

Draft

American River Common Features, 2016 Flood Risk Management Project, Sacramento, California

Supplemental Environmental Impact Statement/ Subsequent Environmental Impact Report XIV



State Clearinghouse
Number 2005072046

U.S. Army Corps of
Engineers
Sacramento District

Central Valley Flood
Protection Board

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American River Common Features, 2016 Flood Risk Management Project

Sacramento, California Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report **XIV** December 2023

Type of Statement: Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR)

Lead NEPA Agency: U.S. Army Corps of Engineers, Sacramento District

Lead CEQA Agency: State of California, Central Valley Flood Protection Board

Responsible Agency: Sacramento Area Flood Control Agency

Abstract (40 CFR § 1502.11): The U.S. Army Corps of Engineers (USACE) and its non-Federal partners, the State of California Central Valley Flood Protection Board (CVFPB), and the Sacramento Flood Control Agency (SAFCA), propose design refinements to the American River Common Features General Reevaluation Report, Final EIS/EIR (2016 ARCF GRR FEIS/EIR), involving Magpie Creek Project (MCP); American River Erosion Contracts 3B, 4A and 4B; Sacramento River Erosion Contract 3; American River Mitigation Site (ARMS); Sacramento River Mitigation Site (SRMS), and installation of a Piezometer Network. This SEIS/SEIR supplements the 2016 ARCF GRR FEIS/EIR authorized project, which addressed seepage, slope stability, erosion, and height concerns on the levees along the Sacramento and American Rivers for the purposes of flood risk management for the Sacramento Metropolitan area. This SEIS/SEIR describes existing environmental resources in each project component area, evaluates the direct, indirect, and cumulative environmental effects of eight alternatives, including the No Action Alternative, and describes avoidance, minimization, and mitigation measures. Most potential adverse effects would be short-term or avoided using best management practices; however, there would be some significant and unavoidable impacts associated with the Proposed Action

Public Review and Comment: The public review period for the Draft SEIS/SEIR will start on December 22, 2023, ending after 45-days on February 5, 2024. Two public meetings are scheduled for January 10, and 16, 2024. All previous commenters and interested parties would be notified of the availability of the Draft SEIS/SEIR. Information would be available at sacleveeupgrades.com. Written comments or questions concerning this document should be directed to the following: U.S. Army Corps of Engineers, Sacramento District; Attn: Mr. Guy Romine; 1325 J Street; Sacramento, California 95814-2922, by phone (916) 496-4646, or by e-mail: ARCF_SEIS@usace.army.mil or California Department of Water Resources; Attn: ARCF SEIR, 3464 El Camino Avenue, Room 200, Sacramento CA 95821, or by e-mail: PublicCommentARCF16@water.ca.gov.

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Acronyms and Abbreviations

Acronym or Abbreviation	Description
AALWSE	Average Annual Low Water Surface Elevation
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
APE	Area of Potential Effects
ARB	California Air Resources Board
ARCF	American River Common Features
ARCF	American River Watershed Common Features
ARCF GRR	American River Common Features General Re-evaluation Report
ARMS	American River Mitigation Site
BACT	Best Available Control Technology
Basin Plan	Sacramento River Basin and the San Joaquin River Basin
BMPs	Best Management Practices
BO	Biological Opinion
BOR	U.S. Bureau of Reclamation
BSLMS	Beach/Stone Lakes Mitigation Site
BSSCP	Bentonite Slurry Spill Contingency Plan
C#	Contract Number
CAA	Clean Air Act of 1963 as amended
Caltrans	California Department of Transportation
CARB	California Air Resources Board
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 ₂ e	carbon dioxide equivalent
County	County of Sacramento

CRHR	California Register of Historical Resources
CSUS	California State University, Sacramento
Cuckoo	Western Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)
CVFMP	Central Valley Flood Management Planning
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act of 1972
cy	Cubic Yards
dB	decibels
dBA	A-weighted Decibel
DEIR	Draft Environmental Impact Statement
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
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EM	Engineering Manual
EO	Executive Order
EOE	Expert Opinion Elicitation
EPA	Environmental Protection Agency
ER	Engineering Regulation
ERO	Erosion
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/EIR	Final Environmental Impact Statement/Environmental Impact Report
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration

FWCA	Fish and Wildlife Coordination Act of 1958
GEI	GEI Consultants, Inc.
GHG	Greenhouse gas
GPS	Geopositioning System
GRR	General Reevaluation Report
HMMAMP	Habitat Mitigation, Monitoring, and Adaptive Management Plan
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
IDM	investigation-derived material
ITE	Institute of Transportation Engineers
IWM	Instream Woody Material
Leq	Equivalent Continuous Level
Leq[h]	1-hour equivalent sound level
LOS	level of service
MBTA	Migratory Bird Treaty Act
MCP	Magpie Creek Project
MIAD	Mormon Island Auxiliary Dam
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards
NAVD	North American Vertical Datum
NBLL	North Beach Lake Levee
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 of 1966
NMFS	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NO2	nitrogen dioxide
NOA	Notice of Applicability
NOx	Nitrous Oxides
NOX	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	operations and maintenance
OHWM	Ordinary High-Water Mark
PA	Programmatic Agreement

PCE	passenger car equivalent
PED	Pre-construction, Engineering and Design
PG&E	Pacific Gas and Electric Company
Phase I ESA	Phase I Environmental Site Assessment
PM	particulate matter
PM10	PM equal to or less than 10 micrometers in diameter
PM2.5	PM equal to or less than 2.5 micrometers in diameter
PPV	Peak Particle Velocity
Proposed Action	Action Alternative
RECs	Recognized Environmental Conditions
RHA	Rivers and Harbors Act of 1899 as amended
RM	River Mile
ROD	Record of Decision
RPA	Registered Professional Archaeologist
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SB	soil-bentonite
SCB	soil-cement-bentonite
SCH	State Clearinghouse
SEA	Supplemental Environmental Assessment
SEA/SEIR	Supplemental Environmental Assessment/Environmental Impact Report
SEIR	Supplemental Environmental Impact Report
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO2	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
SPRR	Southern Pacific Railroad Company
SR	Sacramento River
SRA	Shaded Riverine Aquatic
SRBPP	Sacramento Riverbank Protection Project
SREL	Sacramento River East Levee
SRFCP	Sacramento River Flood Control Project
SRMS	Sacramento River Mitigation Site
SSHCP	South Sacramento Habitat Conservation Plan
SSO	Seepage, Stability, and Overtopping
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan

SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TACs	toxic air contaminants
TRAC	Technical and Resource Advisory Committee
UAIC	United Auburn Indian Community of the Auburn Rancheria
UCB	University of California, Berkeley
URA	Uniform Relocation Assistance
US 50	United States Highway 50
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VdB	vibration decibels
VELB	Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WCM	Water Control Manual
WIIN Act	Water Infrastructure Improvements for the Nation Act
WQC	Water Quality Certification
WRDA	Water Resources Development Act
WSAFCA	West Sacramento Area Flood Control Agency
WSLIP	West Sacramento Levee Improvements Program
YBCU	Western Yellow-billed Cuckoo
YSAQMD	Yolo-Solano Air Quality Management District

Executive Summary

Introduction

In accordance with the National Environmental Policy Act (NEPA) of 1969 implementing regulations and Section 15123 of the State CEQA Guidelines, this summary discloses the major conclusions, areas of controversy raised by the public or an agency, and issues to be resolved (40 CFR § 1502.12).

The Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) is a joint document prepared by the U.S. Army Corps of Engineers, Sacramento District (USACE) and the Central Valley Flood Protection Board (CVFPB) to supplement the 2016 American River Common Features (ARCF) Project's May 2016 revised Environmental Impact Statement/Environmental Impact Report (EIS/EIR). USACE is the Federal lead agency under NEPA and the Federal Project sponsor of the ARCF 2016 Project. CVFPB is the State lead agency under CEQA. CVFPB, the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors of the ARCF 2016 Project; DWR and SAFCA are key responsible agencies under CEQA.

The ARCF 2016 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), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366. Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322. This SEIS/SEIR supplements the original 2016 ARCF General Reevaluation Report Final EIS/EIR (ARCF GRR FEIS/EIR).

Significant changes to the project cost were recommended in the Second Addendum to the Supplemental Information Report of March 2002 (USACE 2002). This report was submitted to the Assistant Secretary of the Army for Civil Works, but before it could be forwarded to Congress, authorized total cost of the ARCF 2016 Project was increased to \$205,000,000 by Section 129 of the Energy and Water Development Appropriations Act of 2004, Pub. L. No. 108-137, § 129, 117 Stat. 269, 1839 (2003).

Appropriations provided under the Construction heading, Title IV, Division B, of the Bipartisan Budget Act of 2018, Pub. L. 115-123, enacted February 2018, estimated that \$1,565,750,000, were available to undertake construction of the Project as limited by the costs of the National Economic Development (NED) plan. The current estimated cost of the authorized Project evaluated in this SEIS/SEIR is \$305,340,000.

Proposed Action and Alternatives

The Proposed Action (Alternative 2) in this SEIS/SEIR (Proposed Project under CEQA) consists of Design Refinements to the authorized ARCF 2016 project, including the Magpie Creek Project (MCP), American River Erosion Contracts 3B, 4A, and 4B, Sacramento River Erosion Contract 3, American River Mitigation Site (ARMS), Sacramento River Mitigation Site (SRMS)

and Piezometer Network (Figure 3.5-1). Project alternatives (Alternative 3, 4, 5 and 6) include alternative designs and/or approaches for implementing the American River Erosion Contract 4A bike trail routes (Figure 3.5.3-4), alternatives that would retain a portion of the existing ARMS man-made pond (CEQA-only) (Figures 3.7.1-1 and 3.7.2-1), and SRMS alternatives including mitigation credits and alternative site locations (Figure 3.8.2-1).

The American and Sacramento River erosion contracts and MCP are described and evaluated at a project-level of detail. The ARMS, SRMS, American River Erosion Contract 4B, and Piezometer Network are described and analyzed at a programmatic level of detail as the selected sites for these actions are still early in the planning phase and substantial information is not currently available to accurately describe impacts at a project level of analysis.

Some of the actions described in the 2016 ARCF GRR FEIS/EIR have been accomplished; this SEIS/SEIR evaluates the additional design refinements still to be constructed by addressing any new environmental effects or substantial increases in the severity of environmental effects, including cumulative effects, that were not disclosed in the 2016 ARCF GRR FEIS/EIR or in the numerous NEPA and CEQA supplemental documents to the 2016 FEIS/FEIR developed to address contract-specific design modifications to date (USACE 2015; GEI Consultants and SAFCA 2016; USACE 2016; USACE, SAFCA, and CVFPB 2019a, 2019b; USACE and CVFPB 2019, 2020, 2021a, 2021b, 2021c, 2021d, 2022a, 2022b; USACE 2021; USACE 2022b). Most importantly, this SEIS/SEIR does not replace the 2016 ARCF GRR FEIS/EIR but supplements it by providing environmental analyses of the new and emerging design refinements, fully described in Chapter 2, Description of the Project Alternatives.

Summary of Environmental Consequences

Table ES-1 summarizes the effects analysis provided in detail in Chapter 4 and Appendix B of this SEIS/SEIR. Resources have been grouped into four categories: Human Environment, Physical Resources, Biological Resources, and Cultural Resources. The significant environmental effects, project components, mitigation measures, and significance conclusions after mitigation implementation are identified in this summary. Both NEPA and CEQA significance conclusions are included. Potential Effects of the Proposed Action to Public Utilities, Land Use, Geologic Resources, Hydraulics & Hydrology, Greenhouse Gas, and Hazardous Materials were found to have no effects or less-than-significant effects.

Areas of Controversy and Issues to be Resolved

The 2016 ARCF GRR FEIS/EIR identified several issues of controversy based on the comments received during the public scoping period and the history of the NEPA and CEQA processes undertaken by USACE, CVFPB, and SAFCA. Several issues of controversy are applicable to the Proposed Action analyzed in this SEIS/SEIR, including:

- Construction-related impacts to biological resources, especially endangered species and their habitats.
- Vegetation and tree removal, primarily on and adjacent to levees.
- Effects to cultural resources and resources significant to indigenous tribes, and

- Effects to recreational areas and facilities.

Public scoping for this SEIS/SEIR was conducted in November 2022 and resulted in 69 categorized comments, one-third of which were related to habitat mitigation concerns. As discussed in detail in Chapter 7 and Appendix A, Scoping Report, habitat mitigation in the American River Parkway as proposed for the American River Mitigation Site (ARMS), located at River Mile 1.3 and previously referred to as “Urrutia” has emerged as and continues to be an area of controversy.

Specific issues to be resolved are as follows:

- Mitigation location and design for the American River.
- How to meet mitigation requirements on the Sacramento River; and
- Bicycle trail alignment within the footprint of American River Contract 4A.

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

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Transportation and Circulation</u>	a. conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities (including adding 50 or more new truck trips during a.m. or p.m. peak hours); c. result in substantially increased hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or	MCP, ARMS	Mitigation Measure TRANS-1	Significant & Unavoidable	Significant & Unavoidable
<u>Transportation and Circulation</u>	a & c	American River Erosion Contract 3B North and South, Contract 4A, and Contract 4B	Mitigation Measure TRANS-1	Significant & Unavoidable	Significant & Unavoidable
<u>Transportation and Circulation</u>	a & c	Sacramento River Erosion Contract 3	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are less than Significant with Mitigation Incorporated
<u>Transportation and Circulation</u>	a & c	SRMS	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are less than Significant with Mitigation Incorporated
<u>Transportation and Circulation</u>	b. conflict or inconsistency with CEQA Guidelines section 15064.3, subdivision	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Transportation and Circulation</u>	d. result in inadequate emergency services	All Contracts	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Recreation</u>	a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of facilities would occur or be accelerated.	ARMS, SRMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Recreation</u>	a. See previous description	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, and MCP	N/A	Less than Significant	Short-term Medium-Term and Moderate to Major effects that are Less than Significant
<u>Recreation</u>	b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment; or	All Contracts except 4A	N/A	No Impact	No Impact
<u>Recreation</u>	b. See previous description	American River Erosion Contract 4A	N/A	Short-term Significant and Unavoidable	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	MCP	Mitigation Measure REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant.
<u>Recreation</u>	c. See previous description	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	Mitigation Measure REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable with Mitigation Incorporated, Long-term No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Recreation</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure REC-4	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. See description above.	Sacramento River Contract 3	Mitigation Measure REC-2	Less than Significant with Mitigation Incorporated	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Recreation</u>	c. See description above.	ARMS	Mitigation Measure REC-	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
<u>Recreation</u>	c. See description above.	SRMS	Mitigation Measure REC-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant
<u>Public Utilities and Services</u>	a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection, police protection, schools, park, other public facilities	MCP, American River Erosion Contract 3B North and South, Contract 4B, Contract 4A, Sacramento River Erosion Contract 3, and the Piezometer Network	N/A	Less than Significant	Short-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	a. See previous description	SRMS and ARMS		Less than Significant	Short-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	b. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Public Utilities and Services</u>	c. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;	MCP	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure UTL-1	Less than Significant	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Public Utilities and Services</u>	c. See description above.	ARMS	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	SRMS	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Public Utilities and Services</u>	c. See description above.	Piezometer Network	Mitigation Measure UTL-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Public Utilities and Services</u>	d. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	All Contracts	N/A	Less than Significant	Short-Term to Medium-Term and Minor effects that are Less than Significant
<u>Public Utilities and Services</u>	e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Public Utilities and Services</u>	f. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Public Utilities and Services</u>	g. Not comply with or result in non-compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.	All Contracts	N/A	Less than Significant	No Impact
<u>Land Use, Farmland, and Forestland</u>	a. Divide an established community.	MC	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	a. See description above	Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South and Contract 4B	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	a. See description above	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	a. See description above	SRMS, ARMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	MCP	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See Description above.	American River Erosion Contract 3B North and South and Contract 4B	Mitigation Measures VEG-1 and VEG-2	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects with Mitigation Incorporated
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	American River Erosion Contract 4A	N/A	Less than Significant	Medium –Term to Long-Term and Minor effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	Sacramento River Erosion Contract 3 and SRMS	N/A	Less than Significant	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	ARMS	Mitigation Measures GEO-1 and WQ-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Land Use, Farmland, and Forestland</u>	b. See description above.	Piezometer Network	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
<u>Land Use, Farmland, and Forestland</u>	c. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. result in inadequate emergency service.	MCP	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	American River Erosion Contract 4A	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	American River Erosion Contract 3B North and South, Contract 4B, and SRMS	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	ARMS	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	c. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	d. Conflict with existing zoning for agricultural use, or a Williamson Act contract.	MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Land Use, Farmland, and Forestland</u>	d. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and Piezometer Network	N/A	No Impact	No Impact
<u>Land Use, Farmland, and Forestland</u>	e. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Land Use, Farmland, and Forestland</u>	f. Result in the loss of forest land or conversion of forest land to non-forest use; or	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Land Use, Farmland, and Forestland</u>	g. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Environmental Justice</u>	a. Result in substantial adverse impacts to unhoused populations residing in the project area, through displacements or other effects;	MCP, American River Erosion Contract 3B North and South, Contract 4B, Contract 4A, and ARMS	Mitigation Measure EJ-1 and EJ-2	N/A	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Environmental Justice</u>	b. Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST;	MCP, American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure EJ-3	N/A	Short-term and Major effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Environmental Justice</u>	b. See description above.	American River Erosion Contract 4A and ARMS	N/A	N/A	No Effect
<u>Environmental Justice</u>	c. Result in substantial adverse impacts to tribal communities.	All Contracts	N/A	N/A	Dismissed from further analysis
<u>Environmental Justice</u>	d. Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST .	MCP	Mitigation Measure AIR-1, AIR-2, TRANS-1	N/A	Significant and Unavoidable
<u>Environmental Justice</u>	d. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure AIR-1, AIR-2, TRANS-1	N/A	Significant and Unavoidable
<u>Environmental Justice</u>	d. See description above.	American River Contract 4A	Mitigation Measure AIR-1, AIR-2, TRANS-1	N/A	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
<u>Environmental Justice</u>	d. See description above.	ARMS	Mitigation Measure AIR-1, and AIR-2	N/A	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
<u>Socioeconomics</u>	a. Induce substantial population growth in an area, either by directly (for example by proposing new homes and businesses) or indirectly (for example through extension of roads or other infrastructure;	SRMS, ARMS	N/A	No Impact	No Impact
<u>Socioeconomics</u>	a. See description above.	MCP	N/A	Less than Significant	Long-term and Moderate effects that are Less than Significant
<u>Socioeconomics</u>	a. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	N/A	Less than Significant	Short-term and potentially beneficial effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Socioeconomics</u>	b. Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere	ARMS	Mitigation Measure SOCIO-1	Less than Significant	Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Socioeconomics</u>	b. See description above.	MCP	Mitigation Measure SOCIO-1	No Impact	Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Socioeconomics</u>	b. Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	N/A	Less than Significant	Long-term and Moderate effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	a. Have substantial adverse effect on a scenic vista;	MCP	N/A	No Impact	No Impact
<u>Aesthetics and Visual Resources</u>	a. See description above.	American River Erosion Contract 3B North and South, Contract 4B, SRMS, and ARMS	Mitigation Measure VEG-	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	a. See description above.	American River Erosion Contract 4A	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor to Moderate effects that are less than significant
<u>Aesthetics and Visual Resources</u>	a. See description above.	Sacramento River Erosion Contract 3	N/A	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
<u>Aesthetics and Visual Resources</u>	a. See description above.	Piezometer Network	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor Impacts that would be Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aesthetics and Visual Resources</u>	b. Damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway;	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, ARMS	N/A	No Impact	No Impact
<u>Aesthetics and Visual Resources</u>	b. See description above.	SRMS	N/A	Short-term Significant and Unavoidable; Long-term Less than Significant	No Impact
<u>Aesthetics and Visual Resources</u>	b. See description above.	Piezometer Network	N/A	Less than Significant	No Impact
<u>Aesthetics and Visual Resources</u>	c. Result in substantial degradation of the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality;	MCP	N/A	Less than Significant	Short-term and Minor effect that are Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 3B North and South	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 4B	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aesthetics and Visual Resources</u>	c. See description above.	American River Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure VEG-2	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
<u>Aesthetics and Visual Resources</u>	c. See description above.	ARMS	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	SRMS	Mitigation Measure VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant
<u>Aesthetics and Visual Resources</u>	c. See description above.	Piezometer Network	N/A	Less than Significant	Short-term Moderate Impact that is Less than Significant and Long-Term Minor Impact that is Less than Significant
<u>Aesthetics and Visual Resources</u>	d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	Mitigation Measure VIS-1 and VIS-2	Less than Significant with Mitigation Incorporated	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aesthetics and Visual Resources</u>	d. See description above.	Piezometer Network	N/A	Less than Significant	Short-term and Long-term Minor effects that are Less than Significant
<u>Geological Resources</u>	a. Expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death, through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Geological Resources</u>	b. Result in substantial soil erosion or loss of topsoil;	All Contracts	Mitigation Measure GEO-1	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Geological Resources</u>	c. Locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	d. Locate project facilities on expansive soil, creating substantial risks to property;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	e. Have soils incapable of adequately supporting the use of septic tanks or alternative	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Geological Resources</u>	f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, SRMS, ARMS, and Piezometer Network	N/A	Less than Significant	Negligible, and Less than Significant
<u>Geological Resources</u>	f. See description above.	MCP	Mitigation Measure GEO-2	Less than Significant with Mitigation Incorporated	Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Geological Resources</u>	g. Result in the loss of availability of a known mineral resource, including locally designated resources.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hydraulics and Hydrology</u>	a. Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;	MCP	N/A	Less than Significant	Long-term and Negligible effects that are less than significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hydraulics and Hydrology</u>	a. See description above.	American River Erosion Contract 3B North and South, Contract 4B and Sacramento River Erosion Contract 3	N/A	No Impact	No Impact
<u>Hydraulics and Hydrology</u>	a. See description above.	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	a. See description above.	SRMS and ARMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant; Long-term and Beneficial
<u>Hydraulics and Hydrology</u>	a. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Hydraulics and Hydrology</u>	b. Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: 1) result in a substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or 4) impede or redirect flood flows;	MCP	Mitigation Measure HYDRO-1, HYDRO-2	Potentially Significant and Unavoidable	Potentially Significant and Unavoidable
<u>Hydraulics and Hydrology</u>	b. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	N/A	Less than Significant	Long-term and Negligible effects that are less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hydraulics and Hydrology</u>	b. See description above.	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	b. See description above.	Sacramento River Erosion Contract 3	N/A	Less than Significant	Long-term and Minor effects that are Less than Significant
<u>Hydraulics and Hydrology</u>	b. See description above.	ARMS and SRMS	N/A	Less than Significant	Long-term and Beneficial
<u>Hydraulics and Hydrology</u>	b. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Hydraulics and Hydrology</u>	c. Result in the risk of release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Water Quality</u>	a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	All Contracts	-Mitigation Measure GEO-1, HAZ-1, WATERS-1, and WQ-1	Less than Significant with Mitigation Incorporated	Long-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	MCP	Mitigation Measure GEO-1, HAZ-1, WATERS-1, and WQ-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. See description above.	American River Erosion Contract 3B North and South, and Contract 4B	N/A	Short-term Significant and Unavoidable; Long-term Less than Significant	Significant and Unavoidable
<u>Water Quality</u>	b. See description above.	American River Erosion Contract 4A	Mitigation Measure WQ-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant
<u>Water Quality</u>	b. See description above.	Sacramento River Erosion Contract	N/A	Short-term Significant and Unavoidable; Long-term Less than Significant	Significant and Unavoidable

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Water Quality</u>	b. See description above.	ARMS	Mitigation Measure GEO-1, HAZ-1, and WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Water Quality</u>	b. See description above.	SRMS	Mitigation Measure GEO-1, and HAZ-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Significant and Unavoidable
<u>Water Quality</u>	b. See description above.	Piezometer Network	Mitigation Measure GEO-1, HAZ-1, WATERS-1, and WQ-1	No Impact	No Impact
<u>Air Quality</u>	a. Conflict with or obstruct implementation of the applicable air quality plan or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;	-American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	Mitigation Measure AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5	Significant and Unavoidable	Significant and Unavoidable
<u>Air Quality</u>	b. Expose sensitive receptors to substantial pollutant concentrations;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Air Quality</u>	a. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people; or	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Air Quality</u>	d. Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
<u>Greenhouse Gas Emissions, Climate Change and Energy Consumption</u>	a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	-Mitigation Measure GHG-1	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant
<u>Greenhouse Gas Emissions, Climate Change and Energy Consumption</u>	b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	Mitigation Measure GHG-1	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Greenhouse Gas Emissions, Climate Change and Energy Consumption</u>	c. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	Less than Significant	No Impact
<u>Greenhouse Gas Emissions, Climate Change and Energy Consumption</u>	d. conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS	N/A	No Impact	No Impact
<u>Noise and Vibration</u>	a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable
<u>Noise and Vibration</u>	a. See description above.	MCP and ARMS	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable
<u>Noise and Vibration</u>	a. See description above.	SRMS	Mitigation Measure NOI-1	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Noise and Vibration</u>	b. Generate excessive ground borne vibration or ground borne noise levels;	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	Mitigation Measure NOI-1	Significant and Unavoidable	Significant and Unavoidable
<u>Noise and Vibration</u>	b. See description above.	MCP, and ARMS,	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Noise and Vibration</u>	c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hazards and Hazardous Materials</u>	a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;	All Contracts	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
<u>Hazards and Hazardous Materials</u>	b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities;	MCP	Mitigation Measure GEO-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	ARMS	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	b. See description above.	SRMS	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hazards and Hazardous Materials</u>	b. See description above.	Piezometer Network	Mitigation Measure GEO-1, and HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hazards and Hazardous Materials</u>	d. be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;	MCP	N/A	Less than Significant	No Impact
<u>Hazards and Hazardous Materials</u>	d. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3, and SRMS	N/A	No Impact	No Impact
<u>Hazards and Hazardous Materials</u>	d. See description above.	ARMS	Mitigation Measure HAZ-1	Less than Significant with Mitigation Incorporated	No Impact
<u>Hazards and Hazardous Materials</u>	e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;	All Contracts	N/A	Dismissed from further analysis	Dismissed from further analysis
<u>Hazards and Hazardous Materials</u>	f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	MCP	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Hazards and Hazardous Materials</u>	f. See description above.	American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, and Sacramento River Erosion Contract 3, SRMS, and ARMS	Mitigation Measure TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Hazards and Hazardous Materials</u>	f. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	a. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;	All Contracts	Mitigation Measure VIS-2, BIRD-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	b. Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community;	All Contracts	Mitigation Measure BIRD-1, VIS-2	Less than Significant with Mitigation Incorporated.	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated.
<u>Vegetation and Wildlife</u>	c. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;	American River Erosion Contract 3B North and South, Contract 4B	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	c. See description above.	American River Erosion Contract 4A	Mitigation Measure VEG-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Vegetation and Wildlife</u>	c. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	c. See description above.	MCP	Mitigation Measure VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	c. See description above.	SRMS and ARMS	N/A	Short-term Less than Significant; Long-term No Effect	Short-term and Moderate effects that are Less than Significant; Long-term No Effect
<u>Vegetation and Wildlife</u>	c. See description above.	Piezometer Network	N/A	Short-term and Long-term Less than Significant	Short-term Less than Significant, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when trimmed vegetation has regrown. Negligible long-term impact
<u>Vegetation and Wildlife</u>	d. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;	American River Erosion Contract 3B North and South and Contract 4B	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	American River Erosion Contract 4A	Mitigation Measure WATERS-1	Less than Significant with Mitigation Incorporated	Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	Sacramento River Erosion Contract 3	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Vegetation and Wildlife</u>	d. See description above.	MCP	Mitigation Measure WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	d. See description above.	SRMS and ARMS	Mitigation Measure WATERS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated; Long-term Negligible effects
<u>Vegetation and Wildlife</u>	d. See description above.	Piezometer Network	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	All Contracts	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	American River Erosion Contract 3B North and South, Contract 4A and 4B, ARMS and Piezometer Network	Mitigation Measure VEG-2	Less than Significant with Mitigation Incorporated	Negligible effects that are Less than Significant with Mitigation Incorporated
<u>Vegetation and Wildlife</u>	f. See description above.	Sacramento River Erosion Contract 3 and SRMS	N/A	No Impact	No Impact
<u>Vegetation and Wildlife</u>	f. See description above.	MCP	N/A	No Impact	No Impact

