wall

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total 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	6.97	48.99	69.40	3.20	3.20	0.00	2.77	2.77	0.00	0.15	15,065.73	3.37	0.24	15,221.43
Grading/Excavation	31.50	235.73	304.47	64.23	14.23	50.00	23.07	12.67	10.40	0.57	55,656.75	15.04	0.67	56,231.01
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 (pounds/day)	38.47	284.72	373.87	67.42	17.42	50.00	25.84	15.44	10.40	0.72	70,722.48	18.40	0.91	71,452.44
Total (tons/construction project)	2.58	19.31	24.98	5.18	1.17	4.02	1.87	1.04	0.84	0.05	4,585.24	1.23	0.06	4,632.55

Notes:

Project Start Year ->	2020
Project Length (months) ->	8
Total Project Area (acres) ->	146
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	32	0	26	0	560	1,200
Grading/Excavation	1,703	0	574	0	4,000	1,200
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 1: 2020 Vegetation and Cutoff Wall

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total 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	0.05	0.38	0.53	0.02	0.02	0.00	0.02	0.02	0.00	0.00	116.01	0.03	0.00	106.33
Grading/Excavation	2.53	18.93	24.45	5.16	1.14	4.02	1.85	1.02	0.84	0.05	4,469.24	1.21	0.05	4,096.30
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)	2.53	18.93	24.45	5.16	1.14	4.02	1.85	1.02	0.84	0.05	4469.24	1.21	0.05	4,096.30
Total (tons/construction project)	2.58	19.31	24.98	5.18	1.17	4.02	1.87	1.04	0.84	0.05	4585.24	1.23	0.06	4,202.63

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 1: 2020 Berms and Relief Wells

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total 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	9.28	165.45	19.55	21.11	1.11	20.00	5.08	0.92	4.16	0.32	30,831.31	9.29	0.31	31,156.22
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)	9.28	165.45	19.55	21.11	1.11	20.00	5.08	0.92	4.16	0.32	30,831.31	9.29	0.31	31,156.22
Total (tons/construction project)	0.41	7.28	0.86	0.93	0.05	0.88	0.22	0.04	0.18	0.01	1,356.58	0.41	0.01	1,370.87

Notes:

Project Start Year ->	2020
Project Length (months) ->	4
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	1,042	0	306	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 1: 2020 Berms and Relief Wells

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total 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	0.41	7.28	0.86	0.93	0.05	0.88	0.22	0.04	0.18	0.01	1,356.58	0.41	0.01	1,243.65
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)	0.41	7.28	0.86	0.93	0.05	0.88	0.22	0.04	0.18	0.01	1356.58	0.41	0.01	1,243.65
Total (tons/construction project)	0.41	7.28	0.86	0.93	0.05	0.88	0.22	0.04	0.18	0.01	1356.58	0.41	0.01	1,243.65

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 1: 2020 Vegetation and Cutoff Wall

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total 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	3.56	63.42	10.69	0.66	0.66	0.00	0.44	0.44	0.00	0.15	15,065.73	3.37	0.24	15,221.43
Grading/Excavation	15.55	294.00	36.17	52.28	2.28	50.00	12.08	1.68	10.40	0.57	55,656.75	15.04	0.67	56,231.01
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 (pounds/day)	19.10	357.42	46.86	52.95	2.95	50.00	12.52	2.12	10.40	0.72	70,722.48	18.40	0.91	71,452.44
Total (tons/construction project)	1.28	24.10	2.99	4.20	0.19	4.02	0.97	0.14	0.84	0.05	4,585.24	1.23	0.06	4,632.55

Notes:

Project Start Year ->	2020
Project Length (months) ->	8
Total Project Area (acres) ->	146
Maximum Area Disturbed/Day (acres) ->	5
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	32	0	26	0	560	1,200
Grading/Excavation	1,703	0	574	0	4,000	1,200
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 1: 2020 Vegetation and Cutoff Wall

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total 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	0.03	0.49	0.08	0.01	0.01	0.00	0.00	0.00	0.00	0.00	116.01	0.03	0.00	106.33
Grading/Excavation	1.25	23.61	2.90	4.20	0.18	4.02	0.97	0.14	0.84	0.05	4,469.24	1.21	0.05	4,096.30
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)	1.25	23.61	2.90	4.20	0.18	4.02	0.97	0.14	0.84	0.05	4469.24	1.21	0.05	4,096.30
Total (tons/construction project)	1.28	24.10	2.99	4.20	0.19	4.02	0.97	0.14	0.84	0.05	4585.24	1.23	0.06	4,202.63

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.

Pollutant	Pounds per day Unmitigated Berm	Tons per Year Unmitigated Berm	Pounds per day Unmitigated Cutoff	Tons per Year Unmitigated Cutoff	Pounds per day 100% Tier 4 Berm	Tons per Year 100% Tier 4 Berm	Pounds per day 100% Tier 4 Cutoff	Tons per Year 100% Tier 4 Cutoff	Pounds per day On-Road Only Berm	Tons per Year On-Road Only Berm	Pounds per day On-Road Only Cutoff	Tons per Year On-Road Only Cutoff
ROG	17.38	0.76	38.73	2.6	9.28	0.41	19.1	1.28	17.36	0.76	38.47	2.58
CO	117.2	5.15	285.17	19.33	165.45	7.28	357.42	24.1	116.97	5.15	284.72	19.31
NO_x	172.08	7.57	391.5	25.88	19.55	0.86	46.86	2.99	170.04	7.48	373.87	24.98
PM_{10}	27.26	1.2	67.52	5.19	21.11	0.93	52.95	4.2	27.25	1.2	67.42	5.18
$PM_{2.5}$	10.74	0.47	25.92	1.88	5.08	0.22	12.52	0.97	10.73	0.47	25.84	1.87

Pounds per day Unmitigated Total	Tons per Year Unmitigated Total	Pounds per day 100% Tier 4 Total	Tons per Year 100% Tier 4 Total	Pounds per day On-Road Only Total	Tons per Year On-Road Only Total	Pounds per day Mitigated (75% Tier 4) Total	Tons per Year Mitigated (75% Tier 4) Total
56.11	3.36	28.38	1.69	55.83	3.34	35.24	2.10
402.37	24.48	522.87	31.38	401.69	24.46	492.58	29.65
563.58	33.45	66.41	3.85	543.91	32.46	185.79	11.00
94.78	6.39	74.06	5.13	94.67	6.38	79.21	5.44
36.66	2.35	17.6	1.19	36.57	2.34	22.34	1.48