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aquatic Resources and Fisheries</u>	a. Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS; b. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.	MCP and Piezometer Network	N/A	No Impact	No Effect
<u>Aquatic Resources and Fisheries</u>	a. & b.	American River Erosion Contract 3B North and South, and Contract 4B	Mitigation Measure FISH-1, FISH-2, FISH-3, and GEO-1	Less than Significant with Mitigation Incorporated	Short-Term to Medium-Term and Moderate effects that are Less than Significant with Mitigation Incorporated
<u>Aquatic Resources and Fisheries</u>	a. & b.	American River Erosion Contract 4A	N/A	Less than Significant with Mitigation Incorporated	Short-term and Long-term, Moderate Effects that are Less than Significant with mitigation
<u>Aquatic Resources and Fisheries</u>	a. & b.	Sacramento River Erosion Contract 3	Mitigation Measure FISH-1, FISH-2, FISH-3, and GEO-1	Less than Significant with Mitigation Incorporated	Short-Term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Aquatic Resources and Fisheries</u>	a. & b.	ARMS	Mitigation Measure FISH-3, GEO-1, WATERS-1, WQ-1	Less than Significant with Mitigation Incorporated	Short-Term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Aquatic Resources and Fisheries</u>	a. & b.	SRMS	Mitigation Measure FISH-3, GEO-1, WATERS-1, WQ-1	Less than Significant with Mitigation Incorporated	Short-Term and Minor effects that are Less than Significant with Mitigation Incorporated
<u>Special Status Species</u>	a. Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS;	American River Erosion Contract 3B North and South, Contracts 4A and 4B, Sacramento River Erosion Contract 3, ARMS and Piezometer Network	Mitigation Measure BADGER-1, VEG-1, VEG-2, BAT-1, BEE-1, MONARCH-1, VELB-1, TURTLE-1, GEO-1, WQ-1, BIRD-1, BUOW-1, PLANT-1	Less than Significant with Mitigation Incorporated	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
<u>Special Status Species</u>	a. See description above.	MCP	Mitigation Measure SHRIMP-1, GEO-1, WQ-1, WATERS-1	Less than Significant with Mitigation Incorporated	Short-term and Moderate; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
<u>Special Status Species</u>	a. See description above.	SRMS	Mitigation Measure BEETLE-1, VELB-1, GGS-1	Less than Significant with Mitigation Incorporated	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
<u>Special Status Species</u>	b. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan are addressed in Section 4.4.1, "Vegetation and Wildlife."	All Contracts	N/A	Covered in Vegetation and Wildlife Appendix B 4.1	Covered in Vegetation and Wildlife Appendix B 4.1
<u>Cultural and Tribal Resources</u>	n. Alter NRHP-listed Resources or Cause a Substantial Change in the Significance of a Historic Property a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, ARMS, SRMS	Implement Programmatic Agreement	Less than Significant	Less than Significant with Mitigation Incorporated

Environmental Resource Category	Effect Threshold	Project Component Locations	Avoidance, Minimization and Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
<u>Cultural and Tribal Resources</u>	n. & a.	Sacramento River Erosion Contract 3 and Piezometer Network	N/A	Less than Significant	Less than Significant
<u>Cultural and Tribal Resources</u>	b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Significant and Unavoidable	N/A
<u>Cultural and Tribal Resources</u>	b. See description above.	Sacramento River Erosion Contract 3, and Piezometer Network	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Less than Significant with Mitigation Incorporated	N/A
<u>Cultural and Tribal Resources</u>	b. See description above.	ARMS	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Significant and Unavoidable	N/A
<u>Cultural and Tribal Resources</u>	c. Disturb any human remains, including those interred outside of dedicated cemeteries	All Contracts	Mitigation Measure CR-6	Less than Significant with Mitigation Incorporated	N/A
<u>Cultural and Tribal Resources</u>	d. Cause a substantial adverse change in the significance of a Tribal cultural resource	MCP, American River Erosion Contract 3B North and South, Contract 4A, Contract 4B, Sacramento River Erosion Contract 3, SRMS, Piezometer Network	Mitigation Measure CR-1, CR-2, CR-3, CR-4, and CR-5	Significant and Unavoidable	N/A
<u>Cultural and Tribal Resources</u>	d. See description above.	ARMS	Mitigation Measure CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6	Significant and Unavoidable	N/A

Chapter 1. Introduction

The Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) is a joint document prepared by the U.S. Army Corps of Engineers, Sacramento District (USACE) and the Central Valley Flood Protection Board (CVFPB) to supplement the 2016 American River Common Features (ARCF) Project's original EIS/EIR. USACE is the Federal lead agency under NEPA and the Federal Project sponsor of the ARCF 2016 Project. CVFPB is the State lead agency under CEQA. CVFPB, the California Department of Water Resources (DWR), and the Sacramento Area Flood Control Agency (SAFCA) are the non-Federal sponsors of the ARCF 2016 Project; DWR and SAFCA are responsible agencies under CEQA.

The ARCF 2016 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 (1996), as amended by Section 366 of WRDA of 1999, Pub. L. No. 106-53, § 366 (1999). Additional authority was provided following the interim general reevaluation study in Section 1322(b) of WRDA 2016, Pub. L. No. 114-322 § 1322. This SEIS/SEIR supplements the original ARCF GRR FEIS/EIR.

This SEIS/SEIR analyzes design refinements to the authorized ARCF 2016 Project, including engineering design modifications, footprint expansions, and compensatory habitat mitigation approaches. The design refinements include actions within eight major project components: American River Erosion Contracts 3B, 4A, and 4B; Sacramento River Erosion Contract 3; Magpie Creek Project (MCP), American River Mitigation Site (ARMS); Sacramento River Mitigation Site (SRMS), and installation of a Piezometer Network. Alternatives designs and/or approaches for implementing the American River Erosion Contract 4A bike trail routes, ARMS pond retention (CEQA-only), and SRMS mitigation credits are also described and analyzed. These project refinements and alternatives are described in detail in Chapter 2, Description of the Project Alternatives.

The American and Sacramento River erosion contracts and MCP are described and evaluated at a project-level of detail. The ARMS, SRMS, and Piezometer Network are described and analyzed at a programmatic level of detail because the selected sites for these actions are still early in the planning phase and substantial information is not currently available to accurately describe impacts at a project level of analysis (*40 CFR § 1500*, July 2023).

1.1 Scope of the Environmental Analysis

NEPA applies to all “major Federal actions significantly affecting the quality of the human environment” 42 USC 4332(C) and is intended to result in better informed decisions and to allow for greater public involvement. Under NEPA, supplemental NEPA documentation, which could include a Supplemental Environmental Impact Statement (SEIS), must be prepared when a major Federal action is modified in a way that may cause a significant effect on the quality of the

natural or human environment not analyzed in the original EIS prepared prior to adoption of the Federal action. USACE has determined that design refinements to the authorized project (Alternative 2) described in the 2016 ARCF GRR FEIS/EIR), as well as new alternatives, may have new undisclosed significant effects on the environment and, therefore, a SEIS is required to supplement the 2016 ARCF GRR FEIS/EIR. Likewise, CEQA requires a subsequent EIR when substantial changes to a project or new information of substantial importance not known and could not have been known at the time the previous EIR was certified would cause new significant environmental effects, or a substantial increase in the severity of previously identified effects that require major revisions to the EIR (State CEQA Guidelines Section 15162 [a][1]-[3]), that were not discussed in the previous EIR. Accordingly, this subsequent EIR is required by State CEQA Guidelines Section 15162 to build upon the 2016 ARCF GRR FEIS/EIR.

The 2016 ARCF GRR EIS/EIR analyzed the environmental effects of two project alternatives within the largest footprint that was expected to be constructed. The scope of the 2016 ARCF GRR FEIS/EIR included the evaluation of the Federal interest in addressing seepage, slope stability, erosion, and height concerns on the levees along the Sacramento and American Rivers that reduce potential flood risk to the Sacramento metropolitan area.

Some of the actions described in the 2016 ARCF GRR FEIS/EIR have been accomplished; this SEIS/SEIR evaluates additional design refinements identified since 2016 by addressing the environmental effects or substantial increases in the severity of environmental effects, including cumulative effects. These design refinements were also not considered in the numerous NEPA and CEQA supplemental documents to the ARCF GRR FEIS/EIR developed to address contract-specific design modifications to date (USACE 2015; GEI Consultants and SAFCA 2016; USACE 2016; USACE, SAFCA, and CVFPB 2019a, 2019b; USACE and CVFPB 2019, 2020, 2021a, 2021b, 2021c, 2021d, 2022a, 2022b; USACE 2021; USACE 2022b)). Thus, this SEIS/SEIR supplements the 2016 ARCF GRR FEIS/EIR by providing environmental analyses of the new and emerging design refinements, fully described in Chapter 2 below (Description of the Project Alternatives) for which no environmental effects consideration has been provided to decision-makers.

For the purpose of this SEIS/SEIR, the NEPA “No Action Alternative” reflects baseline conditions existing today within the project area, including completed elements of the authorized Proposed Action (described as Alternative 2 in the 2016 ARCF GRR FEIS/EIR) as well as elements of Alternative 2 now in construction, or soon to be constructed. This differs from the No Project Alternative under CEQA, where no construction would occur. If there is a need to describe a situation where no project would be constructed in the supplemental analysis that follows, it would be described as a “no construction alternative” to avoid confusion.

1.2 Project Location and Study Area

1.2.1 Project Location

The Project includes several distinct locations where its components would be constructed (MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS,

SRMS, and the Piezometer Network). These locations are described in more detail below and shown on Figure 3.5-1.

The MCP location is north of Interstate 80 (I-80) and is bisected by Raley Boulevard. The MCP is estimated to be approximately 8,600 feet long within Sacramento County between the North Highlands and Rio Linda communities. The Magpie Creek Diversion Channel (MCDC) moves water from the McClellan Business Park area to Robla Creek, then west into the Natomas East Main Drainage Canal (NEMDC). The NEMDC terminates in the American River, making it a part of the American River North Basin, one of the subbasins for the American River Watershed. The American River Watershed is a part of the overall Sacramento Basin and the Lower American River (LAR) feeds into the Sacramento River in Sacramento (Figure 3.5-1).

Sacramento River Erosion Contract 3 begins approximately 7 miles downstream from the confluence of the American and Sacramento Rivers in a part of the Sacramento River that receives tidal influence. Contract 3 totals 2.8 miles between river miles (RM) 47.3 and 53.1 along the river's east levee in Sacramento's Pocket neighborhood.

American River Erosion Contract 3B North and South, and American River Erosion Contract 4A are two erosion protection projects from the 2016 authorized alternative. American River Erosion Contract 3B North and South are made up of three different sites. Site 3-1, 1.1 miles of erosion protection, is located on the right (north) bank between Howe Avenue and Watt Avenue between River Mile (RM) 7.8 to RM 8.8. Site 4-1, 1.5 miles of erosion protection, is located on the left bank upstream of Watt Avenue between RM 9.1 to RM 10.5. Site 4-2, 0.7 miles of erosion protection, is located on the right bank near the Estates Drive River Access between RM 9.7 to RM 10.3. American River Erosion Contract 4A, a 100-foot berm, is on the right bank downstream from these locations near RM 2.0 under the State Route 160 Bridge and the Union Pacific Railroad (UPRR) Bridge.

American River Erosion Contract 4B is an additional erosion protection project along the American River. This contract is in the conceptual phase. It is anticipated that a total of 0.6 miles of erosion protection work would be done on the right bank near RM 8.6 and on the left bank near RM 9.8.

The ARMS is located on the American River at RM 1.3. The site is on the water side of the Federal levee, approximately 120 acres and is subject to tidal influence. It was historically operated as a sand and gravel mine.

The SRMS is located at the confluence of the Sacramento River, Steamboat Slough and Cache Slough, near Sacramento RM 15, and is approximately 200 acres. It is currently open space habitat that is occasionally used as a dredge material disposal site. The site contains a decommissioned landfill and is bisected North to South by the Federal Levee.

The Piezometer Network will be installed throughout the project footprint that was defined in the 2016 ARCF GRR FEIS/EIR.

1.3 Background of the American River Common Features Project

The ARCF GRR FEIS/EIR provides a full background and history of the ARCF 2016 Project, which is summarized below.

The basic authority for USACE to study flood risk reduction needs, formerly called flood control, in the American River basin is in the Flood Control Act of 1962 (Public Law 87-874). Following the 1986 flooding in the Sacramento area, Congress directed USACE to investigate additional means to reduce flood risk to the city of Sacramento. The authorization for the 1-year reconnaissance study was included in the 1987 Appropriations Act, and committee language accompanying the Fiscal Year 1988 Continuing Appropriations Act (Public Law 100-202). In December 1991, USACE published the American River Watershed Investigation, California: Feasibility Report, Part I: Main Report and Part II: EIS/EIR which recommends a concrete gravity flood detention dam at the Auburn Dam site and levee improvements downstream of Folsom Dam. Following study completion, Congress directed USACE to conduct supplemental analysis of the flood management options considered in the 1991 Feasibility Study. The resulting *Supplemental Information Report, American River Watershed Project, California: Part-I - Main Report and Part II – Final EIS/EIR*, (March 1996) recommended a similar combination of a gravity flood detention dam at the Auburn Dam site with downstream levee work (USACE 1996). The analysis considered, but did not advance, plans for Folsom Dam improvements and a stepped release plan for Folsom Dam accompanied by downstream levee improvements. Congress recognized that levee improvements were “common” to all candidate plans in the report and that there was a Federal interest in participating in these “common features.” Thus, the American River Common Features Project was authorized in the Water Resources Development Act (WRDA) of 1996, Pub. L. No. 104-303, §101(a)(1), (1996). Major construction components for the ARCF 2016 Project included construction of seepage remediation along the American River levees and levee strengthening via raising, realignment, and seepage protection.

In WRDA 1999, Pub. L. No. 106-53, § 366, (1999), Congress authorized improvements to Folsom Dam to manage a flood event with a peak release of 160,000 cubic feet per second (cfs) and the Folsom Dam Modification Project to modify the existing outlets to allow for higher releases earlier in flood events. At the same time, Congress also directed USACE to review modifications to the flood storage of Folsom Dam to provide additional flood damage reduction at Folsom Dam. The Folsom Dam Raise Project was subsequently authorized by Congress in 2003 through the Energy and Water Development Appropriations Act 2004, Pub. L. No. 108-137, § 129, 121 (2003). Construction of the Joint Federal Project, an auxiliary spillway to Folsom Dam, was completed in 2017, and the maximum release of 160,000 cfs is the design standard for all levee improvements downstream on the American River.

The results of the 2007 Folsom Dam Post Authorization Change Report (PACR) and the follow-up 2008 Economic Reevaluation Report for Folsom Dam improvements showed that additional levee improvements were needed on the American River and Sacramento River downstream of the confluence with the American River to truly capture the benefits of the Folsom Dam projects. These levee improvements would address erosion concerns on the American River and seepage, stability, erosion, and height deficiencies on the Sacramento River below the confluence with the

American River. As the full extent of these levee problems became apparent, additional reevaluation studies were needed for the two hydrological basins comprising the city of Sacramento: American River North and American River South. These reevaluation studies coalesced in the ARCF GRR and its accompanying EIS/EIR (USACE 2016).

The 2016 GRR FEIS/EIR analyzed several alternatives to address these newly discovered concerns on the lower American and Sacramento Rivers to protect the Sacramento metropolitan area from catastrophic flooding. In addition to the No Action Alternative, the FEIS/EIR examined environmental effects associated with Alternative 1 – Improve Levees and Alternative 2 – Improve Levees and Widen the Sacramento Weir and Bypass, which was the Recommended Plan during the study and became the authorized Project. Upon Congressional authorization, geotechnical investigations and hydraulic modeling were funded to inform the preconstruction engineering and design phase. Data collection led to the design refinements presented in this SEIS/SEIR to address remaining flood risk to the greater Sacramento area. Additionally, this SEIS/SEIR captures the complexities of special-status species habitat mitigation required for both the American and Sacramento Rivers by proposing to develop and construct new mitigation sites.

1.4 Project Authority

Authority for the American River Common Features, 2016 Flood Risk Management Project, Sacramento, California, is provided by Section 1401(2)(7) of the Water Resources Development Act of 2016, Public Law 114-322. Appropriations were provided under the Construction heading, Title N, Division B of the Bipartisan Budget Act of 2018, Public Law 115-123 enacted February 9, 2018.

1.5 Project Purpose and Need for Action

The Sacramento metropolitan area is one of the most at-risk areas for flooding in the United States with an unacceptably high risk from levee failure that threatens the public safety, property, and critical infrastructure throughout the study area. There is a high probability that flood flows in the American and Sacramento Rivers would stress the network of levees protecting the system to the point that levees could fail. There is a need to reduce the overall flood risk within the study area by addressing the failure risks due to seepage and erosion. Further study by USACE and its Project Partners, since the initial 2016 GRR FEIS/EIR, resulted in refinements to the initial flood risk reduction designs in the ARCF 2016 Project, which would result in decreased risk of levee failure due to erosion, seepage, and levee instability. Additionally, construction of previous, current, and future ARCF 2016 Project components have resulted and will result in environmental impacts requiring habitat mitigation.

1.6 CEQA Project Objectives

Under CEQA, the CVFPB's objectives were identified in the 2016 ARCF GRR FEIS/FEIR and are unchanged in this SEIS/SEIR. The objectives are as follows:

- Reduce the chance of flooding and damages, once flooding occurs, and improve public safety, preparedness, and emergency response.
- Reduce maintenance and repair requirements by modifying the flood management systems in ways that are compatible with natural processes.
- Integrate the recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species.
- Implement technically feasible and cost-effective solutions are implemented to maximize the flood risk reduction benefits given the practical limitations of applicable funding sources.

1.7 Environmental Regulatory Framework and Authority

1.7.1 National Environmental Policy Act

NEPA provides an interdisciplinary framework for Federal agencies to develop information that will help them to take environmental factors into account in their decision-making. To comply with NEPA, an EIS is required whenever a proposed major Federal action (e.g., a proposal for legislation or an activity financed, assisted, conducted, or approved by a Federal agency) would result in significant effects on the quality of the natural and human environment (42 U.S.C. § 4332[2][C]; 40 C.F.R. § 1508.18[a]). In addition, 40 C.F.R. § 1502.9 contains guidance on Draft, Final and Supplemental Statements. The language states that agencies preparing a supplemental environmental impact statement shall:

1. Prepare supplements to either draft or final environmental impact statements if a major Federal action remains to occur; and
2. The agency makes substantial changes to the proposed action that are relevant to environmental concerns; or
3. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

1.7.2 California Environmental Quality Act

According to the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064[f][1]), preparation of an EIR is required whenever a project may result in a significant environmental impact. An EIR is an informational document used to inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to mitigate, reduce, or avoid the significant effects, and describe a range of reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

CEQA requires that State and local government agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects

(California Public Resources Code [PRC] Section 21000 et seq.). CEQA also requires that each public agency avoid or reduce to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. If a project would result in significant environmental impacts that cannot be feasibly mitigated to less-than-significant levels, the project can still be approved, but the lead agency's decision makers must issue a "statement of overriding considerations" explaining in writing the specific economic, social, or other considerations that they find, based on substantial evidence, make those significant and unavoidable effects acceptable.

1.7.3 State and Local Planning

Many State and local plans and zoning regulations govern activities within the project area of the 2016 ARCF GRR FEIS/EIR. These plans and regulations are described in Section 1.5.3, State and Local Planning, in the 2016 EIS/EIR; those applicable to the Proposed Action were taken into consideration during preparation of this SEIS/SEIR and are listed below:

- City of Sacramento 2035 General Plan
- Sacramento County General Plan of 2005 to 2030
- Sacramento County Zoning Ordinance
- Sacramento County Tree Ordinance
- Sacramento City Zoning Ordinance
- The Sacramento County Local Hazard Mitigation Plan
- American River Parkway Plan
- Central Valley Flood Protection Plan
- Delta Plan

Chapter 2. Intended Uses of this Document

Like the original 2016 ARCF GRR FEIS/EIR, this SEIS/SEIR is a public document. This SEIS/SEIR describes proposed refinements made to the Proposed Action of the 2016 ARCF GRR FEIS/EIR and evaluates resulting environmental impacts that either were not fully analyzed in the 2016 ARCF GRR FEIS/EIR and subsequent supplemental NEPA and CEQA project documents or are new environmental impacts arising from proposed changes in project design and habitat mitigation. Not all resources or areas of concern are discussed in detail in this document, as most potential impacts and the means to avoid, minimize, and mitigate them were covered in depth in the 2016 ARCF GRR FEIS/EIR. The public will be notified of this SEIS/SEIR and a copy of the public review draft will be made available for comments during a 45-day comment period. Public comments received during the public review period will be incorporated into the Final SEIS/SEIR as necessary and presented in a separate appendix.

Once finalized, USACE will publish the Final SEIS/SEIR, consider any additional comments, and sign a Record of Decision (ROD) for the SEIS. The ROD is a written, public record explaining why USACE chooses a particular course of action. The selected action and any practicable mitigation measures will be identified in the ROD.

California Code of Regulations, Title 14 § 15090 of CEQA requires that an EIR be certified so that State agencies can issue their approvals. Title 14 § 15124(d)(B) of CEQA states that the intended use section of the EIR shall include a list of permits, as well as a list of expected agencies to use the document.

The project will require permitting or approvals under Section 7 of the Endangered Species Act, Section 401 of the Clean Water Act, and Section 106 of the National Historic Preservation Act. CVFPB encroachment permits and State Lands Commission leases will also be required for some project components.

CVFPB, DWR and SAFCA, the lead agency and responsible agencies, are expected to use the SEIS/SEIR document in their roles as project sponsors. Other agencies expected to use the SEIS/SEIR to support permitting or funding actions include, but are not limited to:

- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- National Park Service
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- Bay Area Air Quality Management District (BAAQMD)
- Sacramento Metropolitan Air Quality Management District (SMAQMD)
- State Lands Commission
- Delta Stewardship Council

2.1 Resources Relied on in Preparation of the SEIS/SEIR

2.1.1 Related Documents and Resources

The following documents were used in the preparation of this SEIS/SEIR and are incorporated by reference:

- December 2015, revised May 2016, Final Environmental Impact Statement/Environmental Impact Report on the American River Water Shed Common Features, General Reevaluation Report, Sacramento CA (USACE 2015).
- 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 (GEI Consultants and SAFCA 2016).
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy (USACE 2016)
- February 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF Seepage Stability Berm, Reach D Contract 1 (USACE, SAFCA, and CVFPB 2019a).
- June 2019, Final Supplemental Environmental Assessment/Initial Study, ARCF 2016 Project Beach Stone Lakes Mitigation Site (USACE, SAFCA, and CVFPB 2019b).
- November 2019, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 1 (SREL C1) (USACE and CVFPB 2019).
- October 2020, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 2 (SREL C2) (USACE and CVFPB 2020).
- June 2021, Final Supplemental Environmental Assessment/ Supplemental Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 1 (USACE 2021).
- August 2021, Final Supplemental Environmental Impact Statement/Environmental Impact Report, American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento Weir Widening (USACE and CVFPB 2021a).
- September 2021, Supplemental Environmental Impact Statement/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 2 (USACE and CVFPB 2021d).
- October 2021, Supplemental Environmental Assessment/Environmental Impact Report American River Watershed Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 3 (SREL C3) (USACE and CVFPB 2021b).

- October 2021, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 1 (USACE and CVFPB 2021c).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, Sacramento River East Levee Contract 4 (SREL C4) (USACE and CVFPB 2022a).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, Sacramento River Erosion Contract 2 (USACE 2022b).
- October 2022, Supplemental Environmental Assessment/Environmental Impact Report, American River Common Features, Water Resources Development Act of 2016 Project, American River Erosion Contract 3A (USACE and CVFPB 2022b).

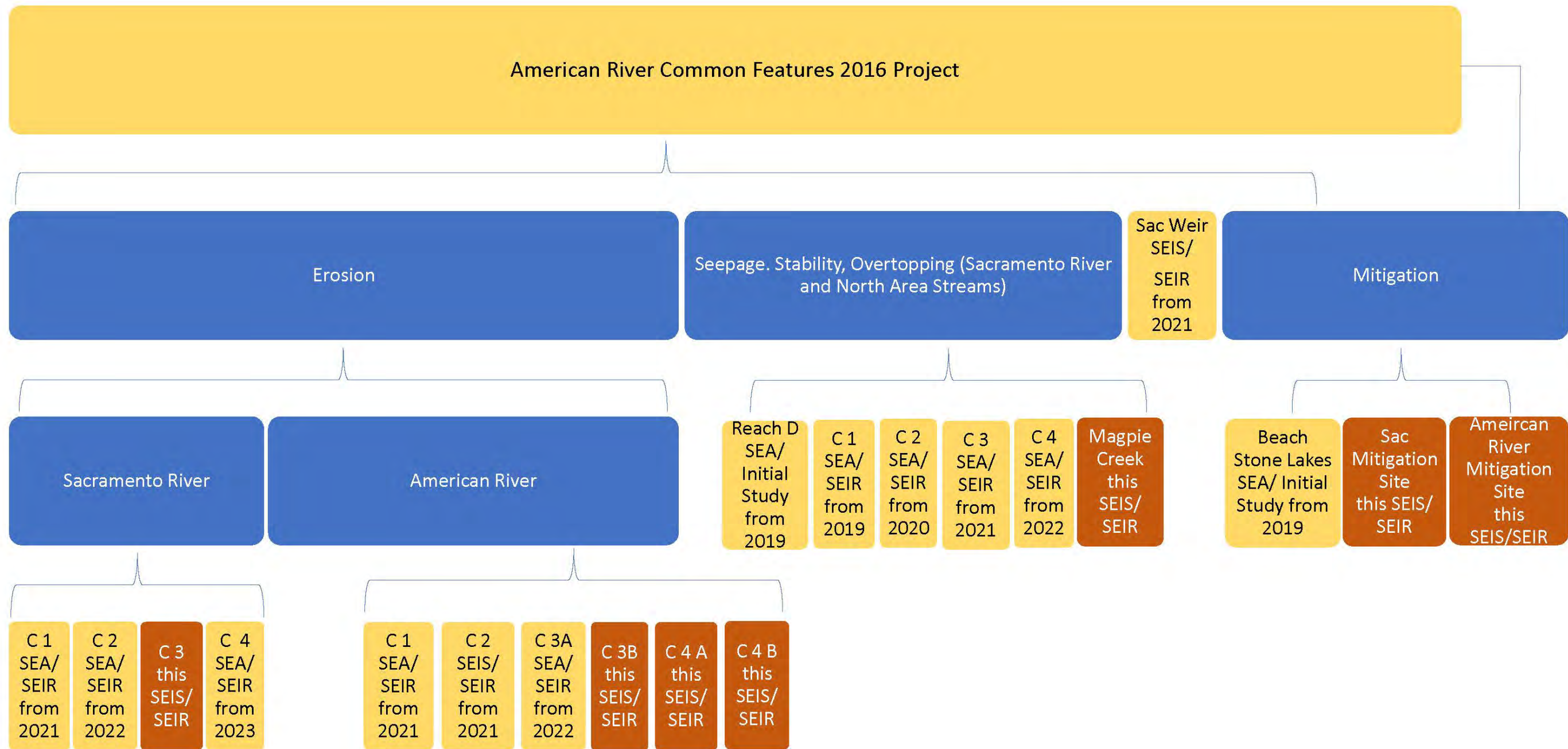


Figure 2.1.1-1 Projects within the ARCF 2016 Project

2.2 Application of NEPA and CEQA Principles and Terminology

This section covers phrases that have equivalent meanings between NEPA and CEQA. NEPA and CEQA are similar in that both laws require the preparation of an environmental document to evaluate the environmental effects of proposed activities. However, there are several differences between the two regarding terminology, procedures, content of the environmental documents, and substantive mandates to protect the environment. NEPA language is primarily used in this document but can be interchanged with CEQA language.

Table 2.2-1 Terminology of NEPA and CEQA for Common Concepts

NEPA Term	Correlating CEQA Term
Lead Agency	Lead Agency
Environmental Impact Statement	Environmental Impact Report
Record of Decision	Findings
Proposed Action	Proposed Project
Project Purpose	Project Objectives
No Action Alternative*	N/A
No Construction Alternative	No Project Alternative
Affected Environment	Environmental Setting
Effect	Impact
Minor	Less than Significant
Negligible	Less than Significant
Moderate	Less than Significant
Major	Less than Significant
Significant and Unavoidable	Significant and Unavoidable
No Impact or No Effect	No Impact
Beneficial	Beneficial
Direct	Direct
Indirect	Indirect
Short-term	Short-term
Medium-term	
Long-term	Long-term

*In the case of this supplemental NEPA documentation No Action would result in the previously approved alternative to be constructed.

2.3 Community Outreach, Agency Coordination, and Areas of Known Controversy

Public involvement activities associated with the SEIS/SEIR include public scoping meetings, Native American Tribe and agency meetings, distribution of the draft and final SEIS/SEIR for public review and comment; and public meetings to receive comments on the draft SEIS/SEIR. USACE published the Notice of Intent (NOI) to prepare the ARCF SEIS/SEIR in the Federal

Register (Vol. 87, No. 194) on October 7, 2022, with an update posted in the Federal Register (Vol. 87, No. 199) on October 17, 2022. USACE and CVFPB held two public scoping meetings on November 2, 2022, and November 30, 2022, to present information to the public and to explain how to submit public comments on the scope of the SEIS/SEIR. Appendix A contains the NOI, the comment letters received during scoping, and the agency responses to comments.

The 2016 ARCF GRR FEIS/EIR identified several areas of controversy based on comments received during the public scoping period and the history of the NEPA and CEQA processes undertaken by USACE, CVFPB, and SAFCA. Areas of controversy that are applicable to the Proposed Action analyzed in this SEIS/SEIR, include:

- Construction-related impacts on biological resources, especially endangered species and their habitats
- Vegetation and tree removal, primarily on and adjacent to levees
- Effects to cultural resources and resources significant to indigenous tribes
- Effects to recreational areas and facilities

Public scoping for this SEIS/SEIR was conducted in November 2022 and resulted in 69 categorized comments, one-third of which were related to habitat mitigation concerns. As discussed in detail in Chapter 7 and Appendix A, Scoping Report, habitat mitigation in the American River Parkway as proposed for the ARMS (located at River Mile 1.3 and previously referred to as Urrutia) has emerged as and continues to be an area of controversy.

Resolution of known areas of controversy identified by the scoping process have resulted in further coordination with the following entities and agencies:

- U.S. Environmental Protection Agency
- County of Sacramento, Regional Parks
- Cordova Recreation and Park District
- Sacramento Metropolitan Air Quality Management District
- United Auburn Indian Community

This draft SEIS/SEIR will be circulated for public review and made available on the USACE, Sacramento District and CVFPB websites. Typically, USACE would provide hard copies of the SEIR/SEIR to public libraries, however, local public libraries are now discouraging this and requesting electronic files. USACE and CVFPB can make hard copies available upon request. A link to the SEIS/SEIR will be sent to interested parties, local residents, and to the agencies and elected officials listed in Section 7.1 of the SEIS/SEIR, and a newspaper notice will be posted that includes a link to the SEIS/SEIR. Public meetings will be held during the review period (December 22, 2023 – February 5, 2024) to provide additional opportunities for comments on the draft SEIS/SEIR. Meetings will be virtual, and the times will be included on the USACE website at sacleveeupgrades.com:

- January 10, 2024
- January 16, 2024

At the meetings, verbal comments will be solicited using court reporters and written comments will be accepted. Additionally, written comments will be accepted through mail and electronic mail. All comments received during the public review period will be considered, and responses provided in the final SEIS/SEIR as appropriate. Public comments and the responses to them will be provided in an appendix to the Final SEIS/SEIR.

The Final SEIS/SEIR will be circulated for public review. The notice of availability (NOA) will be published in the Federal Register. The Final SEIS/SEIR will be made available on the USACE Sacramento District and CVFPB websites. Hard copies of the final SEIS/SEIR will be available upon request and electronic versions will be sent to the local library.

2.4 Organization of the SEIS/SEIR

The content and format of this SEIS/SEIR are designed to meet NEPA requirements as set forth by the Council on Environmental Quality (CEQ) and USACE's NEPA policy and guidance, as well as CEQA and the State CEQA Guidelines. The SEIS/SEIR is organized as follows:

- The Executive Summary summarizes the purpose and intended uses of the SEIS/SEIR, lead agencies, project location, project background and phasing, need for action, and project purpose/objectives; presents an overview of the proposed alternatives under consideration, as well as the major conclusions of the environmental analysis; documents the known areas of controversy and issues to be resolved; and ends with a summary table that lists the significant environmental impacts and mitigation measures for the alternatives under consideration.
- Chapter 1, "Introduction," briefly explains the NEPA/CEQA processes; lists the lead, cooperating, and responsible agencies that may have discretionary authority over the project, including non-Federal partners; specifies the underlying project purpose/objectives and need for action, to which the lead agencies are responding in considering the proposed project and project alternatives; summarizes required permits, approvals, and authorizations; provides information on public participation; and outlines the contents and organization of the SEIS/SEIR.
- Chapter 2, "Description of Project Alternatives," presents the proposed alternatives under consideration. This chapter includes a description of the proposed action/proposed project that meets NEPA and CEQA requirements and describes the project components for each action alternative as well as the No-Action Alternative. Mitigation alternatives and the sites that are currently being considered for future mitigation are also discussed, along with the potential to purchase mitigation credits. This chapter also describes alternatives considered but eliminated from further consideration and provides a summary matrix that compares the environmental consequences of the alternatives under consideration.
- Chapter 3, "Affected Environment and Environmental Consequences" describes the baseline or existing environmental and regulatory conditions, provides an analysis of the impacts of each project alternative under consideration, and identifies available and feasible mitigation measures that would be used to avoid or eliminate significant impacts or reduce them to a less-than-significant level, where feasible. In addition, compensation is discussed for significant, adverse effects that cannot be reduced to a less-than-significant level with

available and feasible mitigation measures. This chapter summarizes more detailed analysis that is included in Appendix B.

- Chapter 4, “Cumulative and Growth-Inducing Impacts and Other Statutory Requirements,” describes the cumulative impacts of the project when combined with other past, present, and reasonably foreseeable future projects within the area. In addition, it analyzes the growth-inducing impacts of the proposed action. The remainder of this chapter includes the following requirements of NEPA and CEQA that are not addressed elsewhere in this SEIS/SEIR: relationship between short-term uses of the environment and long-term productivity, significant and unavoidable environmental impacts, and irreversible and irretrievable commitments of resources.
- Chapter 5, “Compliance with Federal and State Laws and Regulations,” summarizes the Federal and State laws and regulations that apply to the project and describes the project’s approach to compliance.
- Chapter 6, “Public Involvement and Coordination,” summarizes public involvement activities under NEPA and CEQA; Native American consultation; and coordination and with other Federal, State, regional, and local agencies. A list of organizations and individuals receiving a copy and/or notice of this SEIS/SEIR is also included.
- Chapter 7, “Submitted Alternatives, Information, and Analyses,” provides information on alternatives provided during scoping.
- Chapter 8, “Report Preparers” lists individuals who were involved in preparing this SEIS/SEIR.
- Chapter 9, “References,” provides a bibliography of sources cited in this SEIS/SEIR.

Chapter 3. Description of Project Alternatives

3.1 Introduction

This chapter describes and compares the alternatives evaluated in detail in this SEIS/SEIR, including the Proposed Action (“Proposed Project” under CEQA) and the required NEPA No Action Alternative and the CEQA No Project Alternative. Action Alternatives that were considered, but rejected are identified and are not carried forward for analysis. The discussion of each Action Alternative includes measures to avoid or substantially lessen any of the significant or potentially significant adverse environmental effects of the Proposed Action, while still meeting most, if not all, of the basic project objectives.

3.2 Requirements for Alternatives Development, Selection, and Evaluation

NEPA and CEQA require consideration of the potential effects of a reasonable range of action alternatives that could feasibly attain most of a project’s basic objectives and accomplish the specified project purpose and need, while avoiding and/or substantially lessening potentially significant and significant environmental impacts of the Proposed Action. NEPA also requires consideration of future conditions under the No Action Alternative, as a basis of comparison with the Action Alternatives. CEQA requires consideration of a No Project Alternative where the project is not constructed. The following sections identify the purpose, need, and objectives, and summarize the requirements for developing alternatives under NEPA and CEQA.

3.2.1 National Environmental Policy Act

NEPA requires that all alternatives, including the Proposed Action, be evaluated at a comparable level of detail (Title 40, CFR Part 1502.14[b]). Similarly, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40, CFR Part 1502.14) require the range of reasonable alternatives in an EIS be objectively evaluated at an equal level of detail. Alternatives that cannot reasonably meet the project purpose and need do not require detailed analysis and may be considered and rejected.

3.2.2 California Environmental Quality Act

CEQA requires the lead agency to consider alternatives that would avoid or substantially lessen one or more of the significant impacts of the proposed project. The State CEQA Guidelines state that an EIR needs to describe and evaluate alternatives that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (State CEQA Guidelines Section 15126.6[c]). An EIR must include a reasonable range of alternatives necessary to permit a reasoned choice and to foster informed decision-making and informed public participation (State CEQA Guidelines Section 15126.6[f]).

Consideration of alternatives focuses on those that can eliminate significant environmental impacts or reduce impacts to less-than-significant levels; alternatives considered in this context may include those that are more costly and those that could impede, to some degree, the attainment of the project objectives (State CEQA Guidelines Section 15126.6[b]).

3.3 Alternatives Development and Screening

3.3.1 Initial Alternatives Development and Screening

The ARCF Final GRR described four planning objectives including reducing the risk of flooding in the study area, reducing the impacts to critical infrastructure in the study area, encouraging wise use of the floodplain, and educating the public about ongoing residual risk. A wide variety of individual management measures were developed to meet one or multiple objectives. Measures fell within the following categories: reduce flood stages, address seepage and underseepage, levee stability, levee overtopping, erosion, and non-structural measures. Each measure was evaluated and screened based on the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G)* criteria: completeness, efficiency, effectiveness, implementation potential and acceptability. Formulation strategies were developed to combine these measures into alternative plans. Section 3.9 Screening of Measures of the GRR includes the details of plan formulation with rationale given for either retaining or dropping measures. Multiple iterations of evaluation, measure combination and screening led to development of a final array of alternatives, from which the Recommended Plan or National Economic Development Plan (NED) was selected, which reasonably maximizes net benefits.

The 2016 ARCF GRR FEIS/EIR, which this SEIS/SEIR supplements, considered and rejected the following alternatives:

- Upstream Storage (for Flood Control) on the American River (Auburn Dam)
- Transitory Storage in Upstream Basins
- Yolo Bypass Improvements
- Reoperation of Upstream Reservoirs
- Sacramento River I Street Bridge Diversion Structure
- Non-Structural Measures

Upstream storage on the American River does not address the high frequency flood risk associated with poorly performing levees, nor does it reduce the risk for the Sacramento River study area. The I-Street Diversion Structure requires inefficient implementation and would leave densely populated areas of Sacramento at risk of flooding after project construction. Non-structural measures reduce the consequences of flooding, but do not reduce probability of flooding or reduce risk of flooding. None of these alternatives fully met the project objectives, had high associated costs, and caused significant environmental effects, such as requiring extensive relocation of residents resulting in environmental justice concerns or requiring project implementation on sensitive habitats impacting listed species. Therefore, these alternatives are no longer discussed in detail.

Two Action Alternatives were evaluated in detail, along with a No Action Alternative: GRR Alternative 1, “Improve Levees,” and GRR Alternative 2, “Sacramento Bypass and Improve Levees.” Alternative 2 was the selected alternative or Recommended Plan. Both GRR

Alternative 1 and GRR Alternative 2 included similar erosion protection improvements on the LAR and the Sacramento River, and flood risk reduction improvements at MCP. On the LAR and Sacramento River, Alternatives 1 and 2 included constructing bank protection or launchable rock trench. At the MCP, both Alternatives 1 and 2 included raising 2,100 linear feet of levee, constructing 1,000 linear feet of new levee, installing floodgates at two properties, and acquiring property to create a flood detention basin. While the ARCF GRR FEIS/EIR discussed habitat mitigation requirements for the Recommended Plan, it did not analyze the impacts associated with constructing habitat restoration sites to mitigate for project impacts.

The ROD for the ARCF 2016 Project was signed by the Assistant Secretary of the Army (Civil Works) on August 29, 2016. After the ARCF 2016 Project was authorized by Congress in 2016, USACE began detailed design for these erosion protection and levee improvements in the Sacramento metropolitan area. Projects were prioritized based upon their constructability and sequenced to provide flood risk reduction benefits to communities with highest life safety risk and most costly flood-related damages. Several of these projects are under construction currently, including the Sacramento Weir and Bypass Widening Project, American River Erosion Project and Sacramento River East Levee Seepage, Stability and Overtopping Project.

USACE and CVFPB have prepared several supplemental NEPA and CEQA documents covering refinements in the design for the ARCF 2016 Project (see Section 2.1.1). For example, the Supplemental EIS/EIR for the Sacramento Weir and Bypass Widening Project which included a proposed action with a passive weir (the existing weir has gates that must be manually opened) and a higher weir elevation alternative using stop logs to maintain the existing top-of-weir elevation for the passive weir. The SEIS/EIR was certified in accordance with CEQA on August 27th, 2021, and the ROD was signed September 2021.

Upon Congressional authorization, geotechnical investigations and hydraulic modeling were funded to inform the preconstruction engineering and design (PED) phase for multiple project components. Data collection led to the design refinements presented in this SEIS/SEIR to address remaining flood risk to the greater Sacramento area. These refinements to the following projects are presented below: MCP, American River Erosion Contracts 3B, 4A, and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network.

MCP. During the detailed engineering and design efforts for the MCP improvements, substantial hydraulic impacts were identified for the flood risk management improvements identified in the ARCF GRR FEIS/EIR. To reduce these hydraulic effects, the refinements substantially changed the location of improvements, and efforts to reduce hydraulic impacts led to increased impacts on riparian habitat due to the need to improve the geometry of the MCDC downstream of the MCP improvements as proposed in the ARCF GRR FEIS/EIR. The design refinements to reduce the hydraulic impacts of Alternative 2 led to the Proposed Action for the MCP project component that is analyzed in this SEIS/SEIR.

American River Erosion Contracts 3B and 4B. The ARCF 2016 Project covers 11 miles of erosion protection work along the American River as well as levee erosion and stability, and seepage and underseepage improvements along various portions of the American and Sacramento Rivers (USACE 2016). USACE held an expert opinion elicitation (EOE) in 2019 to refine the design of the project. Based on the results of the EOE and Pre-Construction

Engineering and Design, the designs along the American River were refined to incorporate alternative erosion protection measures to minimize impacts to heritage oaks, riparian habitat, and to create higher-quality onsite mitigation. The refined designs are analyzed as part of the Proposed Action in this SEIS/SEIR as American River Erosion Contract 3B and 4B.

Sacramento River Erosion Contract 3. The ARCF 2016 Project included bank protection and launchable rock trench improvements along 2.8 miles of the Sacramento River (USACE 2016). PED efforts have reduced the area of bank protection and resulted in refinements (including tiebacks, planting benches, and launchable rock toes) that provide improved habitat restoration, and reduced impacts on trees and riparian vegetation. These refinements have been incorporated into the Proposed Action Alternative for Sacramento River Erosion Contract 3 analyzed in this SEIS/SEIR.

American River Erosion Contract 4A, ARMS, SRMS, and Piezometer Network. These project components were not previously analyzed in the ARCF GRR FEIS/EIR. Except for the Piezometer Network, which has minimal environmental effects and would be installed within the construction footprint previously identified for the ARCF GRR FEIS/EIR, additional alternatives were developed to reduce or avoid the effects of these project components. For the American River Erosion Contract 4A, the alternative designs include a landside berm (to avoid impacting recreational facilities in the American River Parkway) and various design refinements that would reroute the Jedediah Smith Memorial Trail to reduce effects on this key recreational resource. For the ARMS, alternatives were developed to retain a portion of the existing manmade pond. These alternatives were considered to reduce impacts related to air quality, GHG emissions, and transportation (by reducing material hauling), to maintain the existing visual character of the area, and to reduce impacts related to use of the manmade pond by migratory birds, particularly diving ducks (CEQA-only Alternative). SRMS alternatives carried forward for detailed consideration included purchase of mitigation credits and/or financial support of projects that would provide habitat mitigating for the habitat loss associated with project improvements. These non-construction alternatives would avoid the construction-related impacts of the SRMS project component. An alternative site for the SRMS was also considered at Watermark Farms on the right bank of the Sacramento River in Yolo County and is analyzed in this SEIS/SEIR.

The Proposed Action and Action Alternatives analyzed in this SEIS/SEIR represent both new alternative components and a substantial refinement of the ARCF GRR FEIS/EIR Alternative 2 or Recommended Plan that became the authorized Project. These refinements would reduce or avoid several of the significant impacts identified in the ARCF GRR FEIS/FEIR, including hydraulic impacts, impacts on riparian vegetation, and heritage oaks. Table 3.3.4-1 presents a summary of the alternatives that have been considered for the project components.

3.3.2 Alternatives Considered, but Rejected from Detailed Analysis

MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4, ARMS, and SRMS all had alternative activities and/or locations that had been considered but rejected.

3.3.2.1.1 Magpie Creek Project

For the MCP, an alternative that was considered, but later rejected was similar to the Proposed Action described in this document with the exception that it would have raised the levee an additional 3 feet of freeboard over the 1 in 200 Annual Exceedance Probability (AEP) elevation. If this alternative had been chosen and built, there would have been a reduction in the overtopping and flanking that could cause localized flooding along Raley Boulevard. However, when elevation analysis was performed at the Vinci Avenue Bridge and the Dry Creek Road Bridge, USACE found that both bridges were below the elevation needed to reach the 1 in 200 AEP, creating a flow obstruction and increasing the freeboard by 3 feet. The possibility of making design refinements to both bridges was considered and rejected because the project does not have the congressional authority to alter the bridges. This new flood risk elevation and lack of congressional authority to alter the bridges resulted in the rejection of this alternative.

3.3.2.1.2 American River Erosion Contract 3B North

For American River Erosion Contract 3B North, three alternatives were considered but rejected from detailed consideration under NEPA due to not meeting environmental or flood risk reduction needs. Initially, designs included removing the material that form the islands upstream of Howe Avenue to increase channel capacity that would address stage impacts from the placement of erosion protection materials. This initial design concept also involved adding width to the riverbank to address erosion concerns and adding additional on-site mitigation habitat. Regrading the island created impacts to unique habitats on the island that would have been permanently removed from the American River in that area. In addition, movement of the fill would have been expensive. Additional hydraulic modeling determined that the island did not need to be regraded for channel capacity. For these reasons, this alternative was rejected. Soil-filled revetment was also proposed to be placed at select areas of an existing revetment site to address potential future operations and maintenance (O&M) concerns. Alternative erosion protection methods were selected to reduce impacts to heritage oaks (*Quercus* spp.). Finally, grading was proposed on the opposite riverbank of the proposed erosion protection location to mitigate hydraulic stage impacts, eliminate the need to remove material from the islands in the river, and increase inundation of a natural levee for habitat gain purposes. Regrading this area had significant impacts to elderberries (*Sambucus* spp.), which provide habitat to the federally listed valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). Additional hydraulic modeling determined that the area did not need to be regraded to meet flood risk objectives for stage increase at the site. Consequently, this alternative was not selected due to these impacts.

3.3.2.1.3 American River Erosion Contract 3B South

For American River Erosion Contract 3B South, one alternative was considered but rejected due to having additional environmental impacts. This alternative was dismissed as it would have required removal of heritage oaks.

3.3.2.1.4 American River Erosion Contract 4A

For American River Erosion Contract 4A, USACE considered bank protection under the State Route 160 Bridge and the Union Pacific Railroad Bridge to reduce flood risk. Upon further investigation of utility locations, USACE rejected this alternative from detailed consideration under NEPA since placing bank protection would not be feasible because of utility conflicts in the area where the revetment would need to be placed. USACE also determined that gaining real estate access to construct in the area would likely cause substantial schedule delays, leaving the area at risk for flooding. Other alternatives that meet flood risk needs could be designed without needing real estate access directly under the Union Pacific Railroad Bridge. For these reasons, USACE rejected the option of using bank protection under the bridges.

3.3.2.1.5 American River Mitigation Site

The National Marine Fisheries Service (NMFS) is requiring that a large mitigation site(s) for salmonid habitat mitigation on the American River be constructed concurrent with erosion protection construction. Delayed mitigation construction results in increased mitigation acreage requiring additional sites and increased costs. Sites for creating suitable salmonid habitat mitigation are limited on the American River due to 1) Reasonable and Prudent Measure (RPM) 5.e in the NMFS Biological Opinion (2021) for salmonids, and 2) the requirement that USACE obtain a National Park Service consistency determination due to the river's federal designation as a National Wild and Scenic River.

USACE considered approximately eight other potential mitigation sites on the American River which were previously described in the ARCF GRR FEIS/EIR and SEIS/SEIR (USACE and CVFPB 2021d), to create fish habitat side channels. However, those sites conflicted with the locations of ongoing projects being implemented by USACE, and the Bureau of Reclamation (BOR). USACE discussed planting native vegetation adjacent to the ongoing projects; however, this alternative was rejected by NMFS. The previously proposed Rossmoor (26.5 acres) and Arden Pond (27.6 acres) sites have insufficient project lands to fully address salmonid mitigation needs and are heavily used for recreation creating public and local agency concerns. (USACE and CVFPB 2021d). USACE has coordinated with the Sacramento County Department of Regional Parks to identify potential sites for salmonid habitat; however, additional off-site mitigation or purchasing mitigation credits would still be required to address project impacts.

The Sacramento County Department of Regional Parks (Parks 2022) proposed an incomplete alternative during the scoping period that is similar to the Proposed Action, except that the design would retain a portion of the existing man-made pond, partially reducing the need for fill material to create riparian topography and reducing the transportation, air quality, and GHG emissions impacts. This pond-retention alternative has been rejected from further consideration under NEPA; it is however, being carried forward for consideration as Alternative 4a under CEQA. For CEQA-purposes, including a pond on the ARMS property under Alternative 4a would require a minimum of 42 acres (including the 30-acre pond) on the 120-acre property.

The pond-retention alternative was rejected from detailed consideration under NEPA because it would not meet the remaining VELB and salmonid mitigation requirements onsite, forcing the project to identify and pursue another offsite mitigation. Neither the ARCF 2016 Project nor the Planning Guidance Notebook (USACE Civil Works policy) provides authority for USACE to

spend appropriations on recreation improvements or the long-term management of a non-life and safety feature; the pond would be considered a recreational feature since it does not meet species habitat mitigation criteria. Additionally, an existing bald eagle (*Haliaeetus leucocephalus*) nest was identified as a new constraint after Alternative 4a was developed. State and Federal laws further reduce the viability of retaining a pond as part of the alternative due to the requirement to retain and protect the nest tree and a large surrounding buffer which would exclude construction. Furthermore, there are additional costs related to building a 30-foot berm to separate the pond from the mitigation area to reduce predation by piscivorous sport fish on entrained salmon.

Alternative 4a was rejected as a viable alternative by USACE during preliminary designs. Alternative 4b was carried through 10% design and evaluated alongside other alternatives. However, USACE determined due to WRDA 2016 Project authority, USACE policy and guidance, lack of agency support, recreational conflicts, and the inability of the alternatives to meet mitigation objectives and resource agency requirements, these alternatives are rejected from NEPA analysis. They are both retained in Section 3.7 and analyzed under CEQA.

3.3.2.1.6 Sacramento River Mitigation Site

USACE has considered numerous locations for a large mitigation site on the Sacramento River. Many of those sites were eliminated based on their location outside of NMFS preferred mitigation zone, listed in the BO. Other sites such as Elkhorn Regional Park, Upper Elkhorn 1 and 2 were rejected from detailed consideration under NEPA because they would have more significant adverse effects to existing habitat during construction than the site could provide in mitigation credits. Some sites such as North Broderick and Bees Lake were already identified by other projects to be used for mitigation, recreation, or a heritage center. Possible sites that are on the landside of a Federal levee cannot be considered without requesting an amendment to the project authorization, and there are great constructability constraints with the land elevations being lower than the river elevations in areas without a Federal levee. The remaining Sacramento River Mitigation options are located at Grand Island, Watermark Farms, Sunset Pumps or through mitigation bank credit purchases; these alternatives are discussed below. Grand Island is being analyzed as the Proposed Action, while the other options are being analyzed as Alternatives 5a, 5b and 5c.

3.3.3 Alternatives Considered in Detail in the SEIS/SEIR

The following alternatives are evaluated at an equal level of detail in this SEIS/SEIR:

- **Alternative 1:** No Action Alternative (NEPA baseline project as presently constructed / to be completed through performance of contracts underway or presently authorized)
- **Alternative 2:** Proposed Action (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, and the Piezometer Network)
- **Alternative 3** (Alternative Designs for American River Erosion Contract 4A all other contracts would remain the same as Alternative 2)
 - **Alternative 3a:** Landside Berm to Avoid Bike Trail Reroute
 - **Alternative 3b:** Permanent Bike Trail Reroute

- **Alternative 3c:** Bike Trail Reroute and Bridge
- **Alternative 3d:** Bike Trail Reroute Along Railroad
- **Alternative 4:** (Alternatives Designs of ARMS – CEQA-Only all other contracts would remain the same as Alternative 2)
 - **Alternative 4a:** ARMS Pond Retention (CEQA-Only)
 - **Alternative 4b:** ARMS Pond Retention (CEQA-Only)
- **Alternative 5:** (Alternatives to SRMS all other contracts would remain the same as Alternative 2)
 - **Alternative 5a:** Purchase Mitigation Credits
 - **Alternative 5b:** Watermark Farms Mitigation Site
 - **Alternative 5c:** Delta Smelt Bank and Sunset Pumps Mitigation Credits
- **Alternative 6:** No Project Alternative (CEQA). This alternative assumes that none of the improvements identified in the Action Alternatives would be constructed.

3.3.4 Summary of Alternatives Analysis

Table 3.3.4-1 presents a comparison of the various alternatives that have been considered for the project components as the ARCF 2016 Project has progressed.

Table 3.3.4-1. Summary of Alternatives by Project Component

Project Component	Alternatives considered in ARCF GRR FEIS/EIR	Alternatives Considered and Rejected in this SEIS/SEIR	Alternatives Considered in this SEIS/SEIR
MCP	Alt 1: levee raise, new levee, floodgates at two properties, flood detention basin Alt 2: levee raise, new levee, floodgates at two properties, flood detention basin.	new levee, MCDC realignment and widening, flood easements, levee raise for 3 feet of freeboard	Alternative 1, No Action: levee raise, new levee, floodgates at two properties, flood detention basin Alternative 6, Proposed Action: new levee, MCDC realignment and widening, flood easements
American River Erosion Contract 3B and 4B	Alt 1: bank protection and launchable rock trench Alt 2: bank protection and launchable rock trench.	Removing islands to increase channel capacity Widening riverbank for erosion protection and habitat mitigation Grading of opposite bank to mitigate stage impacts	Alternative 1, No Action: bank protection and launchable rock trench Alternative 6, Proposed Action: launchable rock toe, launchable trench, bank protection, tie backs, velocity and tree scour improvements
American River Erosion Contract 4A	Alt 1: bank protection and launchable rock trench Alt 2: bank protection and launchable rock trench.	Bank protection under SR 160 and UPRR bridges	Alternative 1, No Action: bank protection and launchable rock trench Alternative 6, Proposed Action: Waterside Berm Alternative 3a: Landside Berm Alternative 3b: Bike Trail Reroute Alternative 3c: Bike Trial Reroute and Bridge Alternative 3d: Bike Trail Reroute along Railroad
Sacramento River Erosion Contract 3	Alt 1: bank protection and launchable rock trench Alt 2: bank protection and launchable rock trench.	None	Alternative 1, No Action: bank protection and launchable rock trench Alternative 6, Proposed Action: launchable rock toe, bank protection, tie backs, planting benches
ARMS	None	Side channels at 8 locations along the LAR Native vegetation plantings at project sites Rossmoor and Sailor Bar salmonid habitat restoration NEPA-only: Construct Habitat Mitigation and Retain 30 Acre Pond (Alternative 4a)	Alternative 1, No Action: No mitigation constructed Alternative 6, Proposed Action: Construct Habitat Mitigation at RM 1-1.6 Alternative 4a (CEQA-only): Construct Habitat Mitigation at RM 1-1.6 and Retain 30-Acre Pond Alternative 4b (CEQA-only): Construct Habitat Mitigation at RM 1-1.6 and Retain 20-Acre Pond

Project Component	Alternatives considered in ARCF GRR FEIS/EIR	Alternatives Considered and Rejected in this SEIS/SEIR	Alternatives Considered in this SEIS/SEIR
SRMS	None	Construct habitat mitigation at alternative sites, including Elkhorn Regional Park, Upper Elkhorn, Bees Lake, North Broderick	Alternative 1, No Action: No mitigation constructed Alternative 6, Proposed Action: Construct Habitat Mitigation at Grand Island Site Alternative 5a: Purchase Mitigation Credits Alternative 5b: Construct habitat mitigation at Watermarks Farm site Alternative 5c: Delta Smelt Bank and Sunset Pumps Mitigation Credits
Piezometer Network	None	None	Alternative 1, No Action: No Piezometer Network constructed Alternative 6, Proposed Action: Piezometer Network

Source: USACE 2023

3.4 Alternative 1: No Action Alternative (NEPA)

For this SEIS/SEIR, the No Action Alternative is the buildout of the authorized project. The authorized project was described in the 2016 ARCF GRR Final EIS/EIR (USACE and CVFPB, 2016) and since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents including the same documents listed in section 2.1.1.