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

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 1

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 2

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 3

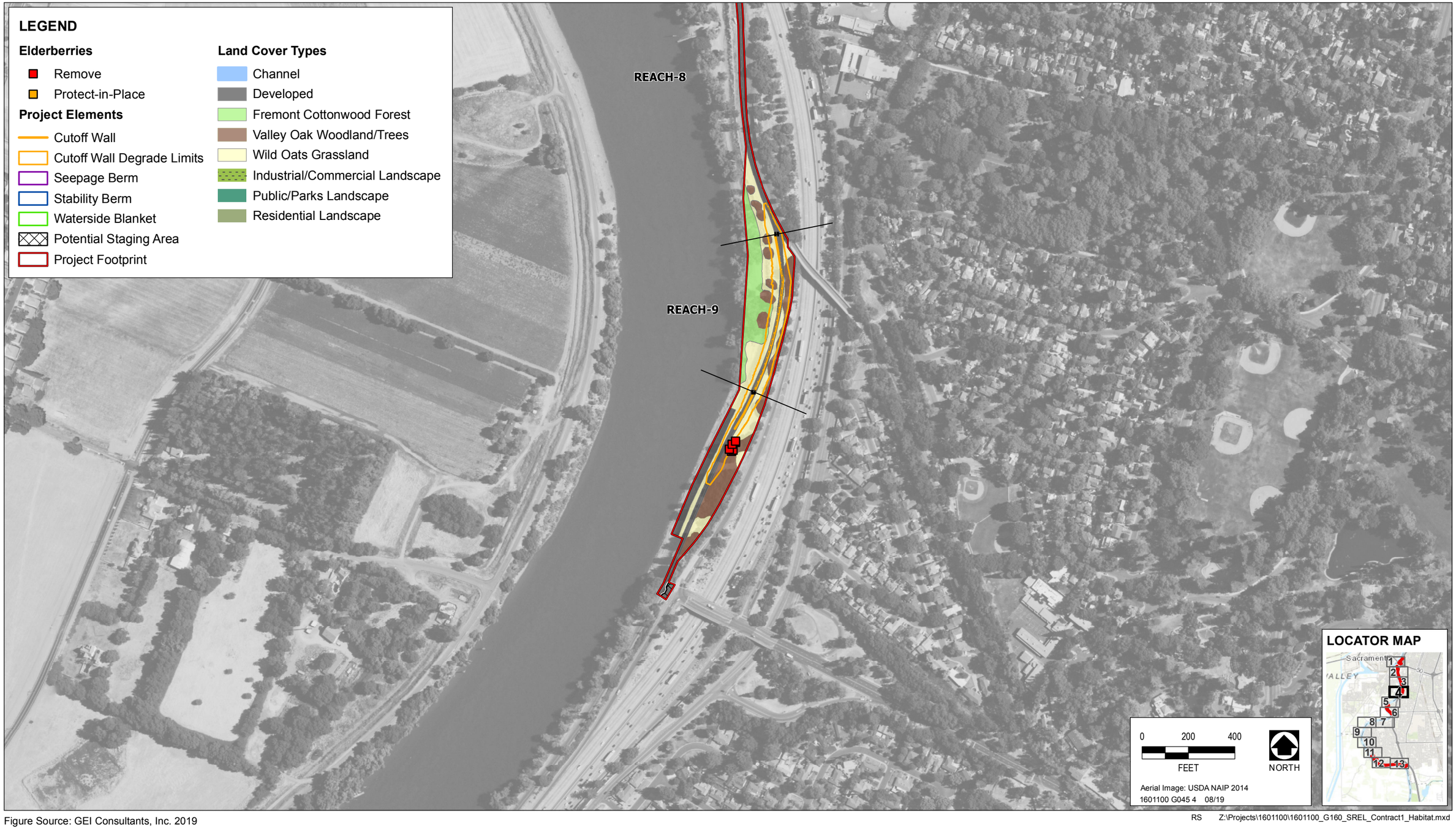

Figure Source: GEI Consultants, Inc. 2019

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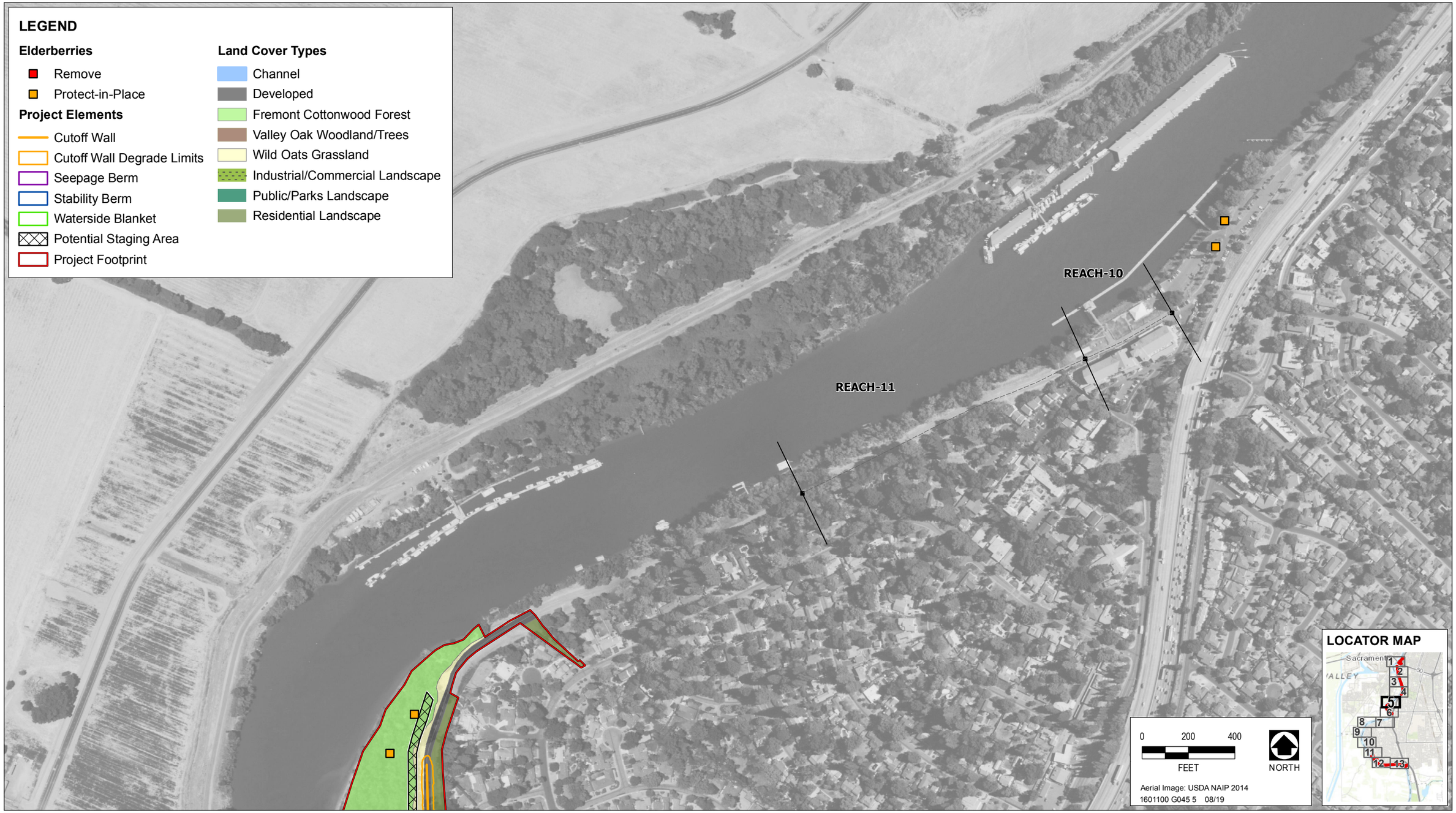
Habitat Map - 4