The No Action Alternative for this SEIS/SEIR therefore includes all the components of the authorized 2016 ARCF GRR Final EIS/EIR Proposed Action (Alternative 2) that have been constructed as well as the remaining authorized components of the Proposed Action in the 2016 ARCF GRR Final EIS/EIR that have not yet been constructed. Table 3.4-1 presents the remaining components of the authorized ARCF 2016 Project that will be constructed as part of the No Action Alternative. The description of each project component in Section 3.5 includes a table summarizing the elements of the CEQA Proposed Action for this SEIS/SEIR that are part of the NEPA No Action Alternative and elements of CEQA Proposed Action that are part of the design refinements (NEPA Proposed Action).

Table 3.4-1. No Action Alternative Components

2016 ARCF GRR Project Components Modified in SEIS/SEIR	Improvements included in the SEIS/SEIR No Action Alternative
MCP	The No Action Alternative includes construction of a culvert and improvements for the Sacramento Northern Bike Trail bridge, approximately 900-linear feet of new levee construction and two new floodgates on the west side of Raley Boulevard, and levee raising from Raley Boulevard to Vinci Avenue.
American River Erosion Contract 3B, 4A, and 4B	The No Action Alternative includes 11 miles of launchable trench and bank protection to be constructed on the Lower American River. The No Action Alternative also includes 65 acres of riparian habitat and VELB habitat. Certain staging areas, including staging in the American River Parkway, were authorized in prior supplemental documents and would be included in the No Action Alternative.
Sacramento River Erosion Contract 3	The No Action Alternative includes approximately 2.8 miles of bank protection to be constructed on the Sacramento River. Certain haul routes were authorized in prior supplemental documents and would also be included in the No Action Alternative.

Source: USACE 2023

3.5 Alternative 2: Proposed Action

For this SEIS/SEIR, the CEQA Proposed Project includes all proposed activities, each of which would be constructed at different locations in the Sacramento region (Figure 3.5-1). The CEQA Proposed Project includes new activities, refinements, and those activities that were already discussed in the ARCF GRR FEIS/EIR but have not yet been constructed. Sections 3.5.1 through 3.5.7 provide details on what activities are being proposed.

For this SEIS/SEIR, the NEPA Proposed Action only includes the project components that are modifications or design refinements of the ARCF GRR FEIS/EIR Proposed Action. Many of the primary components of the 2016 ARCF GRR FEIS/EIR Proposed Action have been modified or had design refinements: MCP, American River Erosion Contracts 3B, 4A, and 4B, and Sacramento River Erosion Contract 3. In addition to these modifications, the ARMS, SRMS and Piezometer Network were not included in the ARCF GRR FEIS/EIR. The modifications and design refinements comprise the NEPA Proposed Action evaluated in detail in this SEIS/SEIR. Tables have been included at the end of each project component section (sections 3.5.1 through 3.5.7), which categorize which activities from the CEQA Proposed Action are included in the NEPA Proposed Action.

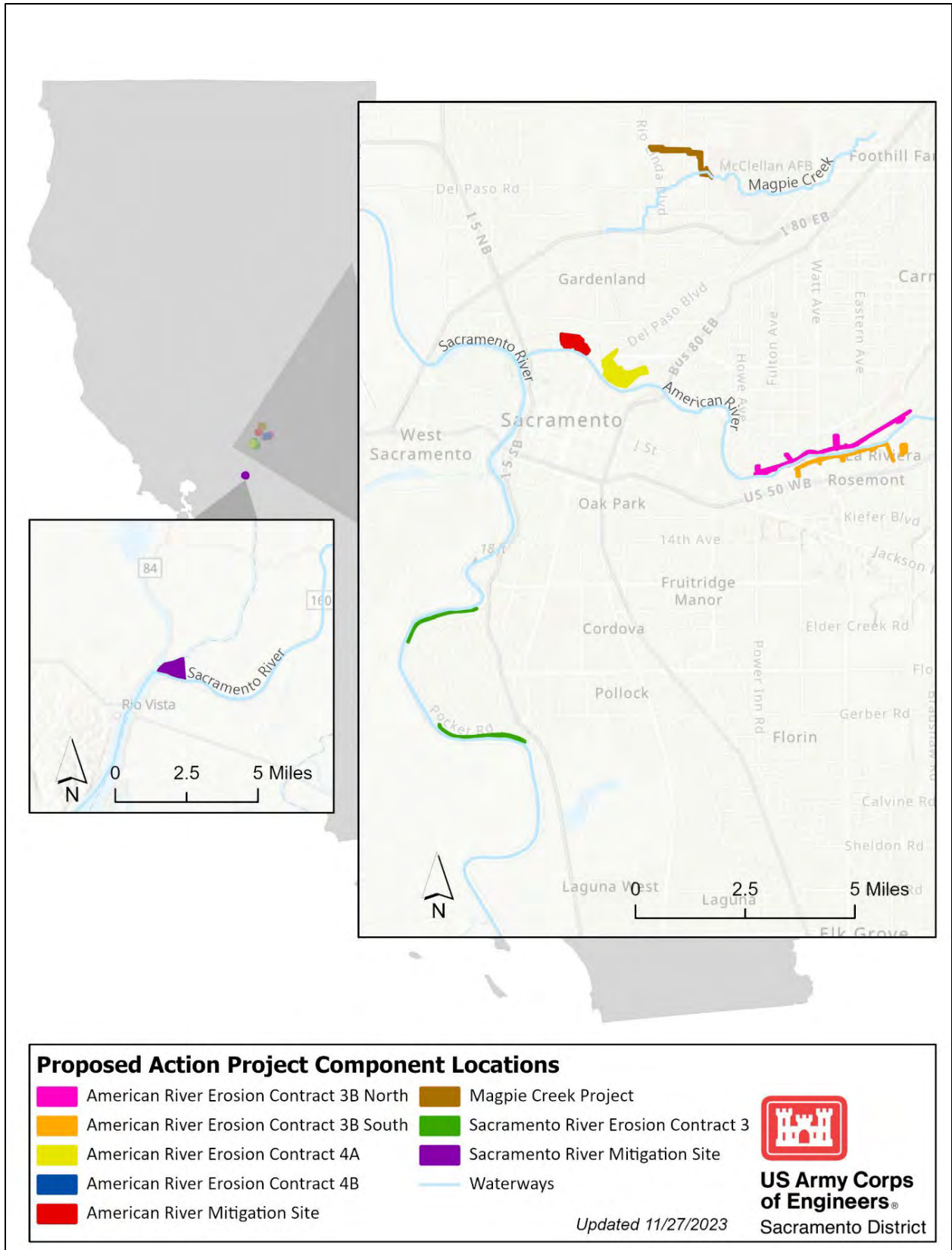


Figure 3.5-1. Regional Location of the Project Components

3.5.1 Magpie Creek Project Improvements

3.5.1.1 Features of the Proposed Action and Construction Details

MCP improvements include a levee extension, widening and realignment of a portion of the MCDC, culverts beneath the Sacramento Northern Bike Trail, and flowage easements to allow water retention on an approximately 80-acre area upstream of Raley Boulevard.

A levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank of the MCDC to tie into existing high ground. Raley Boulevard would be realigned eastward and cross up and over the extended levee. The roadway grading would remain elevated as it crossed the MCDC to accommodate installation of three up to 7-foot-high by 10-foot-wide culverts (see Figure 3.5.1-1). The roadway alignment change would avoid permanently blocking the entrances of businesses during construction of the levee and culvert and would help maintain the mandatory safe stopping distance for vehicles traveling at the posted speed limit. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of this wetland. A gravel-surfaced maintenance road would be constructed on the north bank of the MCDC east of Raley Boulevard.

MCDC would be widened and realigned up to maximum 25-foot bottom width with an exception at Raley Boulevard to meet the width of the culverts, with 2:1 ratio slope between Raley Boulevard to Vinci Avenue (a distance of approximately 2,100 feet). The levee on the west bank of the channel would be raised to a uniform top elevation of 50.2 ft along the Raley Boulevard to Vinci Avenue segment. This segment would include a landside gravel maintenance road to the west of the levee.

Vegetation, including mature trees and shrubs, would be cleared from the bed and banks of the MCDC from Vinci Avenue to Dry Creek Road (approximately 2,700 feet). Channel slopes would also be modified in this reach to meet a 2:1 slope. Maintenance roads (12-foot wide with 2-foot shoulders) with gravel surfaces would be constructed on both sides of the top of the MCDC in this segment.

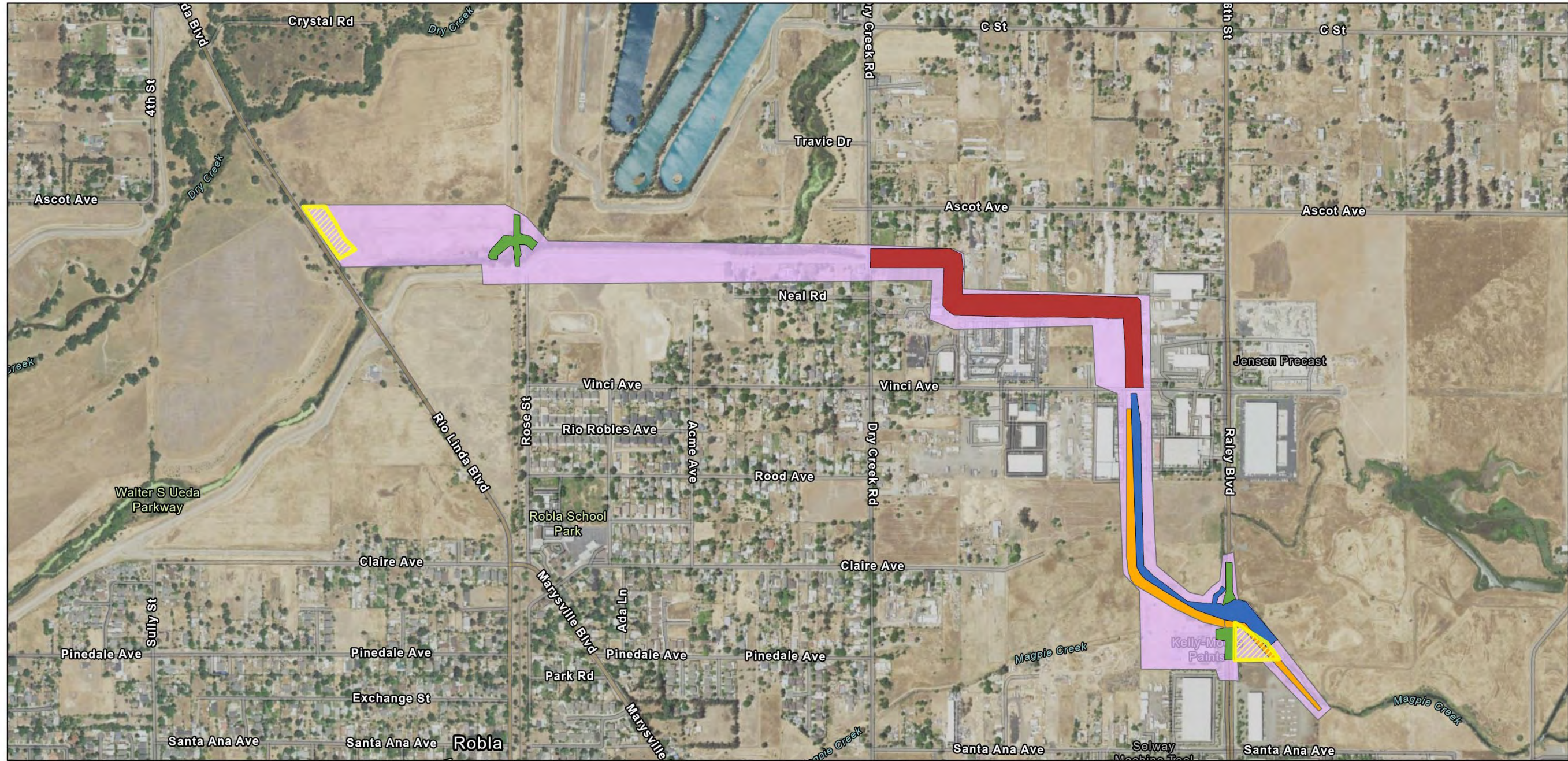
Three 5-foot-high by 5-foot-wide culverts would be constructed where Robla Creek passes under the Sacramento Northern Bike Trail. These culverts would relieve pressure on the bike trail bridge during high flow events (initially evaluated in the 2016 ARCF GRR Final EIS/EIR in Section 2.3.3.) The impact of increased water surface elevation between Dry Creek Road and the North Sacramento Bike Trail Bridge were considered in the 2016 ARCF GRR FEIS/EIR.

Flowage easements would be purchased and applied to approximately 80 acres of floodplain to accommodate the difference between the design flow of 3,169 cubic feet per second (cfs) and the 2,000 cfs capacity of the downstream diversion channel.

Changes to the O&M manual would be required to address the changes in the facility, as the current condition of the MCDC is under-performing the necessary waterflow for a 1 in 200 AEP highwater event. The current maintenance agreement does not require the removal of woody vegetation; a new O&M manual would include routine vegetation removal to maintain the

required channel capacity. In addition to maintenance roads along both top banks of MCDC from Vinci Avenue to Dry Creek Road (2,700 feet), the project includes the construction of a maintenance road along the landside toe of the levee from Raley Boulevard to Vinci Avenue (2,100 feet) Figure 3.5.1-1.

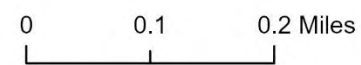
Several public utilities would be temporarily or permanently realigned. A sewer line made of vitrified clay pipe that runs near the east edge of Raley Boulevard and goes under the current MCDC would need to be temporarily rerouted and then permanently realigned to prevent damage due to its proximity to the new culvert construction. A water main located in the same area as the sewer pipe would also be relocated. High voltage power lines that run parallel to the Raley Boulevard roadway crossing would be relocated to enable earthwork to be completed. A 48-inch storm sewer that terminates into MCDC on the east side of Raley Boulevard would be temporarily relocated during construction and replaced in its current alignment after construction of the culvert and levee extension. Other utilities and encroachments would be protected in place.



Magpie Creek Project Footprint

 Canal Widening	 Culvert
 Canal and Slope Modification	 Construction Access
 Levee Extension	 Staging

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Figure 3.5.1-1. Magpie Creek Project Footprint

Equipment used for earth moving to construct the MCP would include various haul trucks, excavators, bulldozers, cranes, and front loaders. Haul trucks would include semi-truck pulling bottom dump trailers and end dump trucks. Most hauling would likely be performed by the end dump trucks as they have a tighter turn radius and access to portions of the work area is limited. Excavators would be used for loading material removed from the canal as part of the realignment and slope flattening efforts. Excavators may be supplemented by a crane during the vegetation removal process to lift woody vegetation more efficiently from the MCDC. Bulldozers and front loaders would be used to rough in the material placement and refine canal slopes to the final grade and elevation specified in the design. Water pumps would be used to dewater excavated areas and to pump water around a section of the canal while it is being realigned. Generators of various sizes would be used to power equipment away from public utilities. Water trucks and street sweepers would be used to provide fugitive dust control to help adhere to the Storm Water Pollution Prevention Plan (SWPPP). Flatbed trucks may be used to bring preformed structures for the culverts and bike bridge components. The size of the truck used for hauling material may vary depending on access constraints, where work is being performed within the project site, and the weight of the material being hauled.

Cofferdams and bypass pumping would be used to maintain dry work areas around construction areas. Work for the slope-widening portion of the project would begin with the construction of one or both maintenance roads so that they could be used in the construction of the slope widening. The canal realignment would start construction before the existing MCDC is backfilled. The levee between Raley Boulevard and Vinci Avenue would then be raised and widened to meet the new design geometry. The new levee extension east of Raley Boulevard may be constructed concurrently with the main levee or later, depending on the constraints for the concrete culvert structure installation and the closure of Raley Boulevard. The work to be performed from Vinci Avenue to Dry Creek Road could be done concurrently with upstream work if water can be pumped past the project work areas to avoid equipment working in the water. The culvert and improvements at the Sacramento Northern Bike Trail crossing could be constructed concurrently with the other proposed improvements.

The MCP would be constructed using imported materials, most notably crushed stone to be used for maintenance roads, borrow material to build the levee extension and realign the current levee, if the existing excavated materials cannot be used, and the project would remove existing material that must be removed from the site. All borrow material would be supplied by the contractor and be sourced from local areas (approximately 50 miles). Construction materials, including import and export volumes, are shown in Table 3.5.1-1, Table 3.5.1-2, and Table 3.5.1-3. Crushed stone would be used to create the two new maintenance roads from Vinci Avenue to Dry Creek Road, the levee extension, and to rebuild the original levee crown. Material would be excavated to widen the canal between Raley Boulevard and Vinci Avenue, flatten slopes from Vinci Avenue to Dry Creek Road, and install the culverts at the Sacramento Northern Bike Trail. Soil material would be imported to build embankments, and concrete would be used to construct the Raley Boulevard crossing and the box culverts used at the bike bridge (culverts would be precast).

Excavated soil would be hauled off-site to either an existing stockpile location or to a landfill within 50 miles of the project site. While not currently expected to occur, if needed, a stockpile would be located on a portion of the project site that is disturbed or was previously cleared

and/or used for stockpiling. All stockpile locations would be selected to avoid sensitive resources on or adjacent to the site(s).

Table 3.5.1-1. Magpie Creek Project - Quantity Computation Summary

Computation Item	Quantity
Project Length	8,696 FT
Existing Enlargement Length	2,145 FT
Embankment Area (total)	4 AC
Total In-Place Embankment	18,280 CY

Notes: Feet (FT), Acres (AC), Cubic Yards (CY)

Table 3.5.1-2. Magpie Creek Project – Quantity Summary

Quantities are summarized below. Detailed computations are located on subsequent pages.

Description	Quantity	Notes
Mobilization and Demobilization		
Mobilization	1 EA	
Demobilization	1 EA	
Clearing and Grubbing		
Levee Embankment, Field/Existing Slope	2 AC	Calculated from LiDAR data. Created a shape to exclude the wooded area shape from the field/existing slope boundary.
Channel, Existing	3 AC	Calculated from LiDAR data. Created a shape to exclude the wooded area shape from the field/existing slope boundary.
	806 CY	Total
Demolition		
Pavement at Raley Crossing	800 FT	
Existing Bridge at Raley Crossing	1 EA	
Embankment		
Levee Embankment, Fully Compacted	7655 CY	
Ramp Embankment, Fully Compacted (Raley Crossing)	1,185 CY	
	8840 CY	Total
Excavation		
Channel Widening, Raley to Vinci	17,158 CY	
Slope Flattening, Vinci to Dry Creek	36,005CY	
Triple 5x5 Box Culvert at Bike Trail	5,350 CY	
	58,513 CY	Total
Crushed Stone Surfacing		
Existing (to be removed and stockpiled)	459 TN	Assumes 10' wide by 5" thick for 2,100 feet of existing levee
Levee Crown	1,103 TN	12' x 7" x 3000' of levee crown
Access Road, Vinci to Dry Creek, Left Bank	1,029 TN	12' x 7" x 2800' of access road
Access Road, Vinci to Dry Creek, Right Bank	1,029 TN	12' x 7" x 2800' of access road
	3,620 TN	Total
Turf Establishment and Maintenance		

Description	Quantity	Notes
Levee and Channel Footprint (Raley to Vinci)	4.0 AC	
Channel Widening footprint (Vinci to Dry Creek)	10 AC	
	14 AC	Total
Environmental Protection		
Silt Fence	7,392 LF	2 * project length
Hydroseeding	8.5 AC	Project length x 100' wide r
Construction Entrance/Exit	4 EA	
Triple 7x10 Box Culvert, Raley Crossing		
Earthwork – Cut (Raley Crossing Canal)	5800 CY	
Earthwork – Fill (Raley Crossing Canal)	13600 CY	
Box Culvert (Triple Cell 70' X 10')	1 JOB	
Aggregate Base Class 2(Under Roadway))	867 TON	
Granular Bedding Material (Raley Crossing)	125 TN	
Riprap, RSP Class III (Raley Crossing Canal)	6450 TON	
Riprap, RSP Class IX (Raley Crossing Canal)	8550 TON	
Hot Mix Asphalt Surface Course (Raley Crossing Canal)	252 TON	
Hot Mix Asphalt Binder Course (Raley Crossing Canal)	252 TON	
Crushed Stone Base Course (Class II) (Under Riprap)	90 TON	
Guardrail (Raley Crossing Canal)	200 LF	
Precast Culvert	120 EA	4ft sections, 10 sections per box, 3 boxes
Concrete	292 CY	
Steel Reinforcement	57829 lbs.	1.5% volume of concrete
Triple 5x5 Box Culvert, Bike Path		
Earthwork – Cut (Bypass Canal)	2500 CY	
Earthwork – Fill (Bypass Canal)	830 CY	
Box Culvert (Triple Cell 5' X 5')	1 JOB	
Granular Bedding Material (Bypass Canal)	40 TON	
Riprap, RSP Class III (Bypass Canal)	7500 TON	
Hot Mix Asphalt Surface Course (Bypass Canal)	252 TON	
Hot Mix Asphalt Binder Course (Bypass Canal)	253 TON	
Crushed Stone Base Course (Class II) (Bypass Canal)	160 TON	
Guardrail (Bypass Canal)	100 LF	

Notes: Each (EA), Acres (AC), Cubic Yards (CY), Feet (FT), Linear Feet (LF), pounds (lbs.)

Table 3.5.1-3. Magpie Creek - Quantity Summary Breakdown

Material	# Truck Loads	# Trucks	# Trips/Day Truck	#Days	Truck Capacity
Clearing and Grubbing	41	18	3	0.76	Super Dump 20cy, ISX Diesel 485hp
Embankment (Fill)	884	20	6	7.37	Tandem 10cy, ISX Diesel 365hp
Excavation - Channel Widening, Raley to Vinci	1716	20	9	9.53	Tandem 10cy, ISX Diesel 365hp
Excavation - Slope Flattening, Vinci to Dry Creek	1800	40	9	5.00	Tandem 10cy, ISX Diesel 365hp
Excavation - Triple 5x5 Box Culvert at Bike Trail	268	5	10	5.36	Super Dump 20cy, ISX Diesel 485hp
Crushed Stone Surfacing	121	5	10	2.42	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Cut (Raley Crossing)	290	5	10	5.80	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Fill (Raley Crossing)	680	10	15	4.53	Super Dump 20cy, ISX Diesel 485hp
Granular Bedding Material (Raley Crossing)	9	2	5	0.90	Super Dump 20cy, ISX Diesel 485hp
Class II Base Course A-g. - Roadway	58	3	10	1.93	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class III (Raley Crossing)	430	10	11	3.91	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class IX (Raley Crossing)	570	10	14	4.07	Super Dump 20cy, ISX Diesel 485hp
Hot Mix Asphalt Surface Course (Raley Crossing)	50	5	5	2.00	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt Binder Course (Raley Crossing)	50	5	5	2.00	Tandem 10cy, ISX Diesel 365hp
Crushed Stone Base Course (Class II) (Under Riprap)	3	1	3	1	Super Dump 20cy, ISX Diesel 485hp
Precast Culvert	30	3	10	1	Tractor Trailer (flatbed) Diesel 430hp
Cast In Place Concrete	37	5	5	1.48	Concrete Mixing Truck 8cy, Diesel 400 hp
Steel Reinforcement	1	1	1	1	Tractor Trailer (flatbed) Diesel 430hp
Earthwork - Cut (Bypass Channel)	125	5	8	3.13	Super Dump 20cy, ISX Diesel 485hp
Earthwork - Fill (Bypass Channel)	42	4	5	2.10	Super Dump 20cy, ISX Diesel 485hp
Granular Bedding Material (Bypass Channel)	2	1	2	1.00	Super Dump 20cy, ISX Diesel 485hp
Riprap, RSP Class III (Bypass Channel)	250	10	8	3.13	Super Dump 20cy, ISX Diesel 485hp

Material	# Truck Loads	# Trucks	# Trips/Day Truck	#Days	Truck Capacity
Hot Mix Asphalt Surface Course (Bypass Channel)	2	2	2	0.50	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt Binder Course (Bypass Channel)	2	2	2	0.50	Tandem 10cy, ISX Diesel 365hp
Crushed Stone Base Course (Class II) (Bypass Channel)	6	2	6	0.50	Super Dump 20cy, ISX Diesel 485hp

Source: USACE 2023

Schedule

The MCP components would be constructed over a single construction season. Raley Boulevard would be closed for approximately 3 months to allow construction of the transportation crossing, most likely during the summer months. Construction, including closure of Raley Boulevard, would occur in 2027.

Construction hours would conform with the exempt hours for construction under the city of Sacramento and county of Sacramento noise ordinances and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m. within the city limits, and Monday through Friday from 6:00 a.m. to 8:00 p.m. and Saturday from 7:00 a.m. to 8:00 p.m. in the unincorporated areas of the county. It needs to be also noted that this project may incorporate night work as well to complete certain features that are away from residences to reduce impacts to the community.

3.5.1.2 Haul Routes, Road Closures, and Staging Areas

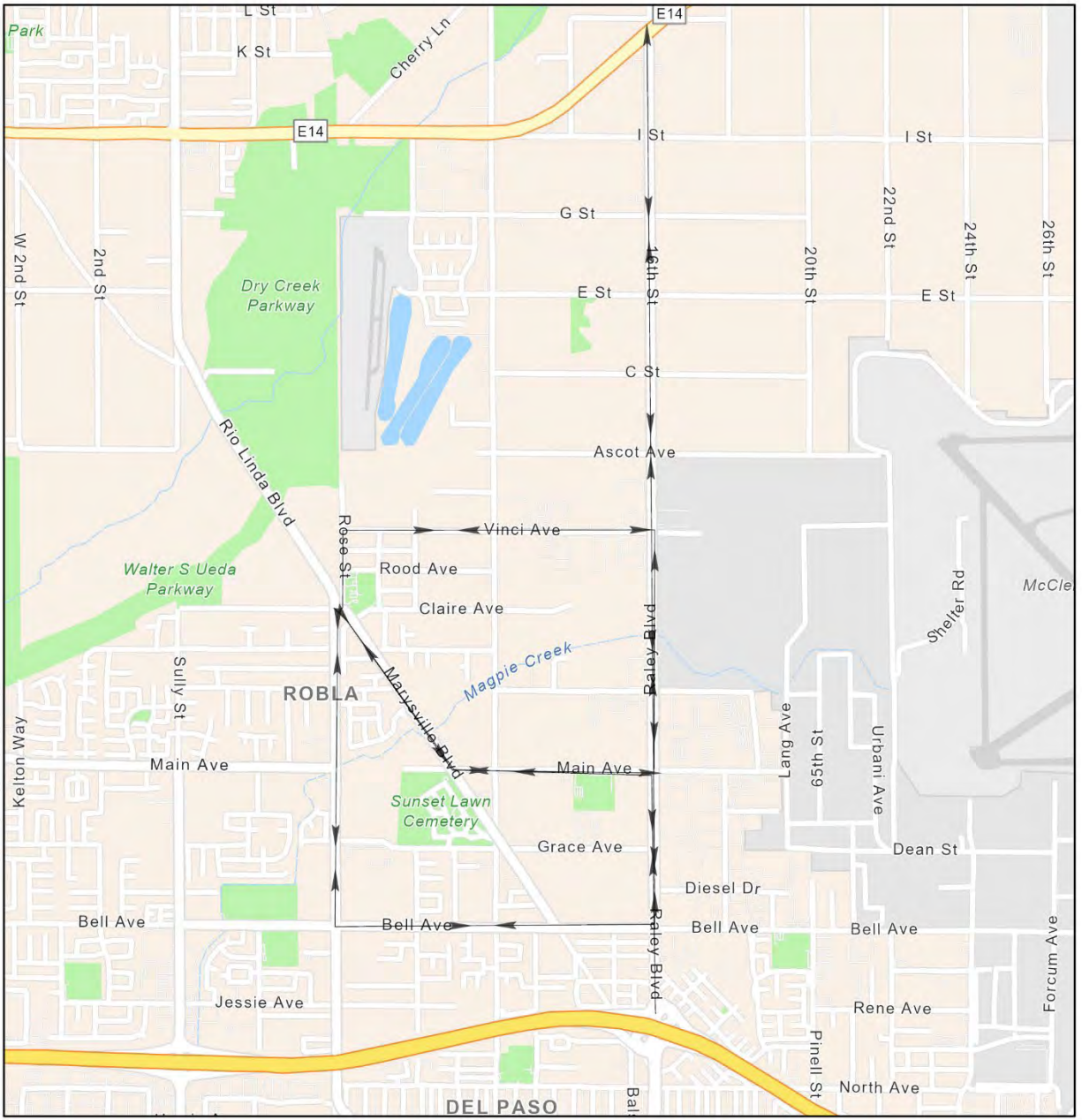
Materials would be hauled to the project site from Elkhorn Boulevard or from Interstate-80 to Raley Boulevard (Figure 3.5.1-2). From Raley Boulevard, the haul route would differ depending on which portion of the project site is being accessed. From Raley Boulevard, the access routes would be Vinci Avenue, Main Avenue, and Bell Avenue. From Bell Avenue, Rio Linda Boulevard would be used to move material north and south and this connects to Rose Street to Vinci Avenue. From Main Avenue, Marysville Boulevard would be used to move material north and south, this connects to Rose Street to Vinci Avenue. Truck sizes and the type of trucks available to the project may vary as they could be end-dump trucks or bottom dump trucks.

The expected traffic detour that would be used during the Raley Boulevard closure would be (traveling north to South) Raley Boulevard to Vinci Avenue, then left onto Dry Creek Road, and then turning left on to Santa Ana Road to bring traffic back to Raley Boulevard. The reverse would be used to go from South to North (Figure 3.5.1-3). There are two staging areas proposed. An additional site may be required for overflow storage of materials and equipment (Figure 3.5.1-1). All sites are near the MCDC and relatively flat which would have the needed space completely flattened to allow for office trailers, storage units, and other needed structures to be placed on site. Their access to roads will need to be upgraded to comply with the SWPPP. If temporary access to the public utilities is not possible, then generators would need to be used to supply power for the sites. The larger site is approximately 2 acres and has roughly 1.5 acres of upland area on the western side of the parcel that is usable for a staging area without impacting wetlands that are less than 50 feet away from the upland area. The western upland location has

access from Rio Linda Boulevard where equipment can move along the road and levee top maintenance road. The smaller site is approximately 1.25 acres of upland area and has access from Raley Boulevard and would allow for easier access to the construction area of the training levee. Staging areas would include temporary office structures, storage units, generators, and portable restroom facilities (Figure 3.5.1-1). Workers would access the site by regional and local roadways.


3.5.1.3 Operations and Maintenance

Once construction of MCP is complete, USACE will transfer the site for long term management and maintenance to the Non-Federal Sponsors (NFS [SAFCA, DWR and CVFPB]). The NFS would be responsible for the implementation of an updated O&M manual for the MCP Site. If land used by the MCP was not purchased for the project and is not already owned by the NFS, all land will be returned to previous conditions and returned to the owners of the property. The NFS would be responsible for the long-term O&M execution necessary to maintain the levee, channel features, and functions to support the expected design conditions to enable MCDC to have the necessary flow of water downstream to meet the designed reduction in flood risks. Establishment of woody vegetation would be prohibited under the updated O&M manual for the site. The new maintenance roads, which are being constructed as a part of the MCP, would be used to access the entirety of the MCP levee system for O&M activities and flood fighting purposes. The maintenance roads are not intended for public access and could be gated. Annual, or more frequently if needed, maintenance would be performed that could include, but is not limited to, erosion control, vegetation removal, and mowing the levee slopes. Any ramp or maintenance road would be maintained as vegetation free. These new maintenance roads and ramps would not be used to introduce activities to the area other than the new O&M regime.




Magpie Creek Project Haul Routes

← Haul Route



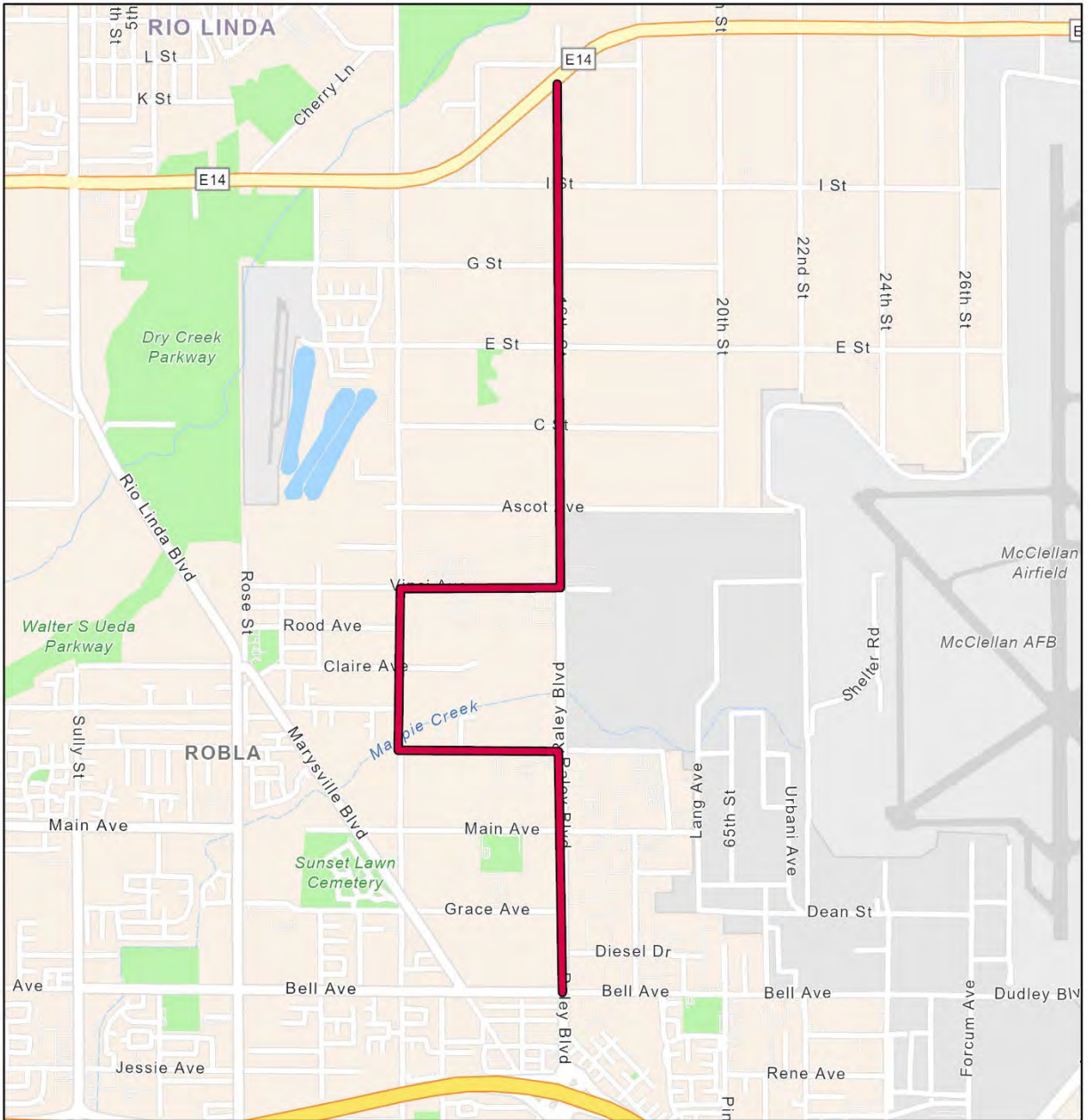
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0 0.3 0.6 Miles





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Figure 3.5.1-2. Proposed Haul Routes at MCP



Magpie Creek Project Traffic Detour for use During Raley Boulevard Closure


 Traffic Detour



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0 0.3 0.6 Miles



 N

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Figure 3.5.1-3. Proposed Raley Boulevard Detour at MCP

3.5.1.4 Proposed Action and Design Refinements for the Magpie Creek Project

For CEQA purposes, this SEIS/SEIR contains effects analyses for the entirety of the project that would be constructed, including both modifications and design refinements and portions of the project that were evaluated in the 2016 ARCF GRR FEIS/EIR. Because the Proposed Action includes some activities that are already part of the authorized project (the No Action Alternative), NEPA also requires a comparison of the effects of the design refinements (portions of the Proposed Action not previously authorized) to the No Action Alternative. Table 3.5.1-4 identifies which components of the Proposed Action for the MCP are already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements which must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.1-4. No Action Alternative and Design Refinement Comparison for Magpie Creek Project Improvements

Project Component	NEPA Status
Culvert Installation at Bike Path Bridge	No Action (USACE 2016 p. 43)
Channel Vegetation Clearing and Slope Modification from Vinci Avenue to Dry Creek Road. This would increase downstream flow of water in the MCDC.	Design Refinements, this portion of the design was originally just a maintenance road in the NO Action plan
Channel Realignment. The new alignment is the result of the levee modification and the concrete culvert traffic crossing feature,	Design Refinements. The canal will be wider than the No Action plan
Levee Raise, the new levee raise is being designed to be widened on the water side and to a height that meets with newer features.	Design Refinements, while similar in size the new alignment and height of the levee differs from the No Action plan.
Raley Boulevard Crossing Structure, this concrete culvert was not a part of the No Action and is needed to connect the original levee with the new levee.	Design Refinements, this feature did not exist in the No Action plan.
New Levee, this feature is along left bank of the left bank of the MCDC.	Design Refinements, while there was new levee construction in the No Action plan this is a completely new alignment then the No Action plan.

Source: USACE 2022a, adapted by GEI

3.5.2 American River Erosion Contracts 3B North, 3B South and 4B

3.5.2.1 Features of the Proposed Action and Construction Details

The footprint of American River Erosion Contract 3B North is on the right bank of the Lower American River between Howe Avenue and Harrington Way. The footprint of American River Erosion Contract 3B South is on the left bank of the Lower American River between Watt Avenue and the Mayhew Drain. For the current designs of American River Erosion Contract 3B North and Contract 3B South, most of the erosion protection areas were analyzed in the 2016 ARCF GRR Final EIS/EIR; however, the locations on the right bank upstream of Watt Avenue were determined to be needed after the 2016 ARCF GRR Final EIS/EIR was finalized (Figure 3.5.2-1). The 2016 ARCF GRR Final EIS/EIR only analyzed launchable trench and bank protection (Figure 3.5.2-2) as erosion protection methods. The design refinements include additional erosion protection methods (launchable rock toe protection and tie backs) throughout

the American River Erosion Contract C3B North and South project sites as well as staging areas, haul routes, and additional areas within the construction footprint.

American River Erosion Contract 3B North (Sites 3-1 and 4-2) would include constructing approximately 1.8 miles of launchable rock toe, launchable trench, and bank protection (Figure 3.5.2-2). American River Erosion Contract 3B South (Site 4-1) would include constructing approximately 1.5 miles of launchable rock toe (Figure 3.5.2-13), launchable trench, bank protection, and tie backs. The project details and footprints for Sites 3-1, 4-2, and 4-1 are shown in Figure 3.5.2-3 through Figure 3.5.2-10. Haul routes would follow the routes in Figure 3.5.2-4, and staging areas would be at those areas shown in Figure 3.5.2-6, Figure 3.5.2-8, and Figure 3.5.2-10.

American River Erosion Contract 4B includes velocity work (which includes fluvial erosion protection activities) and tree scour work (which includes activities preventing scour around trees) in the floodplain bench:

- approximately 0.2 mile on the right bank near RM 8.6, and
- approximately 0.4 mile on the left bank near RM 9.8.

In general, velocity and tree work, shown in Figure 3.5.2-11 and Figure 3.5.2-12, includes a combination of removing trees, placing revetment on the levee similar to Figure 3.5.2-2., and placing rocks smaller than revetment gradations around tree trunks.

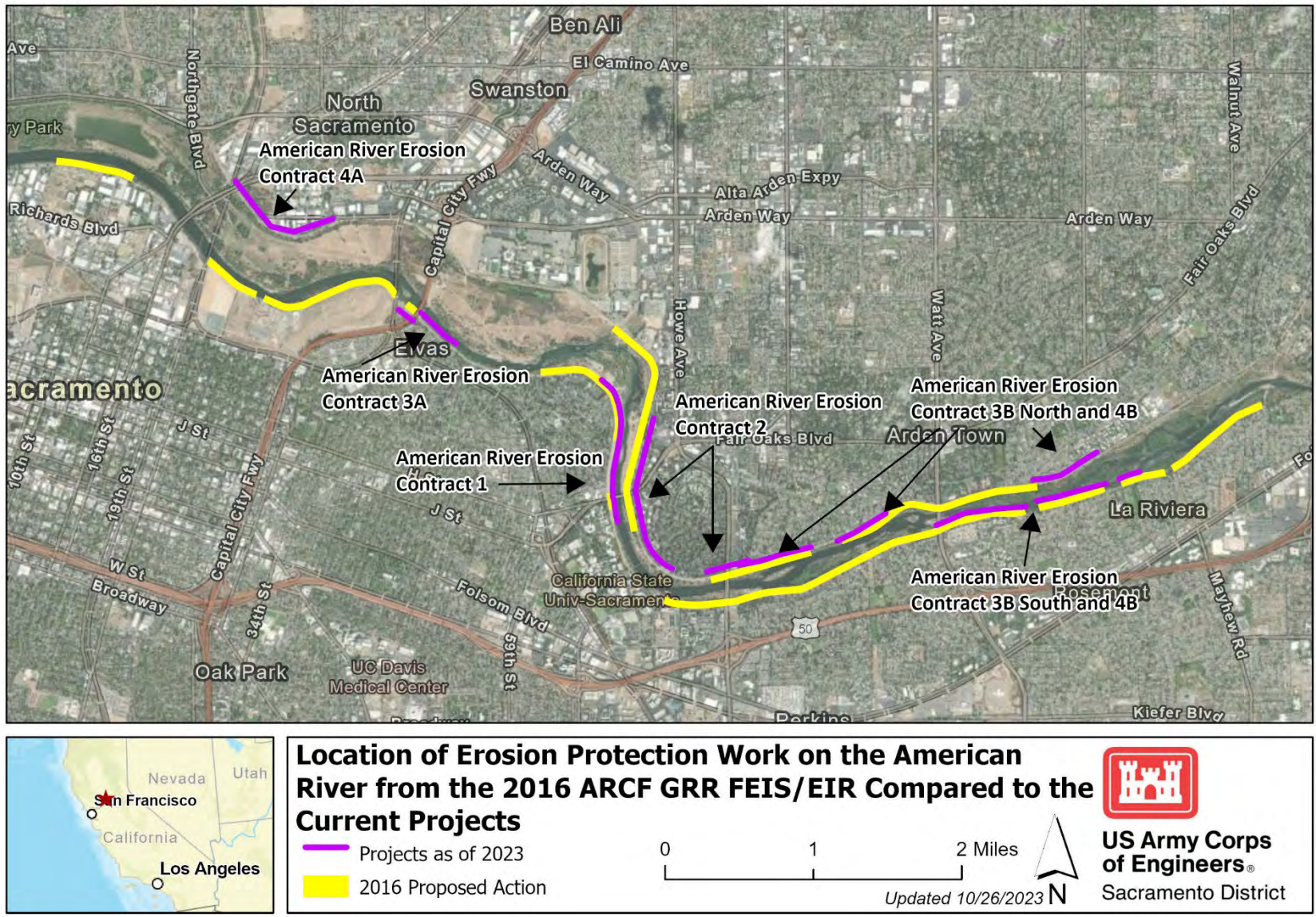


Figure 3.5.2-1. Previously Analyzed and Currently Proposed American River Erosion Protection Sites

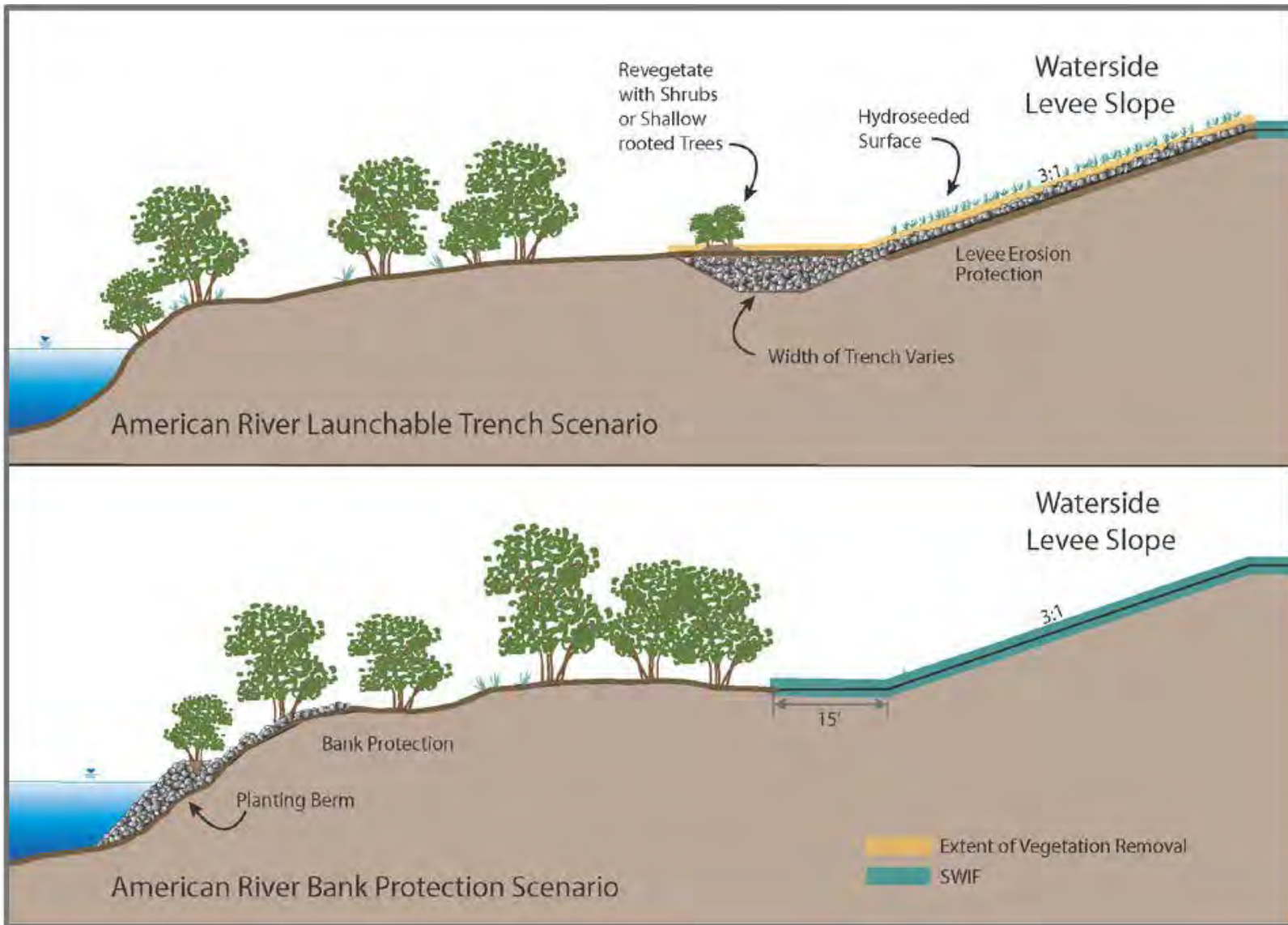


Figure 3.5.2-2. Launchable Trench and Bank Protection Designs

3.5.2.1.1 Erosion Protection Features

American River Erosion Protection Terminology

Table 3.5.2-1 outlines and defines the erosion protection terms for erosion protection activities on the American River.

Table 3.5.2-1. American River Contract Erosion Protection Terminology

Name	Definition	Types seen
Bank Protection Scenario	Revetment placed on riverbank or levee embankment/slope.	Soil-filled revetment: Includes soil between revetment and above to establish vegetation on the surface. Soil-filled levee embankment: soil filled revetment placed on the levee embankment. Soil filled riverbank revetment: placed on or near the riverbank. Bank protection without soil fill is typically seen in areas where construction of soil filled revetment would not be feasible.
Launchable Trench Scenario	Revetment buried underground that launches to provide flood protection during flood condition where erosion occurs.	Buried, near the levee embankment toe. Buried, on the river overbank typically above the typical wetted channel.
Launchable (Rock) Toe	Revetment placed at waterward face of planting bench or along riverbank that launches when riverbank erodes away during flood conditions.	Launchable toe with planting bench- Placed at the waterward face of a planting bench. Launchable toe- Placed along the riverbank near the riverbank toe. When at riverbank toe, can be included with or without a planting bench.
Tiebacks	Revetment placed perpendicular to the river that impedes erosion from progressing.	Tie-back features are typically incorporated element with erosion features listed above as necessary to meet flood risk measures. Buried Rock Tieback- Placed on its own and installed under the ground. Planting Bench Rock Tie Backs- Placed within planting benches and spaced intermittently.



American River Erosion Contract 3B North and South Project Site

Project Impact

- Construction Buffer (Orange)
- Construction Access (Purple)
- Staging (Yellow Hatched)

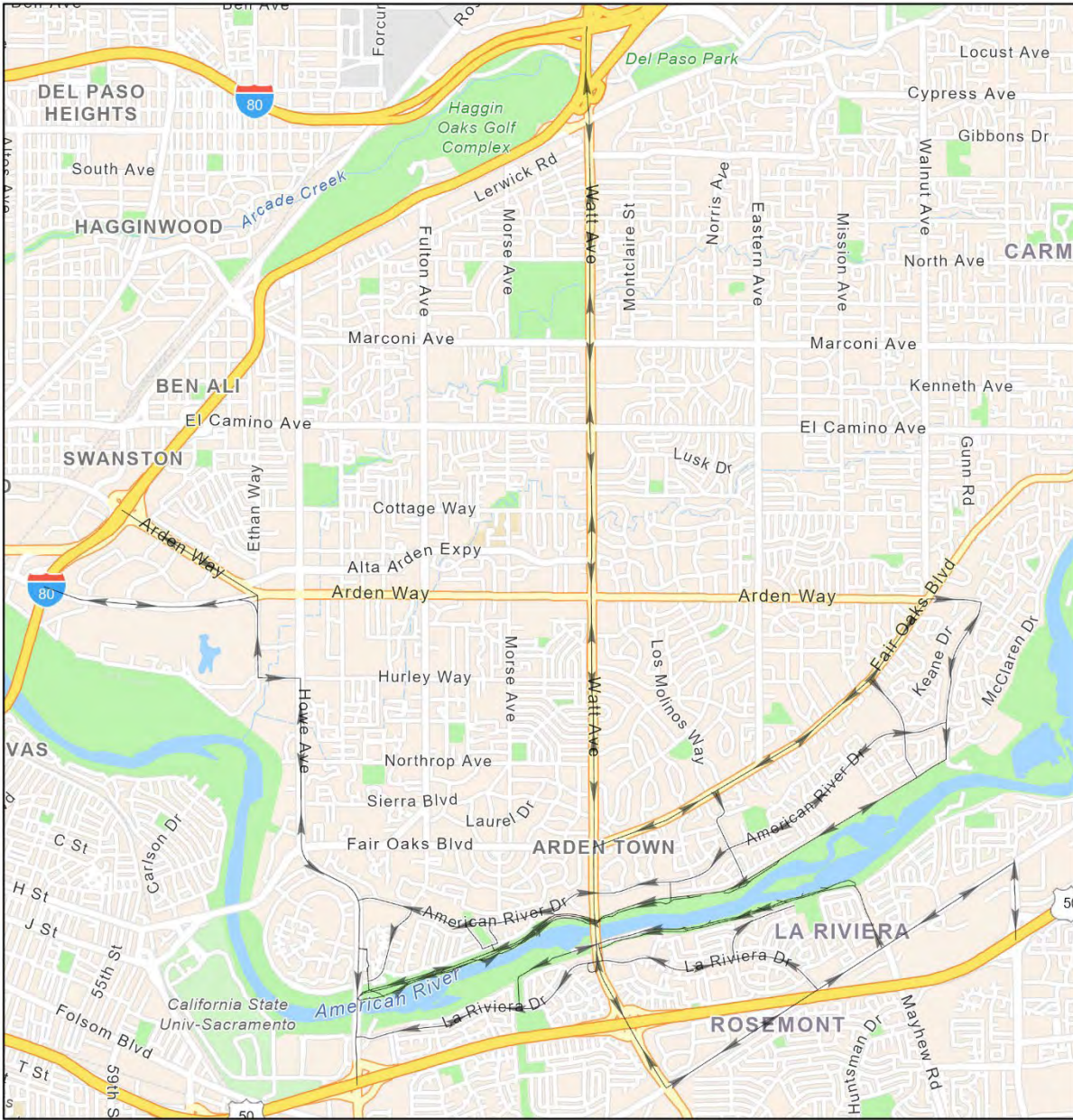
Updated 12/7/2023

0 0.25 0.5 Miles


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Figure 3.5.2-3. American River Erosion Contract 3B Project Footprint



American River Erosion Contract 3B North and South Haul Routes



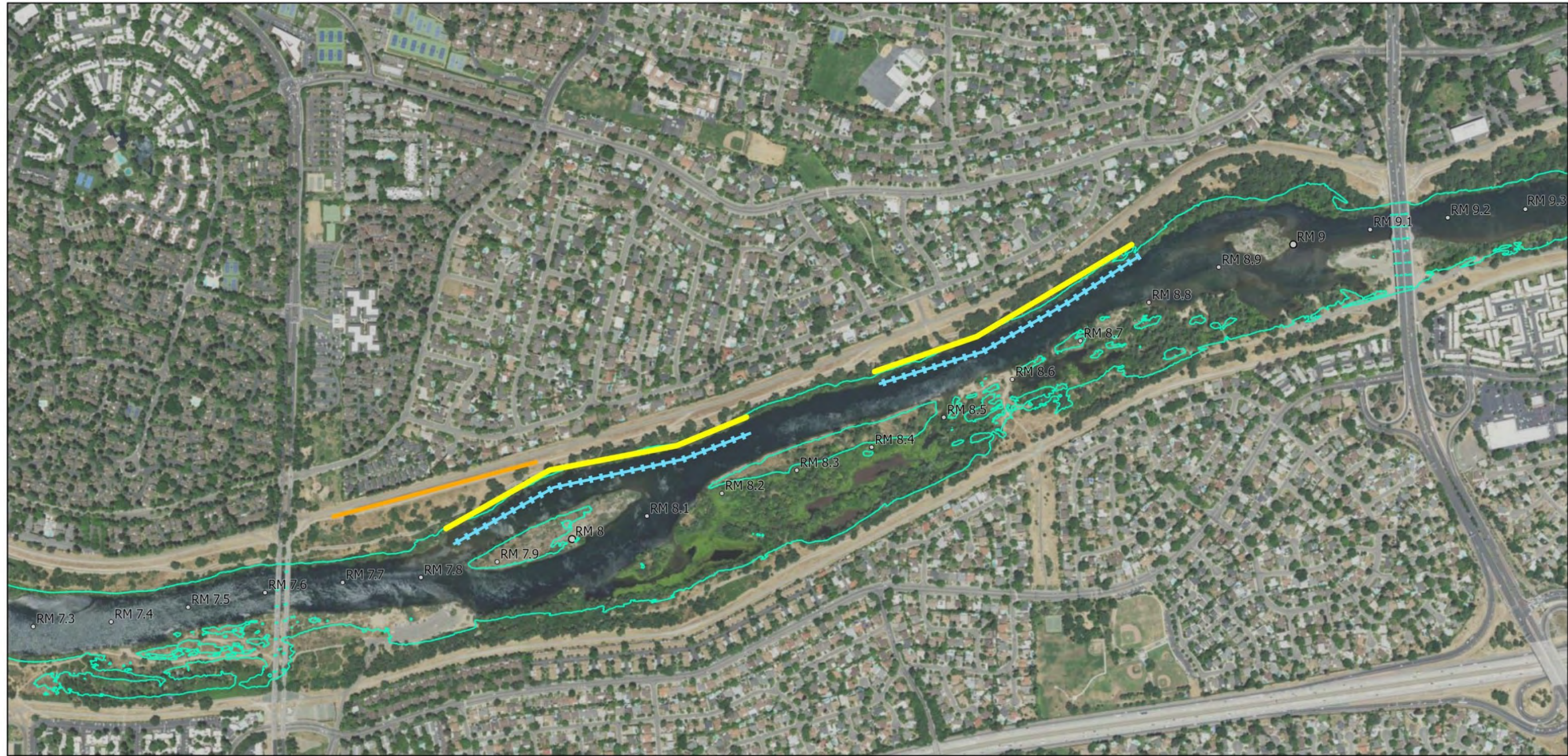
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0 250 500 Miles