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Habitat Map - 5

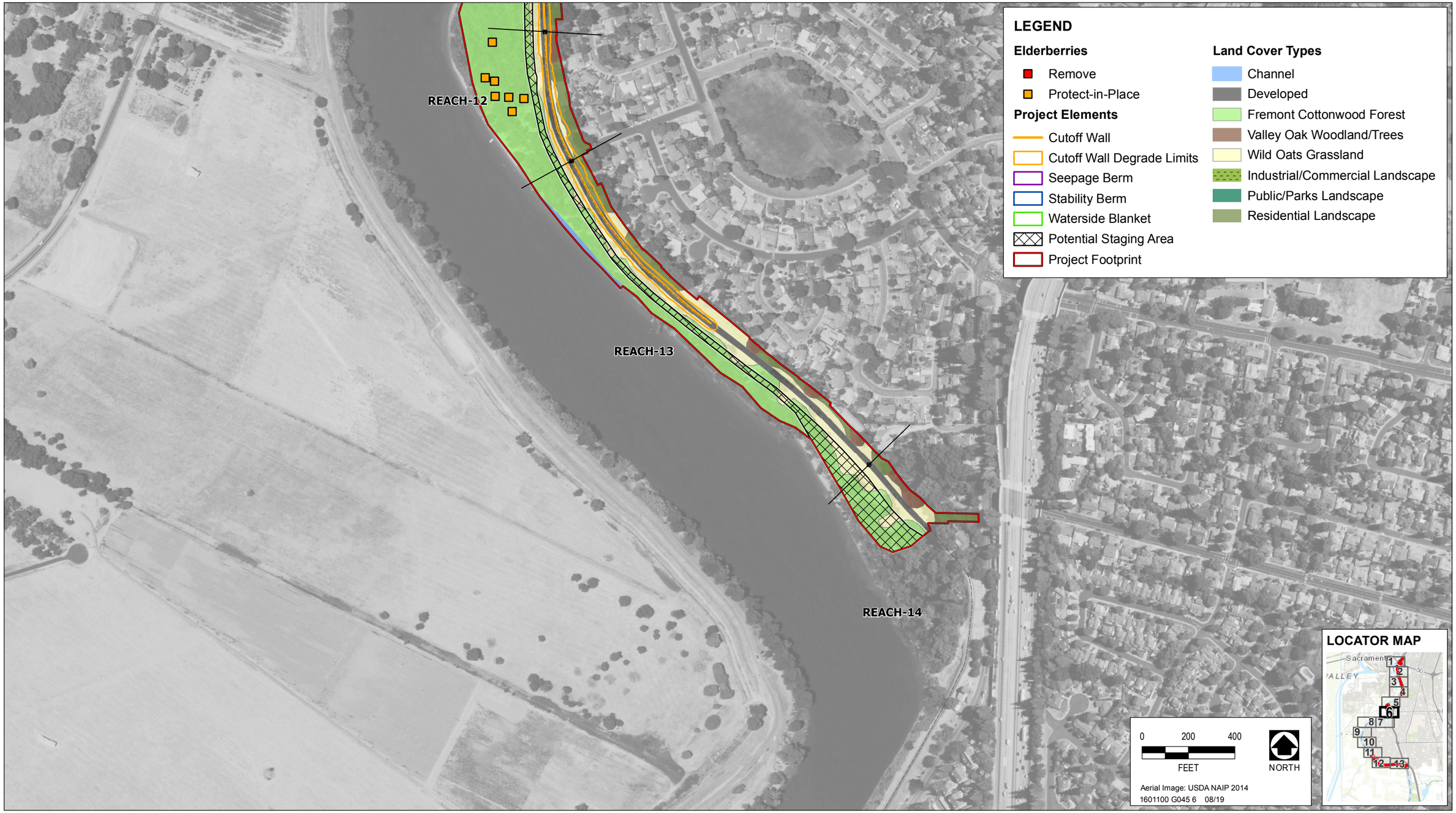

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 6

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 7

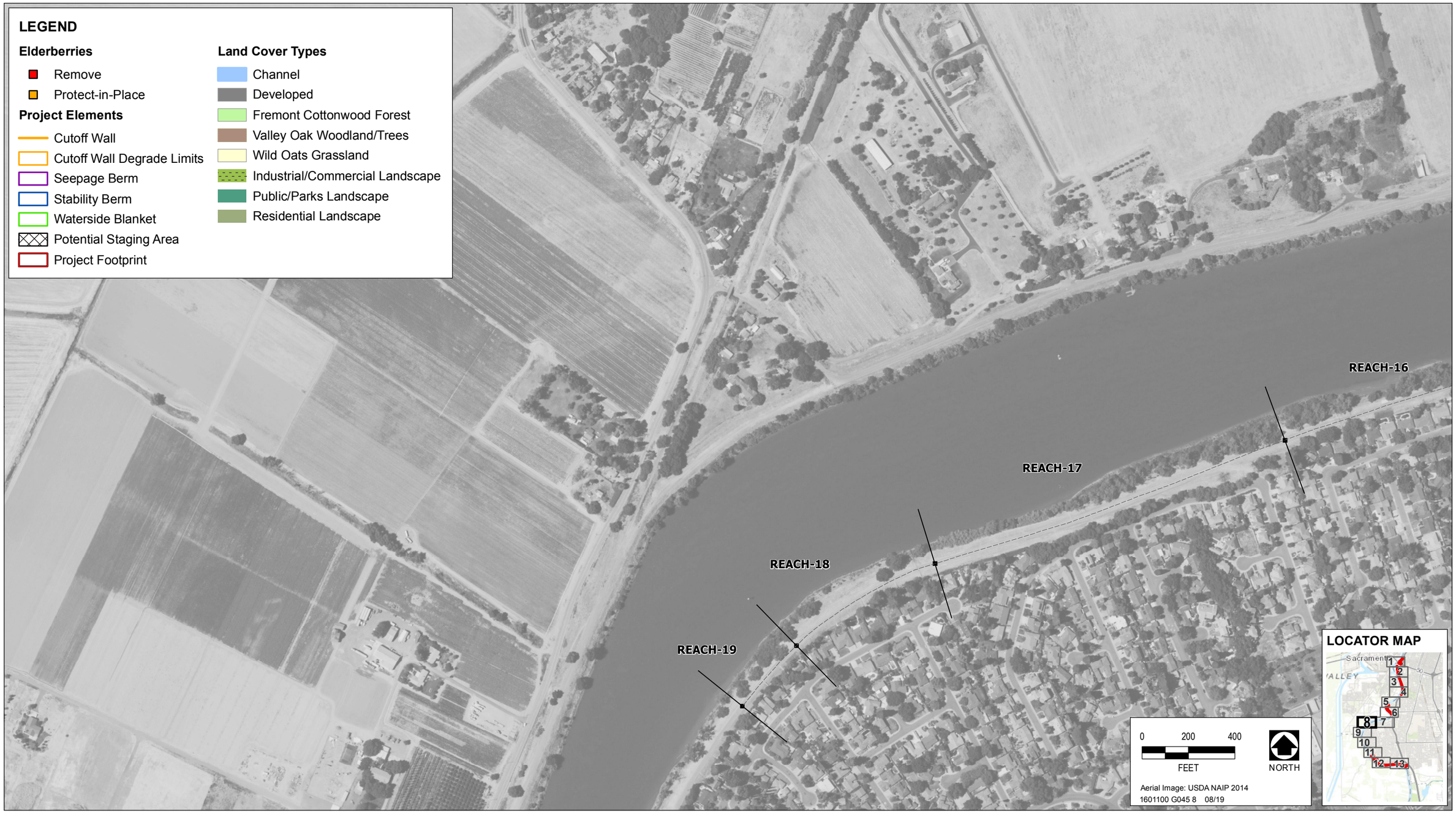

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 8

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 9

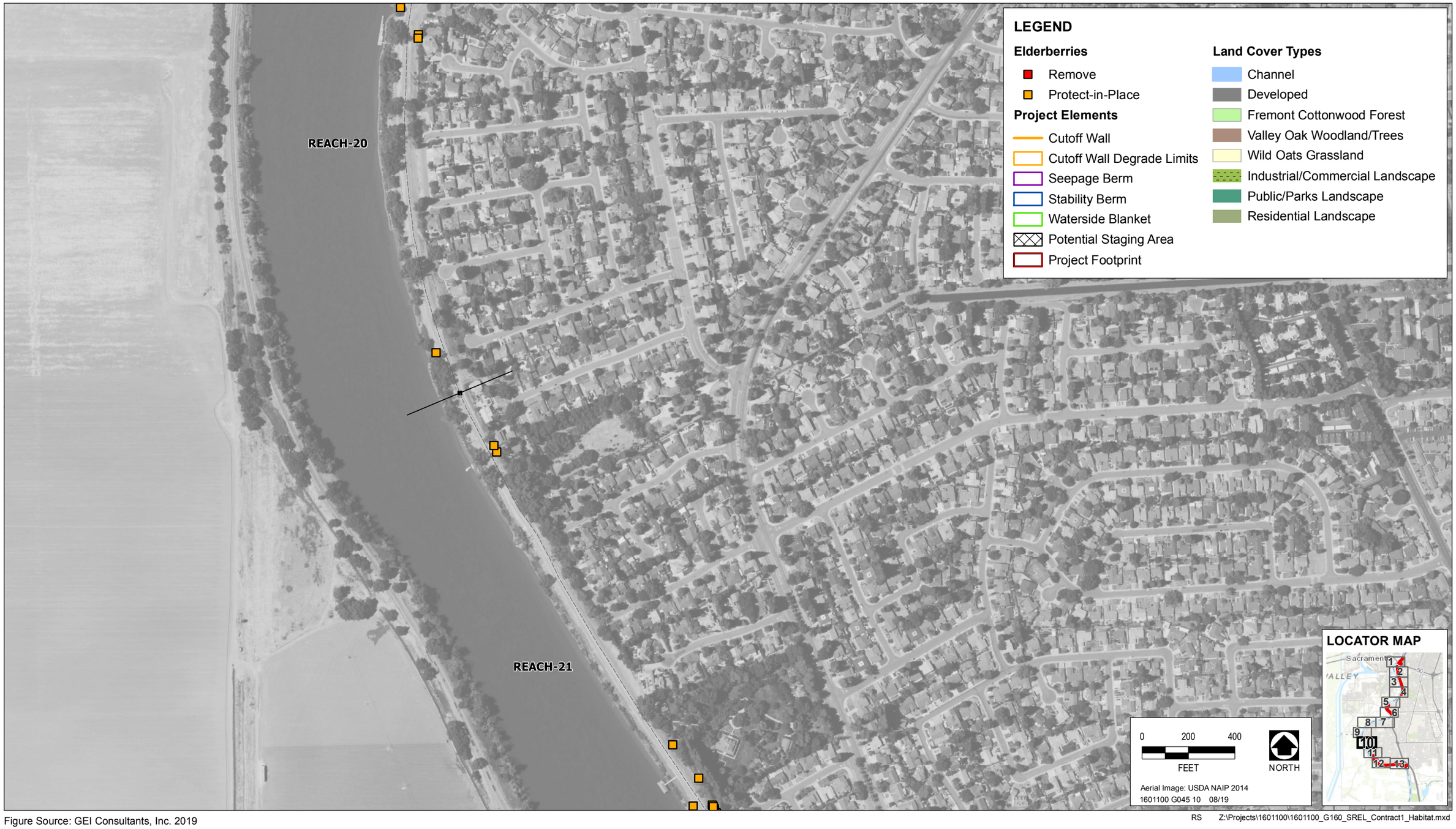

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 10

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 11

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 12

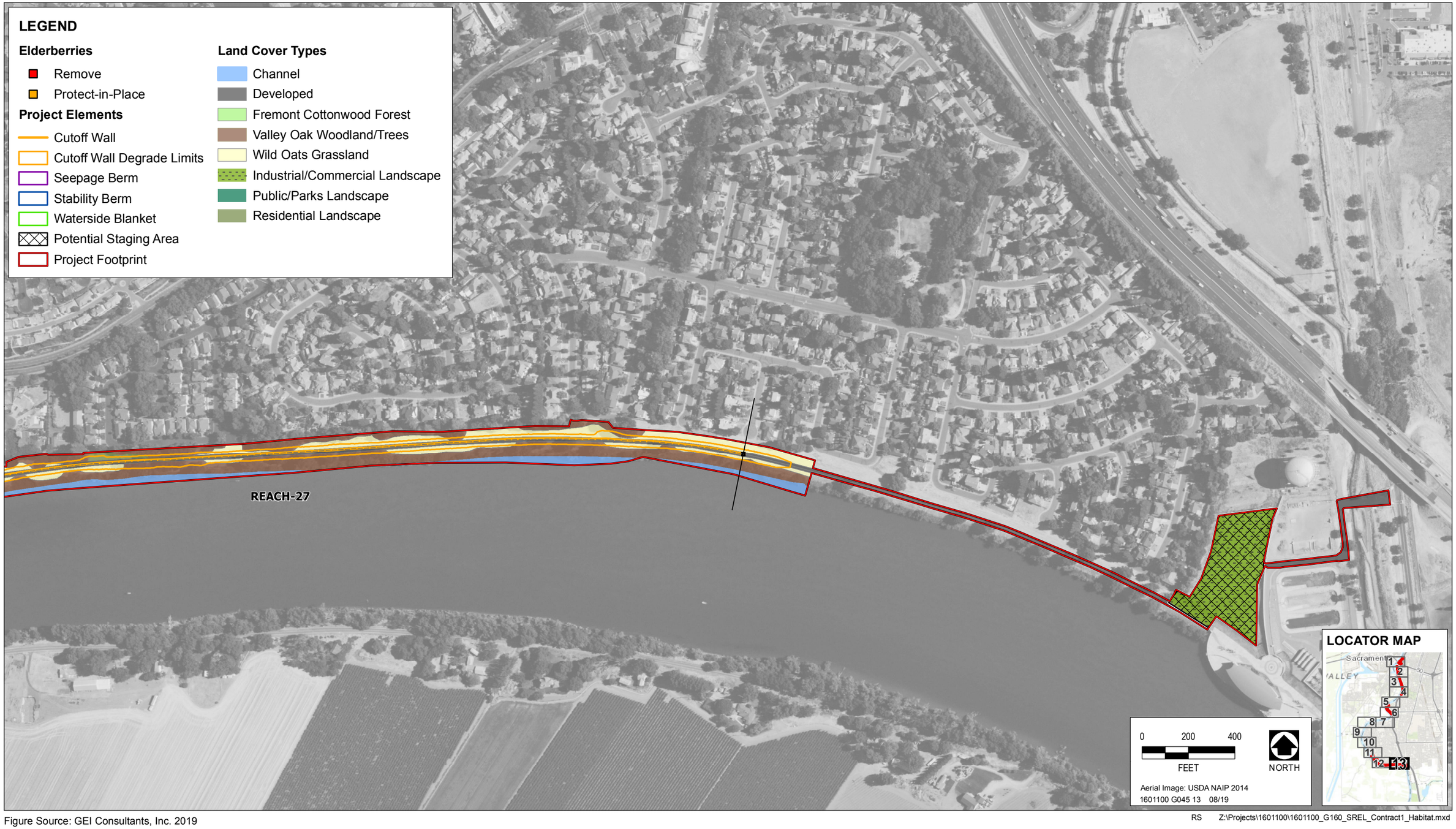

Figure Source: GEI Consultants, Inc. 2019

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Habitat Map - 13

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:
Consultation Code: 08ESMF00-2019-SLI-1867
Event Code: 08ESMF00-2019-E-05992
Project Name: American River Common Features East Sacramento Contract 1

May 08, 2019

Subject: 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:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

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: 08ESMF00-2019-SLI-1867