Updated 11/15/2023

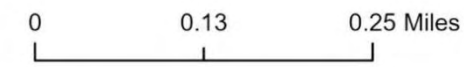
Figure 3.5.2-4. American River Erosion Contract 3B Haul Routes



American River Erosion Contract 3B North Site 3-1 Erosion Protection Method

- Bank Protection (Levee Embankment)
- OHWM
- - - Launchable Toe
- RM
- Bank Protection (Riverbank)
- RM tenths

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Figure 3.5.2-5. American River Erosion Contract 3B North site 3-1 Details




American River Erosion Contract 3B North Site 3-1 Project Footprint

Project Impact

- Construction Buffer
- Construction Access
- Staging
- Outfall

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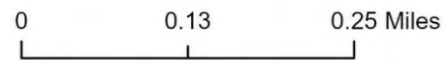
Figure 3.5.2-6. American River Erosion Contract 3B North Site 3-1 Footprint



American River Erosion Contract 3B North Site 4-2 Erosion Protection Method

- Launchable Trench
- Bank Protection (Levee Embankment)
- OHWM
- RM
- RM tenths

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Figure 3.5.2-7. American River Erosion Contract 3B North Site 4-2 Details



American River Erosion Contract 3B North Site 4-2 Project Footprint

Project Impact

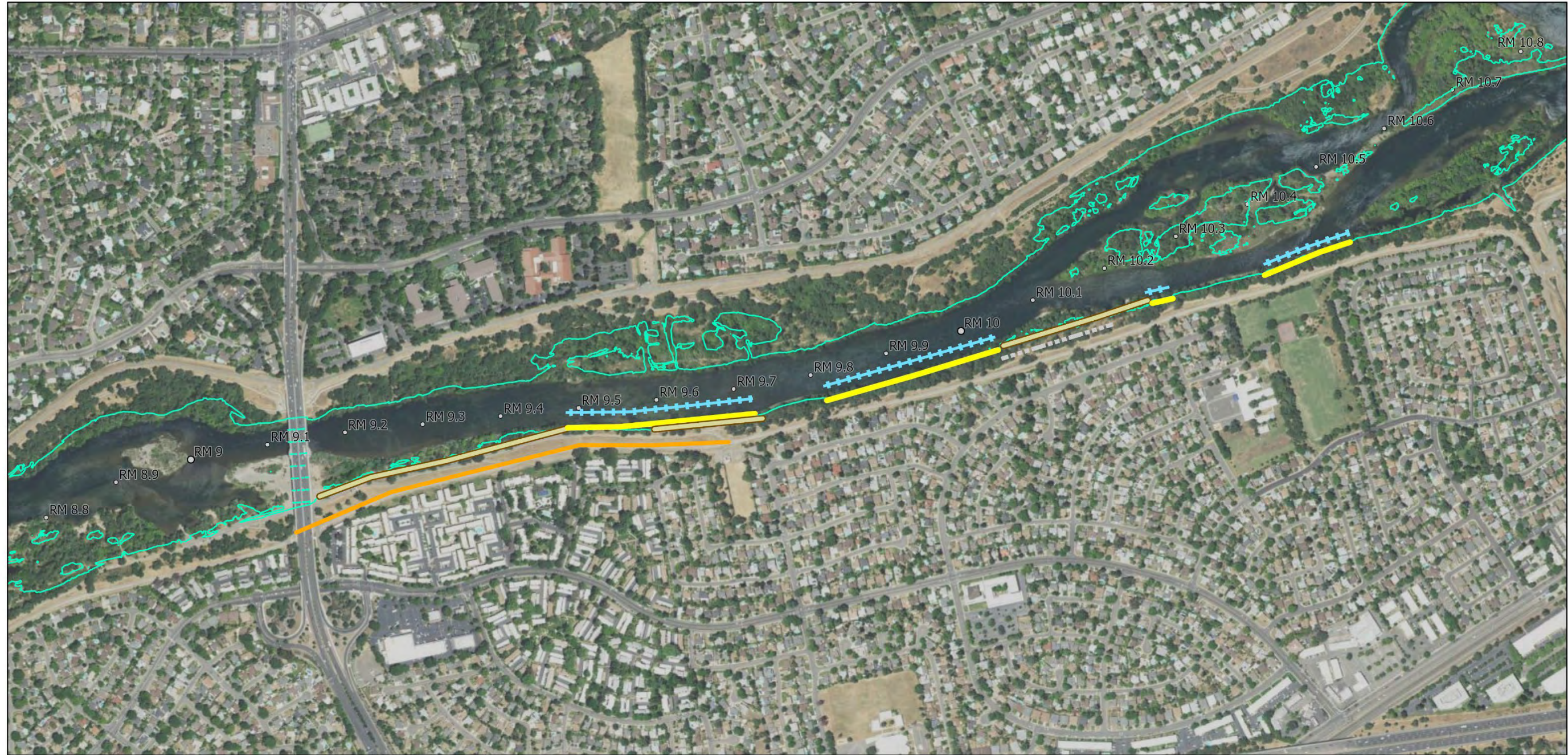
- OHWM
- RM tenths
- Outfall
- Staging
- Construction Buffer
- Construction Access

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0 0.15 0.3 Miles

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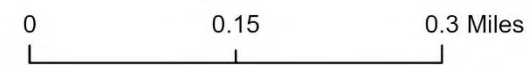
Figure 3.5.2-8. American River Erosion Contract 3B North Site 4-2 Footprint



American River Erosion Contract 3B South Site 4-1 Erosion Protection Method

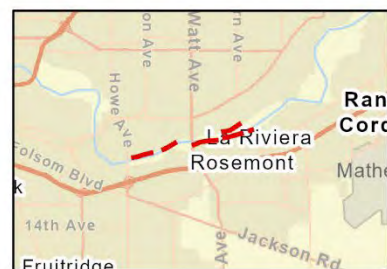
- Bank Protection (Levee Embankment)
- Bank Protection (Riverbank)
- Launchable Toe
- Launchable Trench
- - - Tie Backs
- OHWM
- RM
- RM tenths

Updated 7/11/2023

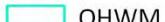
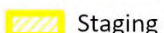
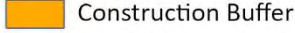
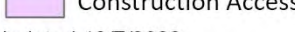




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Sacramento District

Figure 3.5.2-9. American River Erosion Contract 3B South Site 4-1 Details



American River Erosion Contract 3B South Site 4-1 Project Footprint

	OHWM
	Staging
	Construction Buffer
	Construction Access
	RM tenths
	Outfall

Updated 12/7/2023

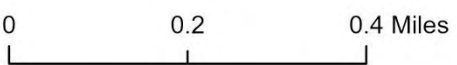






Figure 3.5.2-10. American River Erosion Contract 3B South Site 4-1 Footprint

American River Erosion Contract 3B North

Site 3-1

Site 3-1 flood risk reduction work would be conducted on the right bank of the American River between RM 7.8 to RM 8.8 (Figure 3.5.2-6). The erosion protection method used at Site 3-1 is a combination of bank protection (both on the levee and riverbank) and launchable rock toe protection with planting bench (Figure 3.5.2-5). Bank protection consists of a layer of soil-filled revetment. For Site 3-1, bank protection includes both soil-filled levee embankment and riverbank revetment. At Site 3-1, bank protection would be located both on the levee slope in some areas within the project site and just upslope of the launchable toe and planting bench (Figure 3.5.2-5). Some excavation may be required for the bank protection and launchable rock toe with planting bench to get to design grade.

The layout of launchable rock toe at Site 3-1 generally includes a peaked stone pile within the river that is supporting a planting bench between the stone pile and the existing bank (Figure 3.5.2-13). The launchable rock would be covered with a layer of choke stone fill (smaller rock that would fill in the gaps between the larger pieces of revetment) to both minimize potential for predatory fish to hide in rock voids, and to reduce the artificial appearance of the launchable rock. The launchable rock toe is designed to “launch” into areas where erosion of the channel bottom occurs and progresses during a flood event below the toe of the rock. This launched layer of riprap is designed so that it would cover the eroded surface of the new channel bottom and inhibit further progression of the eroded slope. Once fully launched, a layer of riprap (with a minimum thickness between 25 and 32 inches) would extend from the channel toe to the maximum depth of scour predicted in the river channel. Planting bench tiebacks would be placed periodically throughout the planting benches to limit the extent of erosion and subsequent damage to a planting bench during a flood event. Along the lower bench, instream woody material (IWM) structures consisting of whole trees with intact root wads would be installed to increase the roughness of the bench and to provide fine-textured woody material along the river margin for juvenile salmonid rearing habitat.

Launchable toe is typically designed with bank protection further up the riverbank slope. The design of the erosion protection features, specifically the planting benches and soil-filled revetment, allows for the site to be revegetated and used for onsite mitigation for riparian habitat and salmonid habitat. Onsite mitigation has been designed in accordance with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) Biological Opinions (BO). Elderberry shrubs would be transplanted to an offsite mitigation site in compliance with the USFWS BO. Transplanted elderberries are likely to be moved to the Rossmoor West mitigation site discussed in the American River Erosion Contract 2 Supplemental EIS/EIR (USACE, 2021). There would be no woody vegetation or trees planted in the vegetation free zone (VFZ), which, on the water side of the levee, extends approximately 15 feet from the levee toe. The VFZ would be reseeded with native grasses.

Trees would need to be removed to build the erosion protection features and facilitate levee improvements. Generally, trees would be removed prior to migratory bird nesting season (generally February 15 to August 31, depending on the species and environmental conditions for any given year) to avoid impacts under the Migratory Bird Treaty Act; however, trees may need

to be removed during nesting season if there is a large snowpack season with high water surface elevations through spring and early summer that make the trees inaccessible through June.

Ramps would be built to access some of the site to construct the erosion protection. A riprap apron and outfall ditch have been designed around the Sump 109 outfall and Kadema Pump Station outfall (Figure 3.5.2-6).

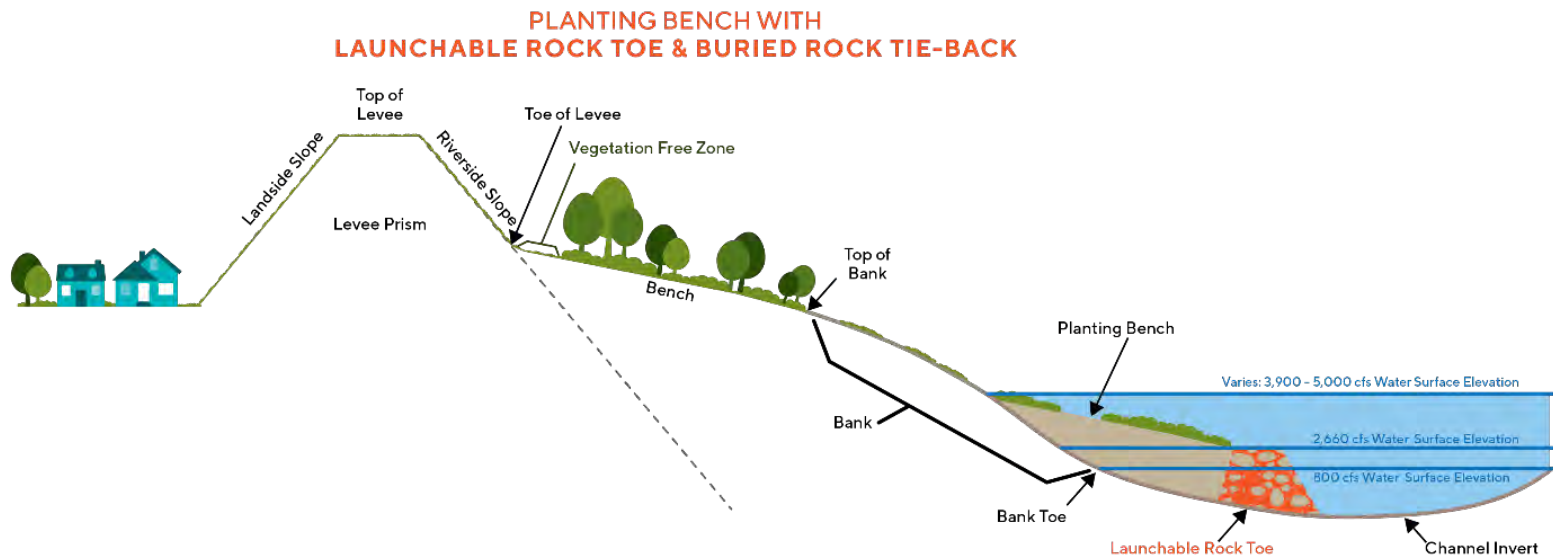


Figure 3.5.2-13. Planting Bench with Launchable Rock Toe and Buried Rock Tie-Back

Site 4-2

Site 4-2 levee work would be conducted on the right bank of the American River between RM 9.7 to RM 10.3 (Figure 3.5.2-8). Similar to the erosion protection methods analyzed in the 2016 ARCF 2016 GRR FEIS/FEIR, 3,750 linear feet of bank protection and launchable trench (Figure 3.5.2-2, Figure 3.5.2-7) would be used as the erosion protection method at Site 4-2. Bank protection would be located on the levee slope. The launchable trench would be buried to provide soil above the revetment to allow vegetation to reestablish. In addition, as described for Site 3-1, the bank protection would consist of soil filled revetment.

The design of the erosion protection features, specifically burying the launchable trench and using soil filled revetment, allows for the site to be revegetated and used for onsite mitigation for riparian habitat. The description of onsite mitigation, excavation, ramps, tree removal, and use of excavated materials described under Site 3-1 apply to Site 4-2 as well. Materials excavated from other ARCF 2016 Project components may be used if the materials meet engineering criteria.

American River Erosion Contract 3B South

Site 4-1

Site 4-1 levee work would be conducted on the left bank of the Lower American River between RM 9.1 to RM 10.5 (Figure 3.5.2-10). As with Sites 3-1 and 4-2, bank protection would be constructed on the levee and riverbank and consist of soil-filled revetment. As with Site 4-2, launchable trenches would be buried to allow site revegetation.

The description of launchable rock toe under Site 3-1 applies to Site 4-1 as well. There would also be tie backs higher up on the bench outside the launchable trench as a form of erosion protection. These tie backs are built up of revetment placed in a triangular shape. The top of the tiebacks are approximately 21 feet across, and the tip of the triangular shape is 7 feet below existing grade of the levee overbank. They are built so that during high flows, erosion would be minimized in between different types of erosion protection treatment. In addition, there are locations at Site 4-1 where there is a launchable toe at the riverbank toe (referred to as bank toe in Figure 3.5.2-9), unlike the typical launchable toe at American River Erosion Contract 3B where the launchable toe is at the edge of the planting bench (as shown on Figure 3.5.2-13). This erosion protection feature is covered in soil to allow vegetation to grow on top of it.

The design of the erosion protection features, specifically the planting benches, soil-filled revetment, and buried launchable trench allows for the site to be revegetated and used for onsite mitigation for riparian habitat and salmonid habitat. The description of onsite mitigation, excavation, ramps, tree removal, and use of excavated materials described under Site 3-1 apply to Site 4-1 as well. Erosion protection has been designed around the Manlove Pump Station outfall.

American River Erosion Contract 4B

The need for velocity and tree scour work became clear during the risk-informed design process of American River Erosion Contract 3B North and South. As designs were already far along, it was too late to add the additional work to the American River Erosion Contract 3B North and South. Adding this work to the American River Erosion Contract 3B North and South work

would risk delaying American River Erosion Contract 3B North and South, so American River Erosion Contract 4B was created. The flood risk reduction features for the velocity and tree scour work associated with American River Erosion Contract 4B could impact trees in the area. Specifically, a mixture of valley oak (*Quercus lobata*) and non-native invasive black locust black locust (*Robinia pseudoacacia*) are within the anticipated construction boundaries. Many of the oaks are heritage oaks and are important to the local community. Currently, there are only conceptual designs in place for this work. Three different activities would be undertaken within the proposed footprint (Figure 3.5.2-11 and Figure 3.5.2-12):

- Trees would be removed to prevent tree scour. The location of each native tree species will be assessed to see if the methods listed below could be used as erosion protection in place of tree removal. It is anticipated that only nonnative trees or trees that cannot be saved using the methods below would be removed.
 - About 2 feet of soil-filled revetment would be installed. This also may require about 5 feet of excavation below the surface of the ground for scour protection at the levee toe embankment. Some trees may not survive the excavation and may need to be removed. All this work is proposed to prevent erosion from velocities at 160,000 cfs and 192,000 cfs. Design deviations would be acquired for any trees saved because the trees are within the vegetation free zone of the levee.
 - Smaller rocks would be placed above the ground around the trees to armor the trees from scour. Design deviations would be acquired for any trees saved.

3.5.2.1.2 Temporary Bike Trail Reroute

American River Erosion Contract 3B North

Erosion protection work would impact the Jedediah Smith Memorial Trail for both Site 3-1 and Site 4-2. It is anticipated that safe detour options can be provided either within the project footprint or outside the project footprint without requiring additional major work. In addition, there is an equestrian trail that would be impacted by work in the area.

American River Erosion Contract 3B South

There is not a paved bike trail within Site 4-1. The top of the levee is used by recreationalists. Signs with top of levee trail closure locations will be posted prior to work starting. If needed, detours would be coordinated with the Sacramento County Department of Parks and Recreation to ensure they are safe and minimize potentially significant recreational impacts for both 3B North and South.

3.5.2.1.3 Construction Schedule, Materials, and Equipment

Construction materials are shown in Table 3.5.2-2 through Table 3.5.2-11, below. Excavated soil would be hauled off-site to either an existing stockpile location or to a landfill within 30 miles of the project site. The stockpile would be located on a portion of the project site that is disturbed or was previously cleared and/or used for stockpiling. All stockpile locations would be completely void of sensitive resources on or adjacent to the site(s). Some excavated soil from other ARCF 2016 Project may be used for project construction pursuant to Clean Water Act Section 401

permit conditions and approval by the Central Valley Regional Water Quality Control Board. Sources of riprap would come from quarries located up to 100 miles away. Soil for planting benches would come from off-site commercial sources within 100 miles of the project site. Finally, IWM would come from sources within a 100-mile distance from the Sites. Table 3.5.2-3, Table 3.5.2-5, Table 3.5.2-7, Table 3.5.2-9, and Table 3.5.2-11 also list the number of truck loads and durations of hauling in the construction materials. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used, and all haul trucks would have 2010 or newer engines.

Workers would access the site by regional and local roadways. Construction hours would conform with the exempt hours for construction under the city of Sacramento and county of Sacramento noise ordinances and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m. within the city limits, and Monday through Friday from 6:00 a.m. to 8:00 p.m. and Saturday from 7:00 a.m. to 8:00 p.m. in the unincorporated areas of the county.

To the greatest extent possible, existing trees will be protected in place, some of which may need to be trimmed, but some trees will be removed from the construction footprint. Site preparation may also include removing submerged instream woody debris and fallen trees within the construction footprint, although this activity will happen during the in-water work window from July 1 through October 31. Tree removal and site preparation will occur from the top of the levee via landside access. Measures approved by NMFS, the U.S. Fish and Wildlife Service (USFWS), and the Central Valley Regional Water Quality Control Board (CVRWQCB) to minimize turbidity from construction will be installed prior to any in-water work conducted on the waterside of the levee.

It is anticipated that work for both American River Erosion Contract 3B North and 3B South would start in 2024 with tree clearing and general site prep. Construction of the erosion protection for both American River Erosion Contract 3B North and 3B South is anticipated to take 2 years to complete and is anticipated to begin in 2025 and finish in 2026. The site where construction occurred during the previous year would be revegetated in 2026 and in 2027, and associated maintenance (such as installing an irrigation system, weeding, browse control, clean-up maintenance, and replanting dead plants) and monitoring would be done for an additional 3 years.

It is unknown at this time when American River Erosion Contract 4B work would occur, but for air and traffic analysis purposes it is assumed work would occur in 2026 in concurrent with the second year of American River Erosion Contract 3B North and South work.

American River Erosion Contract 3B North, American River Erosion Contract 3B South, and American River Erosion Contract 4B would use commercial borrow sites within 100 miles of the project sites. American River Erosion Contract 4B is in early designs; consequentially, timing of this work is unknown.

Table 3.5.2-2. American River Erosion Contract 3B North Site 3-1 Quantity Summary

Material	QTY	Unit
Stump Removal	2,153	cubic yards
Excavation to Dispose	78,241	cubic yards
Riprap	124,830	cubic yards
Bedding Material	45,848	cubic yards
Soil Filled Riprap	66,309	cubic yards
Aggregate Base Course	2,349	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	61,530	cubic yards
Cobble	0	cubic yards
Asphalt Pavement	1,170	cubic yards
IWM (load size = 18 each)	566	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	2,830	EACH

Source: USACE 2023

Table 3.5.2-3. American River Erosion Contract 3B North Site 3-1 Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Stump Removal	108	19	6	1	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	7824	24	13	26	Tandem 10 cubic yards, ISX Diesel 365hp
Riprap	6241	36	3	58	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	2292	36	3	22	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	3315	36	3	31	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	235	8	22	2	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	6153	14	13	34	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	117	6	16	2	Tandem 10 cubic yards, ISX Diesel 365hp
IWM (load size = 18 each)	31	3	1	11	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	6	3	1	2	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

Table 3.5.2-4. American River Erosion Contract 3B North Site 4-2 Quantity Summary

Material	QTY	Unit
Stump Removal	333	cubic yards
Excavation to Dispose	7,790	cubic yards
Riprap	5,227	cubic yards
Bedding Material	0	cubic yards
Soil Filled Riprap	3,745	cubic yards
Aggregate Base Course	4,044	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	5,690	cubic yards
Cobble	0	cubic yards
Asphalt Pavement	270	cubic yards
IWM	0	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	0	EACH

Source: USACE 2023

Table 3.5.2-5. American River Erosion Contract 3B North Site 4-2 Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Stump Removal	16.6296	19	6	1	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	779	24	13	3	Tandem 10 cubic yards, ISX Diesel 365hp
Riprap	261	36	3	3	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	187	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	404	8	22	3	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	569	14	13	4	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	0	36	3	0	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	27	6	16	1	Tandem 10 cubic yards, ISX Diesel 365hp
IWM	0	3	1	0	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	0	3	1	0	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

Table 3.5.2-6. American River Erosion Contract 3B South Site 4-1 Quantity Summary

Material	QTY	Unit
Stump Removal	10,809	cubic yards
Excavation to Dispose	106,374	cubic yards
Riprap	50,790	cubic yards
Bedding Material	13,836	cubic yards
Soil Filled Riprap	75,704	cubic yards
Aggregate Base Course	10,140	cubic yards
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	90,042	cubic yards
Cobble	2,831	cubic yards
Asphalt Pavement	1,775	cubic yards
IWM	145	EACH
Live Willow Cuttings (collect pole cuttings within 50 miles)	3,400	EACH

Source: USACE 2023

Table 3.5.2-7. American River Erosion Contract 3B South Site 4-1 Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Stump Removal	540.462	19	6	5	Super Dump 20 cubic yards, ISX Diesel 485hp
Excavation to Dispose	10637	24	13	35	Tandem 10cy, ISX Diesel 365hp
Riprap	2539	36	3	24	Super Dump 20 cubic yards, ISX Diesel 485hp
Bedding Material	692	36	3	7	Super Dump 20 cubic yards, ISX Diesel 485hp
Soil Filled Riprap	3785	36	3	36	Super Dump 20 cubic yards, ISX Diesel 485hp
Aggregate Base Course	1014	8	22	6	Tandem 10 cubic yards, ISX Diesel 365hp
Material Fill (Planting Bench, Slope Protection, Engineered Fill)	9004	14	13	50	Tandem 10 cubic yards, ISX Diesel 365hp
Cobble	142	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp
Asphalt Pavement	177	6	16	2	Tandem 10 cubic yards, ISX Diesel 365hp
IWM	8	3	1	3	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	7	3	1	3	Truck and Trailer (flatbed) Diesel 265hp

Source: USACE 2023

Table 3.5.2-8. American River Erosion Contract 4B RM 8.6 Quantity Summary

Material	QTY	Unit
Soil Filled Riprap	2,696	cubic yards
Cobble, Gravel, or Other Smaller Rock	219	cubic yards

Source: USACE 2023

Table 3.5.2-9. American River Erosion Contract 4B RM 8.6 Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Soil Filled Riprap	159	36	3	2	Super Dump 20 cubic yards, ISX Diesel 485hp

Source: USACE 2023

Table 3.5.2-10. American River Erosion Contract 4B RM 9.8 Quantity Summary

Material	QTY	Unit
Soil Filled Riprap	5,730	cubic yards
Cobble, Gravel, or Other Smaller Rock	81	cubic yards

Table 3.5.2-11. American River Erosion Contract 4B RM 9.8 Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Soil Filled Riprap	318	36	3	3	Super Dump 20 cubic yards, ISX Diesel 485hp

Source: USACE 2023

3.5.2.1.4 Haul Routes and Staging Areas

Haul Routes

American River Erosion Contract 3B North

Site 3-1

Construction materials, including riprap, bedding, gravel, soil, and IWM, would be hauled to the project site from either I-80 or from U.S. Highway 50 (U.S. 50) using local roads including Howe Avenue, Watt Avenue, Fair Oaks Boulevard, University Avenue, Moffatt Way, Clunie Drive, Kadema Drive, Hurley Way, Ethan Way, Exposition Boulevard, Arden Way, and American River Drive (Figure 3.5.2-4). Haul trucks could need to use the top of levee, dirt maintenance road at the levee toe or the paved bike trail. The final routes would be developed in consultation with the city of Sacramento and Sacramento County. The main access points to the levee would include University Park, Kadema Drive, and the Wilhaggin Drainage Pump Station (Figure 3.5.2-4, Figure 3.5.2-6). Excavation and regrading beneath and near the Watt Avenue Bridge would be required to provide adequate clearance for construction traffic. Safety measures such as clearance bars, speed limits signs, and/or flaggers would be implemented near the Watt Avenue Bridge to ensure the construction traffic does not impact existing infrastructure. Some

work such as tree trimming, minor grading, paving, and adding aggregate may be done along the haul routes to allow access to the site. Some ramps would be left for permanent access for use by the American River Flood Control District as they perform O&M activities.

Site 4-2

Everything listed under Site 3-1 is the same for Site 4-2 except for the local roads used for haul routes and access points. Haul routes for construction materials would use local roads such as Howe Avenue, Watt Avenue, Fair Oaks Boulevard, Estates Drive, Harrington Way, Jacob Lane, and American River Drive (Figure 3.5.2-4). The main access points to the levee would include the Wilhaggin Drainage Pump Station, Estates Drive, and Jacob Lane (Figure 3.5.2-4, Figure 3.5.2-8).

American River Erosion Contract 3B South

Site 4-1

Everything listed under Site 3-1 is the same for Site 4-1 except for the local roads used for haul routes and access points. Haul routes for construction materials would use local roads such as Howe Avenue, Watt Avenue, La Riviera Drive, Rogue River Drive, and Folsom Boulevard (Figure 3.5.2-4). The main access points to the levee would include the Glenbrook River Access Site, the Watt Avenue Boat Launch Area, Larchmont Community Park, and the Mayhew Drain (Figure 3.5.2-4, Figure 3.5.2-10).

American River Erosion Contract 4B

Haul routes described for American River Erosion Contract 3B South Site 4-1 and American River Erosion Contract 3B North Site 3-1 are anticipated to be used to access the sites. Ramps may need to be built to access the American River Erosion Contract 4B sites; either existing ramps would be reused or new ramps would be located within the construction footprints identified in Figure 3.5.2-11 and Figure 3.5.2-12. No tree removal would be required for construction of new ramps.

Staging Areas

Staging areas are identified below based on the nearest erosion improvement sites, but any of the staging areas may be used for different sites, different contracts, future ARCF 2016 Project contracts, or mitigation projects. Once work is complete, staging areas would be returned to their initial conditions. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas.

American River Erosion Contract 3B North

Site 3-1

Staging for Site 3-1 would occur at University Park, within the American River Parkway just south of the University Park, and Oak Meadow Park (Figure 3.5.2.6). The staging area at Oak Meadow Park would also be used for stockpiling if necessary. Haul route access would go through University Park to the parking lot just north of University Park. Up to seven trees would likely need to be removed for access. In addition, trucks would access the work areas through

Oak Meadow Park from the Kadema River Access location to American River Drive. This access point would reduce the number of trips through the neighborhood. Both University Park and Oak Meadow Park would be closed during construction. Finally, Wilhaggin Drainage Pump Station could be used for Site 3-1 staging.

Site 4-2

Staging for Site 4-2 would occur at the detention basin near the Wilhaggin Drainage Pump Station, on a small parcel just upstream of the Wilhaggin Drainage Pump Station, and within the American River Parkway just upstream of the Rio Americano High School (Figure 3.5.2.8). These staging areas may be used for stockpiling.

American River Erosion Contract 3B South

Site 4-1

Staging for Site 4-1 would occur at the parking lot for the Waterton Way River Access Area, the detention basin near the Manlove Pump Station, Larchmont Community Park, Glenbrook Park River Access, and on a privately owned parcel near Pepper Oaks (Figure 3.5.2.10). These staging areas may also be used for stockpiling. The Waterton Way River Access staging area would only be accessed from the levee and not from the neighborhoods. Larchmont Park would be accessed from the levee or Rouge River Drive. Glenbrook Park River Access would be accessed from La Riviera Drive and the levee. Only the soccer fields in the northern part of Larchmont Park and the strip of land used for access to La Riviera Drive would be closed during construction. To allow haul traffic to get travel through the park, approximately five trees may need to be removed. Project Partners would work with Cordova Recreation and Park District to coordinate tree removal. The Waterton Way River Access parking area is currently closed and would remain closed during construction. Glenbrook Park River Access would also be closed during construction.

American River Erosion Contract 4B

Staging areas described for American River Contract 3B South Site 4-1 are anticipated to be used for American River Erosion Contract 4B.

3.5.2.1.5 Operations and Maintenance

Once construction is complete, performance standards met, and habitat successfully established, the non-Federal sponsors (CVFPB, DWR, and SAFCA) and local maintaining agency (LMA) would be responsible for the O&M of the project sites. All land used for staging areas would return to original ownership. The responsibility for O&M of the levee and revetment features would be the responsibility of the LMA, the American River Flood Control District (ARFCD). The on- and off-site mitigation features would specifically fall to SAFCA for long-term O&M. Routine O&M activities by the NFS or LMA would consist of inspections, mowing or herbicide, burrowing rodent control, slope repair, patrol road reconditioning, and ground water level monitoring. The levee maintenance roads would be used, as they are 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 new land uses into the area. Debris removal and vegetation trimming may be needed at on-site mitigation sites to ensure mature vegetation does not result in an increase in stage level and overtopping in the area. In addition, vegetation on the permanent O&M ramps would be trimmed so that the sites can remain accessible.

3.5.2.2 **Proposed Action and Design Refinements for the American River Erosion Contract 3B North, 3B South, and 4B**

Table 3.5.2-12 identifies which components of the Proposed Action for the American River Erosion Contract 3B is already authorized by the ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.2-12. No Action Alternative and Design Refinement Comparison for American River Erosion Contract 3B North, 3B South and 4B Improvements

Improvements	Site 3-1	Site 4-2	Site 4-1	Contract 4B
Erosion Protection Location	No Action	Design Refinements	No Action	No Action
Erosion Protection Method	Bank Protection: No Action Launchable Rock Toe: Design Refinements	No-Action	Bank Protection and Launchable Trench: No Action Launchable Rock Toe and Tie Backs: Design Refinements	Design Refinements
Staging Areas	University Park: No Action Parkway and Oak Meadow Park: Design Refinements	Design Refinements	Design Refinements	Design Refinements
Haul Routes	Design Refinements	Design Refinements	Design Refinements	Design Refinements
Vegetation Removal	No Action	No Action	No Action	No Action
Onsite Mitigation	No Action	No Action	No Action	N/A
Offsite Mitigation Sites on the American River	VELB: No Action Riparian: Discussed in section 3.5.5	VELB: No Action Riparian: Discussed in section 3.5.5	VELB: No Action Riparian: Discussed in section 3.5.5	VELB: No Action Riparian: Discussed in section 3.5.5

Source: USACE 2022, Adapted by GEI

3.5.3 **American River Erosion Contract 4A**

3.5.3.1 **Features of the Proposed Action and Construction Details**

American River Erosion Contract 4A includes construction of an armored berm approximately 100 feet wide on the water side of the levee near RM 2.0. This feature would be constructed on the right bank of the American River immediately upstream of Jedediah Smith Memorial Trail's undercrossing of the California State Route 160 bridge. This berm would disrupt the bike trail, so

American River Erosion Contract 4A also includes a permanent bike trail reroute through the American River Parkway.

3.5.3.1.1 Erosion Protection

American River Contract 4A levee work would be conducted on the right bank of the Lower American River near RM 2.0 and upstream of the State Route 160 bridges (Figure 3.5.3-1). To reduce the risk that high-velocity flood waters could scour the levee around the SR160 bridge piers and destabilize the levee, a berm is proposed upstream of the bridge to deflect high-velocity flood waters away from the levee slope. Due to the physical constraints at this location, the berm footprint would impact a portion of an existing wetland and would extend up the levee. The berm would also block the current alignment of the Jedediah Smith Memorial Trail. The berm would be armored to prevent erosion (Figure 3.5.3-5). In addition to constructing the berm, American River Contract 4A includes ramps along haul routes to access the berm area, which would require vegetation removal. There is a 12-inch City of Sacramento water line crossing beneath the proposed berm. Active pressure flow pipes are not typically permitted under levees. The water line may need to be re-routed around the berm. This approximate 200-foot relocation would need to occur in stages before and after construction of the bike lane reroute and before berm construction. If the relocated pipe material contains asbestos, hazardous material mitigation would be required during construction.

This berm may cause a small increase in velocities near the UPRR and SR-160 bridges. If coordination with UPRR or Caltrans determines that additional scour resistance measures are required to protect the bridge piers, additional rock revetment may be placed around the bridge bents or columns. Placement of scour rock around the Caltrans bridge piers for bridge and levee protection would require a Caltrans Encroachment Permit for construction. Rock revetment material that may be required for these scour resistance measures is included in the total in Table 3.5.3-1 through Table 3.5.3-6.

3.5.3.1.2 Bike Trail Reroute

The proposed berm would block the current path of the Jedediah Smith Memorial Trail. To allow continued use of the Jedediah Smith Memorial Trail in this area, a new permanent paved bike trail route would be built on the south side of the wetland, following an existing equestrian, hiking, and off-road bike trail (Figure 3.5.3-1, and Figure 3.5.3-4 in the Map listed as Proposed Action bike trail). New signage and gates would be added to direct bike traffic the correct direction. Constructing this route would require tree and vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts or precast arches may need to be added. During construction, additional temporary bike detours within the construction footprint or along city streets may be required (Figure 3.5.3-2). Real estate acquisition would be required from the UPRR. These detours may require temporary closure of Del Paso Boulevard between Northgate Boulevard and SR 160 exit onto Del Paso Boulevard. Additionally in order to make detours safe for street bike use the routes would need to be regraded, routes would need to be paved, signs and traffic signals would need to be placed, and fencing or barriers would need to be installed. Once complete, the existing bike trail path on the levee toe (the portion being rerouted) may be decommissioned and turned into a gravel road. In addition, if only a short time frame of closure is needed, a bike transit may be used to transport bikes and bike trail users around the closed area.

3.5.3.1.3 Construction Schedule, Materials, and Equipment

Materials sources and details would be like those described in Section 3.5.2.1.3, “Construction, Schedule, Materials, and Equipment” for American River Erosion Contract 3B North and South. If construction occurs when the wetland is inundated or during periods of high groundwater, dewatering will occur, potentially including the use of cofferdams or water bladder dams. Since the American River Erosion Contract 4A work is not near residences, night work could be an option if the night work would reduce recreational impacts on the Jedediah Smith Memorial Trail. Since the new berm will not allow direct access to an existing water line, the portion of the water line under the new berm will be removed and relocated around the southern part of the berm and reconnected with its original alignment. If any other utility line is found during construction, it could be relocated as well.

Work, both tree clearing and construction, is anticipated to start for American River Erosion Contract 4A in 2026 and end in 2027. If the site needs to be revegetated, the following year the site would be revegetated and associated maintenance (such as installing an irrigation system, weeding, browse control, clean-up maintenance, and replanting dead plants) and monitoring would continue for three years.

Once work is completed staging areas and access areas would be returned to preexisting conditions. The project site would be reseeded with native grasses.

Table 3.5.3-1. American River Contract 4A Proposed Action Berm Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	433	CY
Remove Asphalt	75	CY
Quarry Stone Type C	5,980	CY
Choke Stone	260	CY
Geotextile Fabric	9,230	SF
Aggregate Base Course	390	CY
Imported Fill	7,280	CY
Seeding & Mulching	67,600	SF
Relocate 12" Water line (Disposal)	800	CY
Relocate 12" Water line (Imported Fill)	800	CY
Structure Excavation (Bridge)	4,817	CY

Notes: Cubic Yards (CY), Square Feet (SF)

Source: USACE

Table 3.5.3-2. American River Contract 4A Proposed Action Berm Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	44	8	8	1	Tandem 10cy, ISX Diesel 365hp
Remove Asphalt		1		1	322B Excavator
Remove Asphalt	7	2	8	1	Tandem 10cy, ISX Diesel 365hp
Quarry Stone Type C		1		4	CS-323C Compactor
Quarry Stone Type C		1		4	D4 Bulldozer
Quarry Stone Type C		1		4	322B Excavator
Quarry Stone Type C	598	24	3	9	Tandem 10cy, ISX Diesel 365hp
Choke Stone		1		1	CS-323C Compactor
Choke Stone		1		1	D4 Bulldozer
Choke Stone		1		1	322B Excavator
Choke Stone	26	4	8	1	Tandem 10cy, ISX Diesel 365hp
Aggregate Base Course		1		2	CS-323C Compactor
Aggregate Base Course		1		2	D4 Bulldozer
Aggregate Base Course		1		2	322B Excavator
Aggregate Base Course	39	4	8	2	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Imported Fill		1		8	D4 Bulldozer
Imported Fill	728	12	8	8	Tandem 10cy, ISX Diesel 365hp
Geotextile Fabric		1		1	Truck and Trailer (flatbed) Diesel 265hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	8	1	2	Tractor Trailer (flatbed) Diesel 430hp
Relocate 12" Water line (Disposal)		2		2	322B Excavator
Relocate 12" Water line (Disposal)	80	8	8	2	Tandem 10cy, ISX Diesel 365hp
Relocate 12" Water line (Imported Fill)		1		3	CS-323C Compactor
Relocate 12" Water line (Imported Fill)		1		3	322B Excavator
Relocate 12" Water line (Imported Fill)	80	4	8	3	Tandem 10cy, ISX Diesel 365hp
Structure Excavation (Bridge)		1		6	322B Excavator
Structure Excavation (Bridge)	482	12	8	6	Tandem 10cy, ISX Diesel 365hp

Source: USACE

Table 3.5.3-3. American River Contract 4A Proposed Action Bike Re-route Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	3,794	CY
Aggregate Base Course	5,091	CY
Imported Fill	6,845	CY
Hot Mix Asphalt (Type A)	1,149	CY
Seeding & Mulching	307,343	SF
6" Two-component Paint Traffic Stripe	10,244	LF

Notes: Cubic Yards (CY), Square Feet (SF), Linear Feet (LF)
Source: USACE

Table 3.5.3-4. American River Contract 4A Proposed Action Bike Re-route Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		2	D4 Bulldozer
Clearing & Grubbing		1		2	902 Front End Loader
Clearing & Grubbing	190	12	8	2	Tandem 10cy, ISX Diesel 365hp
Aggregate Base Course		1		3	CS-323C Compactor
Aggregate Base Course		1		3	140H Grader 185 HP
Aggregate Base Course		1		3	D4 Bulldozer
Aggregate Base Course	509	24	8	3	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	115	16	8	1	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		4	D4 Bulldozer
Imported Fill		1		4	CS-323C Compactor
Imported Fill	684	24	8	4	Tandem 10cy, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265hp
6" Two-component Paint Traffic Stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

Source: USACE

**Table 3.5.3-5. American River Contract 4A Proposed Action Temporary Bike Detour
General Quantity Summary**

Material	Quantity	Unit
Aggregate Base Course	2,467	CY
Hot Mix Asphalt (Type A)	1,118	CY
Temporary Railing, Type K	2,366	LF
Temporary Traffic Stripe (Paint)	12,168	CY
Remove Painted Traffic Stripe	1,690	CY
Temporary Portable Traffic Signal	5	EA

Notes: Cubic Yards (CY), Linear Feet (LF), Each (EA)
Source: USACE

**Table 3.5.3-6. American River Contract 4A Proposed Action Temporary Bike Detour
General Quantity Summary Breakdown**

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Aggregate Base Course		1		2	CS-323C Compactor
Aggregate Base Course		1		2	140H Grader 185 HP
Aggregate Base Course		1		2	D4 Bulldozer
Aggregate Base Course	247	24	8	2	Tandem 10cy, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	112	16	8	1	Tandem 10cy, ISX Diesel 365hp
Temporary Railing, Type K		1		1	Truck Mounted Crane
Temporary Railing, Type K (install)	20	4	5	1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Railing, Type K (install)	20	4	5	1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Traffic Stripe (Paint)		1		1	Tractor Trailer (flatbed) Diesel 430hp
Remove Painted Traffic Stripe		1		1	Tractor Trailer (flatbed) Diesel 430hp
Temporary Portable Traffic Signal		1		1	Tractor Trailer (flatbed) Diesel 430hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

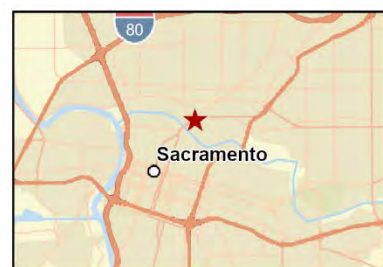
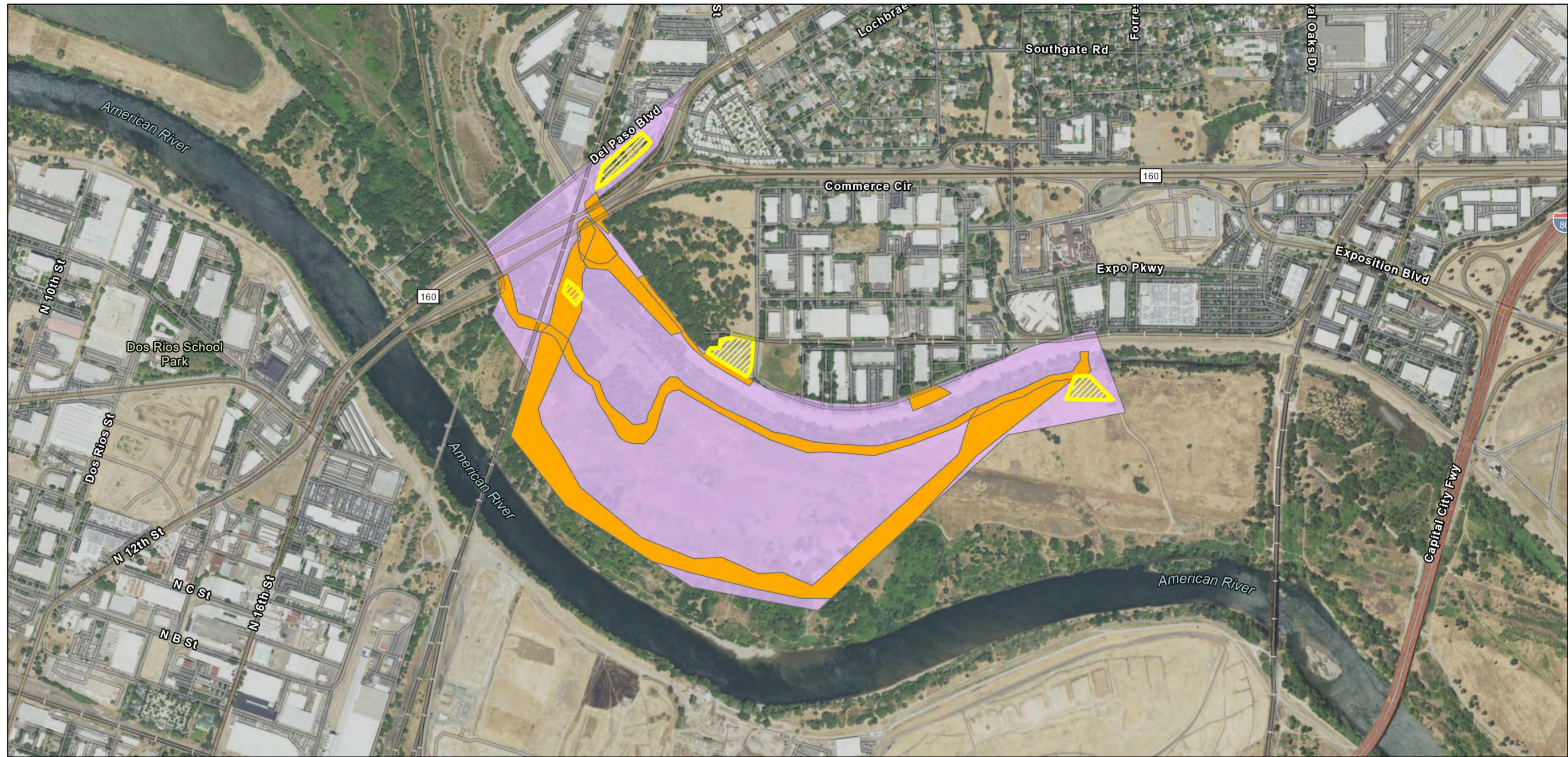
Source: USACE

3.5.3.1.4 Haul Routes and Staging Areas

Potential haul routes for riprap, gravel, and soil would be from State Route 160, Business 80, or I-5 along local roads including Del Paso Boulevard, Arden Way, Richards Boulevard, Expo Parkway, Leisure Lane, Commerce Circle, and Lathrop Way (Figure 3.5.3-3). The main access points to the levee would include Del Paso Boulevard, Lathrop Way and Expo Parkway (Figure 3.5.3-1 and Figure 3.5.3-3). Haul truck would use both the top of levee and the bike trail at the

levee toe. The final route would be finalized with the City of Sacramento and Sacramento County in the Transportation Plan. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul routes to allow access to the site.

Potential staging for American River Contract 4A would occur at Alpha Brother's Towing (796 Del Paso Boulevard), a vacant parcel on Lathrop Way, and within the American River Parkway near Costco and adjacent to the railroad (Figure 3.5.3-1). Activities likely to occur at the staging sites would likely include access, equipment storage, material storage, construction office, water storage, and wood chipping.

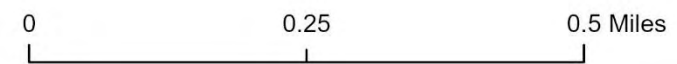


American River Erosion Contract 4A Project Footprint

Project Impact

- Construction Access
- Construction Buffer
- Staging

Updated 12/7/2023



US Army Corps of Engineers
Sacramento District

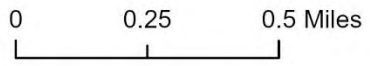
Figure 3.5.3-1. American River Contract 4A Project Footprint



American River Erosion Contract 4A Temporary Bike Detours

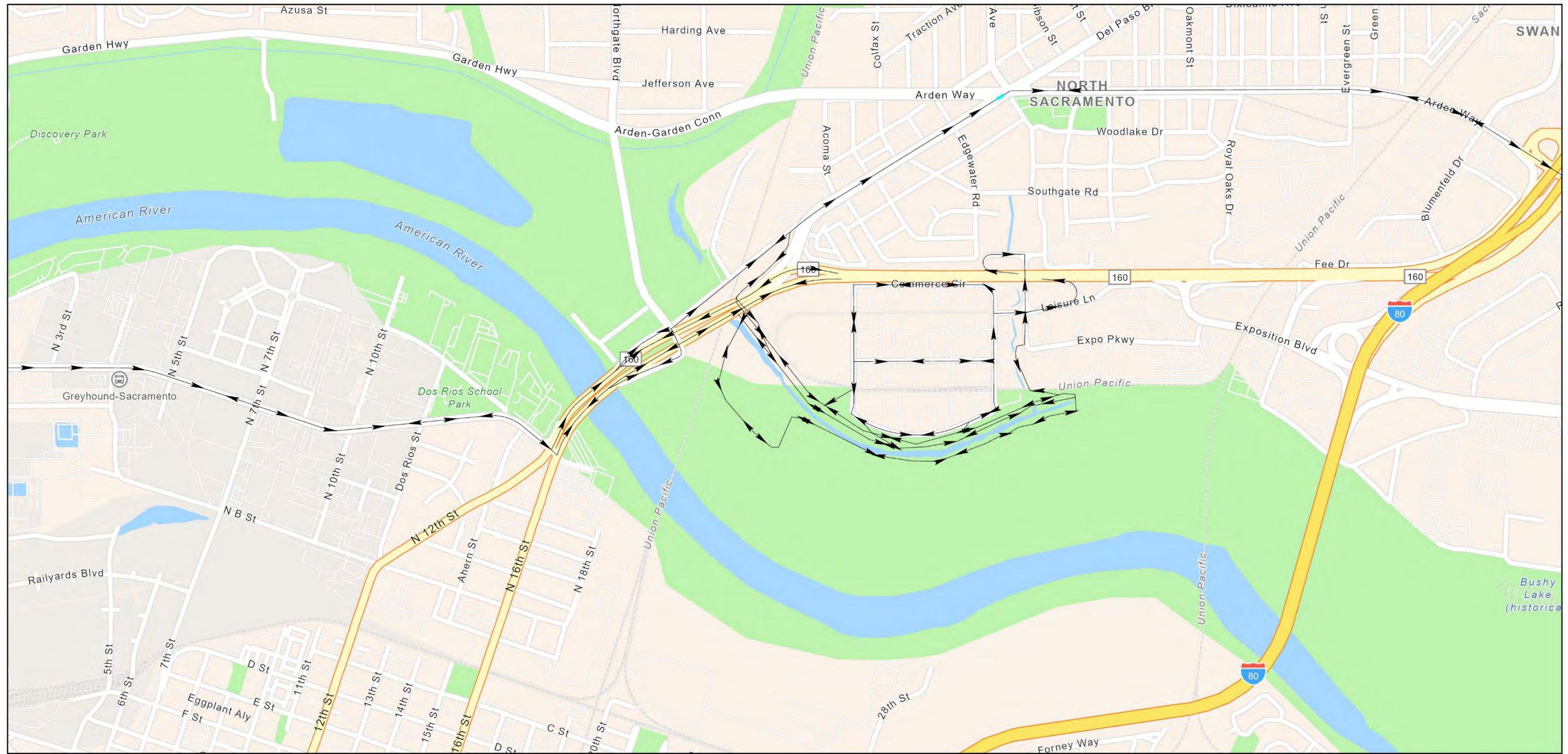
 Bike Detours

Updated 7/11/2023



US Army Corps of Engineers®
Sacramento District

Figure 3.5.3-2. American River Erosion Contract 4A Temporary Bike Detours



American River Erosion Contract 4A Haul Routes

— Haul Route

Updated 7/11/2023

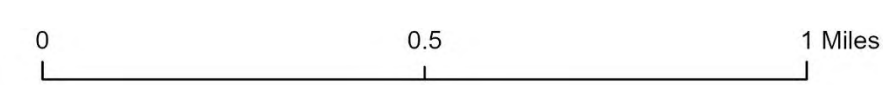
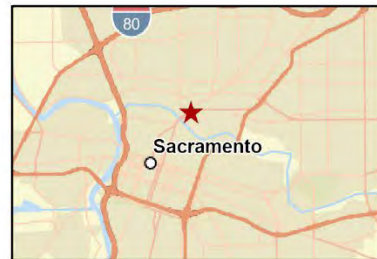
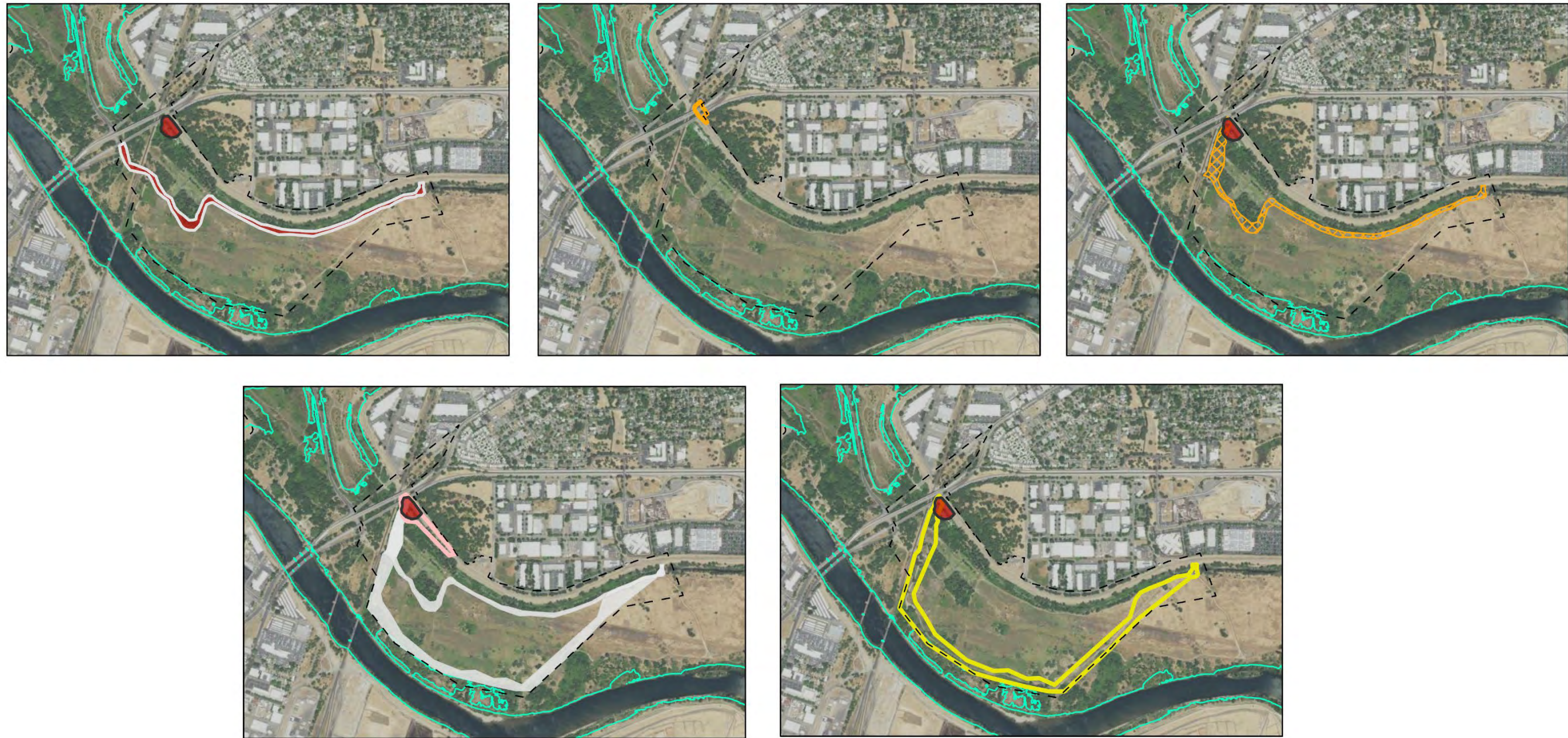


Figure 3.5.3-3. American River Contract 4A Haul Routes



American River Erosion Contract 4A Alternatives

OHWM	Alternative 3a	Alternative 3d
Proposed Action Berm	Alternative 3b	Temporary Bike Trail Detour Options
Proposed Action Bike Reroute	Alternative 3c	4A Project Site

Updated 12/5/2023

Figure 3.5.3-4. American River Erosion Contract 4A Alternative Footprints

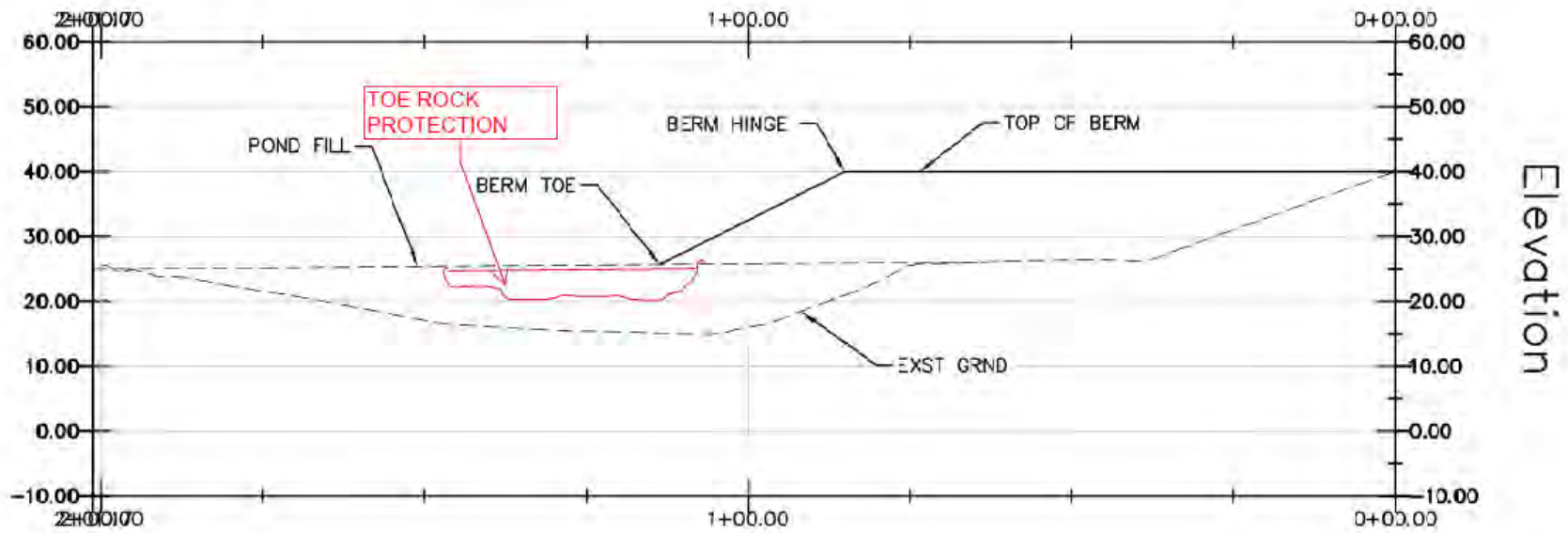


Figure 3.5.3-5. American River Erosion Contract 4A Example Berm Cross-section

These staging areas would also be used for stockpiling if necessary. If needed, a commercial building or warehouse within 2 miles of the project site may be used for the project construction office.