Event Code: 08ESMF00-2019-E-05992

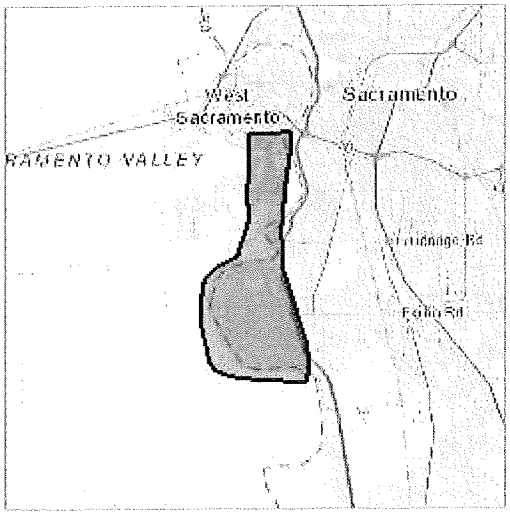
Project Name: American River Common Features East Sacramento Contract 1

Project Type: LAND - FLOODING

Project Description: Cutoff wall and seepage berm construction in April 2020 at approximately seven reaches in East Sacramento on the Sacramento River

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.51847170513964N121.53458974895136W



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 Fisheries[1], 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.

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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 *Vireo bellii pusillus* 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 *Coccyzus americanus* 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 *Thamnophis gigas* 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 *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* 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 *Hypomesus transpacificus* 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 *Desmocerus californicus dimorphus* 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 *Branchinecta conservatio* 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 *Branchinecta lynchi* 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 *Lepidurus packardi* 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

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sacramento West (3812155) OR Clarksburg (3812145) OR Sacramento East (3812154) OR Florin (3812144) OR Bruceville (3812134) OR Courtland (3812135) OR Liberty Island (3812136) OR Saxon (3812146) OR Davis (3812156) OR Grays Bend (3812166) OR Taylor Monument (3812165) OR Rio Linda (3812164))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
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	
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
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	PDAPI0Z130	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

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
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	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Juglans hindsii Northern California black walnut	PDJUG02040	None	None	G5	S5	CBR
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Neostapfia colusana 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	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 6 chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Scutellaria galericulata marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0	None	None	G5	S2	2B.2
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tuctoria mucronata Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 87

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sacramento West (3812155) OR Clarksburg (3812145) OR Sacramento East (3812154) OR Florin (3812144) OR Bruceville (3812134) OR Courtland (3812135) OR Liberty Island (3812136) OR Saxon (3812146) OR Davis (3812156) OR Grays Bend (3812166) OR Taylor Monument (3812165) OR Rio Linda (3812164))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Brasenia schreberi watershield	PDCAB01010	None	None	G5	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
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	
Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
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	PDAPI0Z130	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

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
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	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Juglans hindsii Northern California black walnut	PDJUG02040	None	None	G5	S5	CBR
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Limosella australis Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Neostapfia colusana 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	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 6 chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Scutellaria galericulata marsh skullcap	PDLAM1U0J0	None	None	G5	S2	2B.2
Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0	None	None	G5	S2	2B.2
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tuctoria mucronata Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 87

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 *Brasenia schreberi*	CRPR 2B.3	Freshwater ponds, marshes, and swamps, often in association with duckweed (*Lemna* spp.), from 98 to 7,218 feet in elevation. Blooms April–October.	Unlikely to occur
Bristly sedge *Carex comosa*	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 *Cicuta maculata* var. *bolanderi*	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 *Cuscuta obtusiflora* var. *glandulosa*	CRPR 2B.2	Freshwater marshes and swamps; from 49 to 919 feet in elevation. Blooms July–October.	Unlikely to occur
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	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 *Juglans hindsii*	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 (CNDDB 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 *Lathyrus jepsonii* var. *jepsonii*	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 lilaeopsis *Lilaeopsis masonii*	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 *Limosella australis*	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 *Sagittaria sanfordii*	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 *Scutellaria galericulata*	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 *Scutellaria lateriflora*	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 *Symphyotrichum lentum*	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: CNDDB = 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
Entosphenus tridentatus 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.
Lampetra ayresi 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).
Acipenser medirostris 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).
Acipenser transmontanus 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).
Mylopharadon conocephalus 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).
Pogonichthys macrolepidotus 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).
Hypomesus transpacificus 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).
Spirinchus thaleichthys 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).
Oncorhynchus mykiss 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).
Oncorhynchus tshawytscha 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).
Oncorhynchus tshawytscha 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
Oncorhynchus tshawytscha 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] Federal	State	Habitat Associations and Species Occurrences	Potential for Occurrence[2]
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	–	Closely associated with blue elderberry (*Sambucus* sp.), which is an obligate host for the beetle larvae; occurrences along the Sacramento River.	Known to occur
Reptiles				
Giant garter snake *Thamnophis gigas*	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 *Emys marmorata*	–	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 *Sterna antillarum browni*	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 *Charadrius alexandrines nivosus*	FT	–	Primarily a coastal species, but scattered inland breeding populations exist; CNDDB occurrences of migrant individuals from several wastewater treatment facilities in the region.	Unlikely to occur
Greater sandhill crane *Grus canadensis tabida*	–	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 *Elanus leucurus*	–	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 *Buteo swainsoni*	–	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] Federal	State	Habitat Associations and Species Occurrences	Potential for Occurrence[2]
Northern harrier *Circus cyaneus*	–	SSC	Nests and forages in grasslands, agricultural fields, and marshes, mostly within dense patches of vegetation no CNDDB occurrences in vicinity of project area, but this species is rarely documented in the CNDDB.	Could occur
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	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 *Athene cunicularia*	–	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 *Riparia riparia*	–	ST	Forages in a variety of habitats and nests in vertical banks or bluffs of suitable soil, typically adjacent to water; historical CNDDB 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 *Progne subis*	–	SSC	Nests in bridges in the Sacramento urban area and forages in adjacent open habitats; nest colonies are documented in the CNDDB, but no suitable nest sites are present in the project area or vicinity.	Could occur
Loggerhead shrike *Lanius ludovicianus*	–	SSC	Forages and nests in grasslands, shrublands, and open woodlands; no CNDDB occurrences in the project area or vicinity, but this species is rarely documented in the CNDDB.	Could occur
Least Bell's vireo *Vireo bellii pusillus*	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 *Ammodramus savannarum*	–	SSC	Nests and forages in grasslands, with a mix of grasses, forbs, and scattered shrubs, on rolling hills and lowland plains; CNDDB occurrences in the project area and vicinity are limited to eastern Sacramento County.	Unlikely to occur
Song sparrow ("Modesto" population) *Melospiza melodia*	–	SSC	Nests and forages in emergent freshwater marsh and riparian scrub and woodland; several CNDDB occurrences in the Upper Beach Lake area.	Could occur
Tricolored blackbird *Agelaius tricolor*	–	SE	Nests in freshwater marsh, riparian scrub, grain crops, and other dense, low vegetation and forages in grasslands and agricultural fields; CNDDB 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] Federal	State	Habitat Associations and Species Occurrences	Potential for Occurrence[2]
Mammals				
Pallid bat *Antrozous pallidus*	–	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 *Lasiurus blossevillii*	–	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 *Taxidea taxus*	–	SSC	Arid, open grassland, shrubland, and woodland with soils suitable for burrowing; historic and recent CNDDB occurrences from Sacramento County, but none closer to the project area than the former Mather Air Force Base.	Unlikely to occur

Notes: CNDDB = 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; CNDDB 2016; County of Sacramento et al. 2010; SRCSD 2000, 2014; USFWS 2016a