3.5.3.1.5 Operations and Maintenance

O&M would be as described in Section 3.5.2.1.5, “Operations and Maintenance,” of American River Contract 3B.

3.5.3.2 Proposed Action and Design Refinements for the American River Contract 4A Improvements

Table 3.5.3-7. identifies which components of the Proposed Action for the American River Contract 4A Improvements are already authorized by the 2016 GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.3-7. No Action Alternative and Design Refinement Comparison for American River Contract 4A Improvements

Project Component	NEPA Status
Erosion Protection Location	Design Refinements
Erosion Protection Method	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	No Action
Offsite Mitigation Sites on the American River	VELB: No Action Riparian: Design Refinements

Source: USACE 2022a, Adapted by GEI

3.5.4 Sacramento River Erosion Contract 3

3.5.4.1 Features of the Proposed Action and Construction Details

Sacramento River Erosion Contract 3 includes three sites (7, 8 and 9) totaling 2.8 miles between river miles 47.3 and 53.1 in Sacramento’s Pocket neighborhood. Sump 70, which is owned by the City of Sacramento, would be protected in place. The planned erosion protection method for all site includes placement of rock revetment on the left (east) riverbank to prevent erosion and possible failure of the levee protecting the adjacent Pocket neighborhood. Quarry stone revetment would be placed on-grade along the riverbank between the riverbed and the summer water surface elevation to protect against scour and erosion during high river flows. The design would incorporate a launchable rock toe, consisting of a thicker layer of quarry stone along the riverbed. The launchable rock toe is designed to deploy and fill any eroded areas during high flows, protecting further erosion from occurring. To protect against boat wake erosion during the peak recreation season, quarry stone would be placed on the shoreline above the summer water surface elevation to slightly above the boat wake zone. This stone would feature soil fill to cover the voids in the rock and would be hydroseeded with grasses and forbs. IWM would be placed along the shore to provide shaded riverine aquatic habitat. The IWM will be placed at least 50

feet from the private boat docks. Rock tiebacks would be installed perpendicular to the river's flow to provide additional erosion protection for the upper banks. Tiebacks would be spaced intermittently, as needed, and eliminate the need for continuous rock protection up to the top of the levee. Figure 3.5.4-1 and Figure 3.5.4-2 show the approximate number and location of tiebacks. The launchable rock toe and tiebacks are design refinements that were not previously analyzed in the ARCF GRR FEIS/EIR.

The design includes features to replace aquatic habitat impacted by the project. For the reestablishment of riparian vegetation, soil-filled planting benches would be incorporated into the rock revetment in areas where the slope allows. IWM consisting of whole trees would be anchored into the bank revetment at the summer water surface elevation to provide shelter and shading for fish. The IWM would be placed at least 50 feet from the private boat docks.

The anticipated method of construction has changed from what was described in the ARCF GRR FEIS/EIR, which previously stated that all construction work would occur from equipment stationed on barges. The anticipated method of construction for the Proposed Action would still include equipment stationed on barges, but equipment would also leave the barges to place rock along the shoreline.

3.5.4.1.1 Construction Schedule, Materials, and Equipment

Construction of the erosion protection measures would be accomplished from the river by equipment on barges or by equipment accessing the project footprint from the barge. Materials would be hauled to the project location by barge. The two northern sites are anticipated to be constructed during July – October in 2025, and the southern site is anticipated to be constructed July – October in 2026. Tree clearing (completed through a separate service contract) would occur during the fall or winter prior to the relevant site's construction season. Construction of Sacramento River Erosion Contract 3 would include the following actions:

- Set up designated temporary construction access and staging areas and mobilize temporary facilities (offices and restrooms) to the staging areas.
- Protect trees and structures that are not removed with fencing or signage.
- Clear and grub the work area, including, but not limited to, removing and or trimming trees, vegetation, and encroachments along the levee embankment.
- There are 6 docks located in the project footprint. If any of the dock owners elect not to remove their docks, contractor would remove and dispose remaining docks during site preparation (piers and piles would not be removed).
- Identify utility locations for protection during project activities.
- Construct bank protection, planting benches, and IWM. Equipment would operate from barges or be brought onto the shore from the barge.
- Demobilize construction equipment. Leave the site free of garbage in a condition similar to the pre-project condition. Seed and place erosion protection measures on the levee landside slope and other disturbed areas.

Site Preparation, Access, and Staging

During November to February prior to the 2025 and 2026 construction years, trees within the erosion protection footprint being constructed that year would be removed. Selected trees outside this footprint may require trimming or removal to ensure sufficient clearance for equipment operation. Tree removal would occur from equipment stationed on the top of the levee; equipment would not be permitted to drive off the levee top. Tree stumps would be left in place until reconstruction activities to prevent potential scour points. Cut trees would be hauled up slope by a crane or pulley system, chipped, and hauled away by a dump truck. Mobilization, installation of erosion protection measures, and out-of-water earthwork and improvements would begin in June or early July. Prior to initiating construction, the project area would be enclosed by a temporary fence and lighting would be installed to limit entry into the site and ensure site safety and security. In-water site preparation would occur from July 1 to October 31 and may include removing submerged instream woody debris and fallen trees within the construction footprint. Measures approved by NMFS and USFWS to minimize turbidity from construction would be followed prior to any in-water work conducted on the waterside of the levee.

A staging area at Garcia Bend Park would be used for construction offices for worker vehicle parking, two boats, and construction offices. Landside construction access (entrance and exit) would occur along the levee top. Limited landside staging would occur on the levee crown and levee road. The construction crews' personally owned vehicles, occasional delivery vehicles, hydroseeding vehicles, equipment used for revegetation, tree removal vehicles and equipment, and construction facilities including the fencing and lighting as well as portable toilets and hand washing stations may be located within the landside staging area.

Waterside construction would be accessed by barge. Boaters and other water-borne users of the river would be alerted to the construction activities by warning buoys placed at both the up- and downstream ends of work areas.

Barges would be pre-loaded with construction materials and construction equipment for in-water staging. The barges would be loaded up to 96 miles downstream and may be rafted together and brought to the project site by a combination of push and/or tugboat. Barges loaded with materials would be brought alongside the crane/excavator barge, and then the material barges would rotate as they are emptied and reloaded. Material would not be stored on land. Placement of material would either be by crane with a 100-foot boom or by excavator with long stick and/or boom. Excavators may also be offloaded from the barges onto the shore to place rock from the bank. It is expected that two barges with cranes/excavators would work simultaneously when placing rock in-water and onto the bank.

The construction contractor would acquire construction materials from outside sources. The physical characteristics of this material would meet USACE requirements as established in the project plans and specifications. The material sources also must have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

The construction contractor would be responsible for selecting a disposal site located outside the construction limits. This disposal site must have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

Table 3.5.4-1 presents the material requirements for construction of the proposed Sacramento River Erosion Contract 3.

Table 3.5.4-1 Materials Required for Sacramento River Erosion Contract 3

Material Type	Site 7 Quantity	Site 8 Quantity	Site 9 Quantity	Total Quantity
Grade Stone C (cy)	26,800	38,300	135,000	200,100
Soil-Filled Riprap (cy)	6,900	11,100	17,700	35,700
Class 2 Aggregate Base (cy)	600	300	1,200	2,100
Topsoil (cy)	2,100	500	3,000	5,600
Seeding (acres)	2.0	2.5	4.0	8.5
Beaver Fencing (feet)	800	900	2,300	4,000
Instream Woody Material (each)	350	520	1,260	2,130

Note: cy = cubic yards
Source: USACE 2023

Construction Workers and Schedule

Construction workers would access the work areas along existing freeways, highways, county and city roads, and levee patrol roads. Workers would park at the staging area at Garcia Bend Park and access their equipment by boat, utilizing the park’s boat ramp. Construction hours would comply with the City of Sacramento noise ordinance, which allows construction from 7:00 a.m. to 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. to 6:00 p.m. on Sundays. No work or hauling would take place outside of the construction exemption times without permission applied for and given by the City of Sacramento.

Tree removal is expected to begin in November and conclude by February 14 preceding each construction season. Construction is likely to occur in two phases during each year of construction. The first phase would include mobilization, installation of surface erosion protection measures, and out-of-water earthwork and improvements. This phase would start in June or early July as the winter high flow recedes and the likelihood of rainfall reduces. The construction contractor would submit a mobilization/demobilization work plan to the Project Partners prior to starting the work. The second phase of construction would occur from July 1 to October 31. This would include constructing the bank protection improvements, installation of the IWM, and installation of the temporary erosion control seeding of disturbed areas. Any alterations to the levee prism should be completed prior to November 1, and all in-water work should be completed by October 31. The greening contract (also known as the tree and vegetation planting contract) would occur following the conclusion of construction each year, starting in November and continuing into the spring of the following year.

Demobilization and Cleanup

Demobilization and cleanup would occur in October and November of each year after construction is complete. The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

3.5.4.1.2 Operations and Maintenance

After the bank protection improvements have been completed, general O&M activities would be conducted by the LMA and would be similar to existing activities. Additional O&M activities would be required for on-site mitigation plantings in accordance with the BOs and are described below.

A vegetation management plan would be developed in coordination with USFWS and NMFS to ensure that native riparian plantings installed within the planting benches are protected, managed, monitored, and maintained for 8 years, not to exceed 10 years following installation and ensure that they are on an ecologically sustainable trajectory, as required by the BOs. This vegetation management plan would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan developed for the ARCF GRR FEIS/EIR. The vegetation management plan would identify activities and establish objectives, priorities, and tasks for monitoring, managing, maintaining, and reporting on the established habitats.

Maintenance activities would start immediately following completion of the initial planting. General clean-up maintenance would be performed throughout the year though some activities would vary according to weather and season. Examples of general clean-up and site maintenance include picking up trash, repairing damage due to vandalism, and removing used planting accessories (bamboo stakes, ties, browse guards, etc.) Replacement of dead and dying plants would occur at the conclusion of each establishment year. For watering maintenance, crews would connect the water pump to the irrigation system for each irrigation cycle pursuant to the schedule described in the vegetation management plan. The irrigation system may be partially or entirely removed temporarily when required to accommodate seasonal high-water flows.

Invasive plant species incursions would begin during initial establishment efforts to prevent wide-scale establishment and minimize the use of control efforts such as pesticide usage. The techniques available for controlling terrestrial and aquatic species involve hand or mechanical removal and chemical treatment. Only chemicals approved for use in California in or around aquatic habitats may be used. Crews would weed within the watering basins of the plantings and within an 18-inch radius of each woody and grass associated plant. Invasive species management would prevent nonnative herbaceous growth and soil moisture competition. USACE is required to prevent invasive plant species from spreading and management of existing populations is required by the USACE Memo for U.S. Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023.

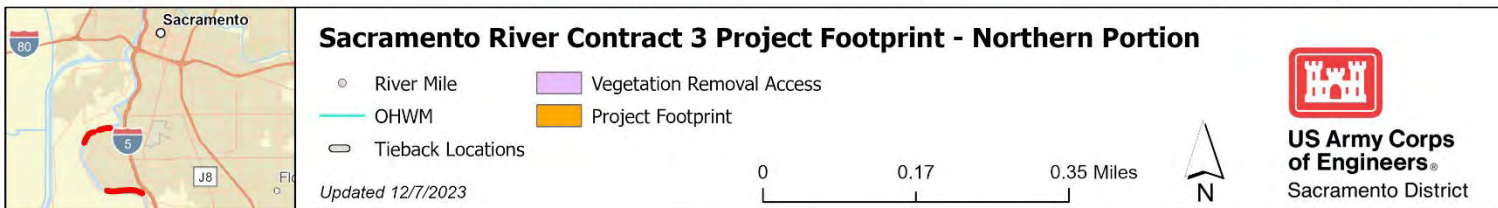
3.5.4.2 Proposed Action and Design Refinements for the Sacramento River Erosion Contract 3

Table 3.5.2-2 identifies which components of the Proposed Action for the Sacramento River Erosion Contract 3 are already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.4-2. No Action Alternative and Design Refinement Comparison for Sacramento River Erosion Contract 3

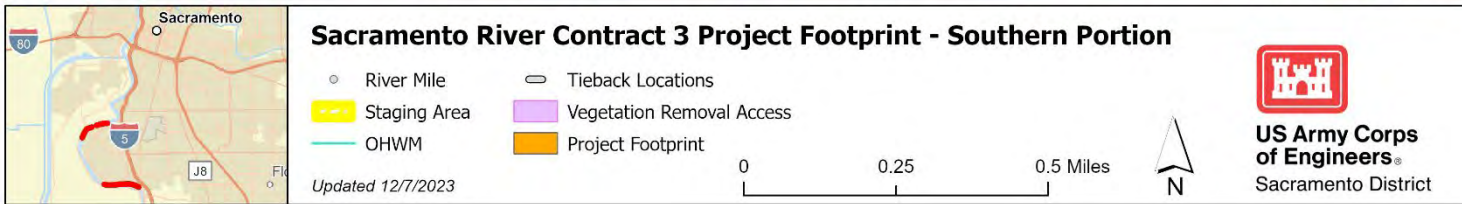
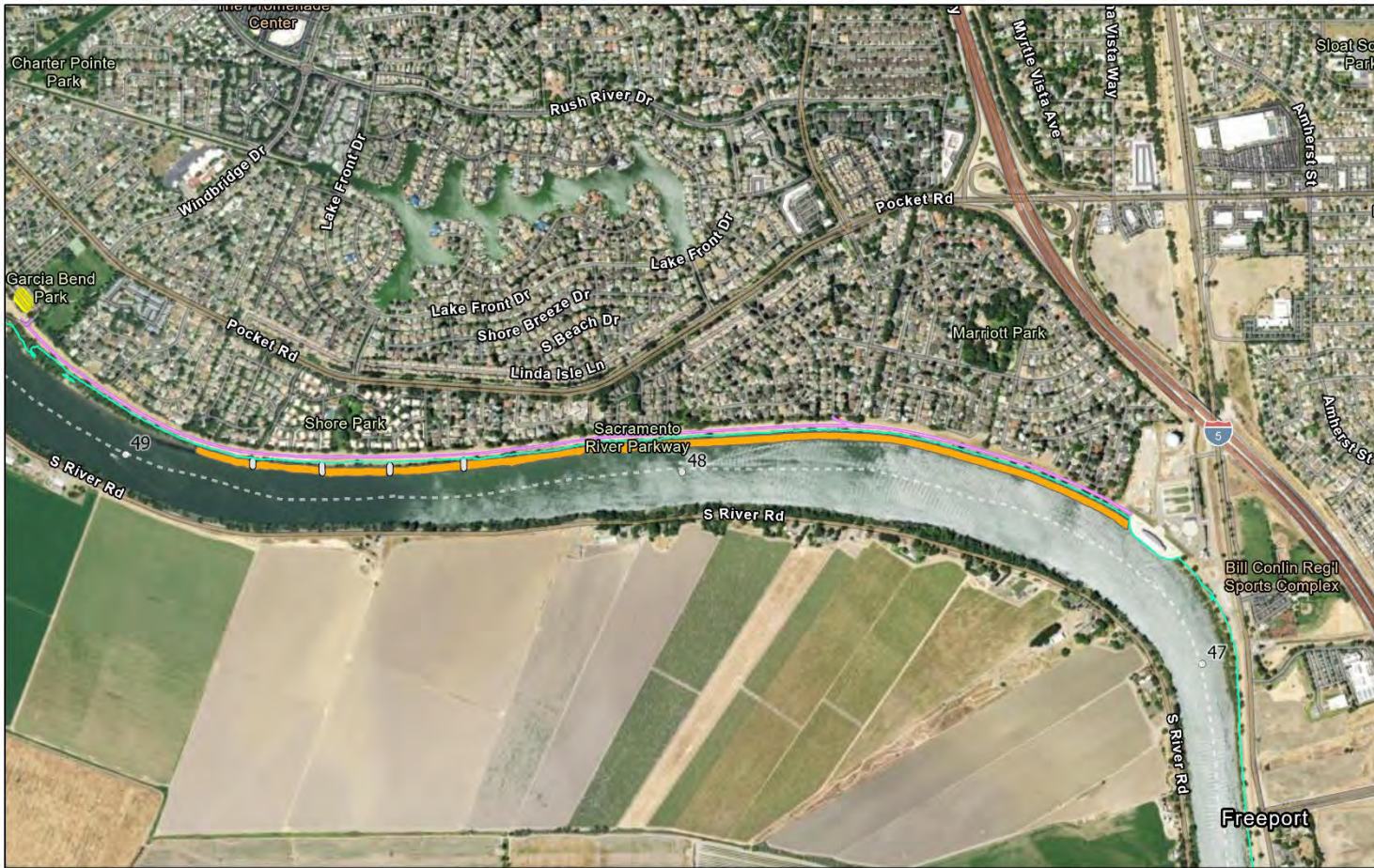
Project Component	NEPA Status
Erosion Protection Location	No Action
Erosion Protection Method	Design Refinements
Staging Areas	Design Refinements
Haul Routes	No Action
Vegetation Removal	Design Refinements
Onsite Mitigation Sites on the Sacramento River	No Action

Source: USACE 2022a, Adapted by GEI



Source: USACE 2023

Figure 3.5.4-1. Sacramento River Erosion Contract 3 Project Footprint – Northern Portion



Source: USACE 2023

Figure 3.5.4-2. Sacramento River Erosion Contract 3 Project Footprint – Southern Portion

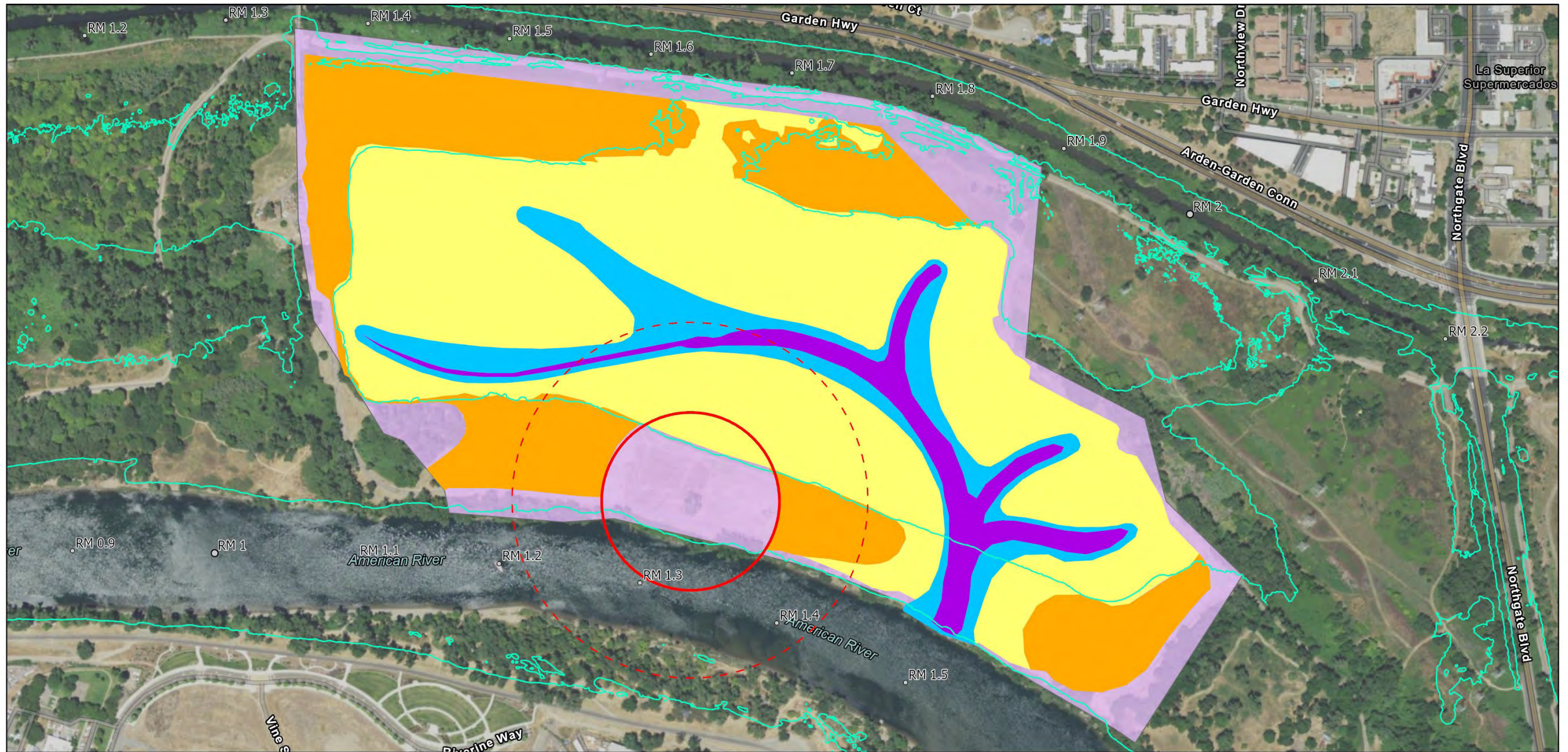
3.5.5 American River Mitigation Site (Program Level)

The ARMS project component would be constructed at the approximately 120-acre site purchased for mitigation between RM 1.0 and 1.6 in the American River Parkway. Analysis of the ARMS is presented at a conceptual (program) level since the USACE design process is in such an early phase. The 2016 ARCF GRR FEIS/EIR did not analyze the use of the ARMS for mitigation; therefore, the ARMS is a proposed new project component. Table 3.5.5-1 presents the mitigation needs for all the ARCF 2016 Project contracts, not only the American River Contracts, to be met at the ARMS. Figure 3.5.5-1 illustrates the proposed conceptual mitigation design for the ARMS. The man-made pond provides a feature that reduces excavation for creating inundated riparian habitat, reducing transportation, air quality, and GHG emissions impacts. Habitat mitigation is consistent with the Wild and Scenic Rivers corridor by providing riparian wildlife habitat. (Parks 2022).

Table 3.5.5-1. ARMS Needs

Type of Mitigation	Acres Needed
Salmon/Steelhead	66
Riparian/Yellow-billed cuckoo	72
Valley elderberry longhorn beetle	23
Seasonal/Forested wetland	6.6

Source: Compiled by USACE 2023



American River Mitigation Site Project Footprint

- RM tenths
- OHWM

Updated 12/7/2023

- Highflow Channel (Riverine)
- Low Riparian Connected Floodplain
- Lowflow Channel (Riverine)
- Upland
- Construction Access

- Work Restriction Area
- Seasonal Work Restriction Area

0 300 600 Feet



US Army Corps of Engineers
Sacramento District

Source: USACE 2023

Figure 3.5.5-1. Proposed American River Mitigation Site

3.5.5.1 Features of the Proposed Action and Construction Details

The ARMS would be constructed to provide mitigation habitat for Federally listed species, as identified in the USFWS and NMFS BOs. The ARMS would also be mitigation for regional habitats that are defined in the ARCF Fish and Wildlife Coordination Act (FWCA) Report (USFWS 2015) such as riparian forest and riparian scrub-shrub, elderberry savannah and seasonal floodplain wetlands. Federally listed species habitat may include western yellow-billed cuckoo, VELB, and Chinook salmon and steelhead. The habitat for the listed species overlaps with the riparian forest and riparian scrub-shrub habitats defined in the FWCA report. ARMS would involve construction of seasonally inundated riparian habitat for Chinook salmon and steelhead by breaching the existing riverbank and allowing surface water to flow through constructed channels. Channels would be designed to remain inundated year-round with the riparian habitat inundated during higher flow to create salmon habitat. The riparian vegetation would provide resting, foraging, roosting, and nesting habitat for numerous avian species, as well as the local terrestrial fauna. The visual goal is for the habitat mitigation to blend in seamlessly with the surrounding riparian forest, although many years will be required for the vegetation to fully mature. Additional soil exploration and laboratory testing would need to be completed, as well as biological, cultural, and environmental resource surveys as part of the project level analysis and planning.

Construction on the property would include tree and stump removal and may include elderberry transplanting based on USFWS guidance protocol (USWF 2017), followed by grubbing. The existing man-made pond would be drained and graded, and pond bottom sediments would be capped. The site would be connected to the river by removing the existing bank, creating multi-elevational flow channels, and smoothing out elevations in between. Additional grading would be necessary to modify elevations across the site elsewhere, stabilize banks, and create access pathways. Bank protection measures may be required to protect the channels from eroding and being damaged during high-flow events. The design would incorporate IWM. Revegetation would include a palette of native trees, grasses, and shrubs.

Construction Schedule, Materials, and Equipment

The ARMS would be constructed over three construction seasons (generally between April 1 and October 31), in 2025, 2026 and 2027. Work would typically occur between 7 am and 6 pm Monday through Saturday. Since there is only one residence near the project site, and this residence is expected to be vacated prior to construction of the ARMS improvements, night work could be considered. In-water work in the American River, not including areas of the man-made pond behind the river embankment, would be permitted between July 1 and October 31; however, depending on certain conditions, NMFS may allow in-water work to start June 1. Work around elderberry shrubs would be permitted between November 1 and February 15. A USFWS bald eagle disturbance permit would be required and would include monitoring and other best management practices during construction to minimize effects on eagles during the nesting season (late December – early July). The USFWS bald eagle disturbance permit is not anticipated to pose any restrictions on the types and durations of construction activities within 660-feet of the nest, unless monitoring indicates specific construction activities are disturbing the active nest and posing a risk to the reproductive success of the nesting pair, in which case those activities would need to be modified to minimize disturbance or delayed until the nest is

determined to be inactive. Site preparation could begin as early as 2025 and construction would begin the following year. Most channel and riparian features would be completed before the right bank is breached to minimize any turbidity impacts to the river. Filling and grading within the existing man-made pond would include partial or complete dewatering to control water during fill operations and may require use of temporary cofferdams or inflatable bladders. A turbidity curtain and/or temporary sheet piles would be installed prior to making the hydrologic connection with the river. Revegetation would occur in the spring, after construction is complete as early as 2026. A vegetation management plans and long-term management plans will be developed for the sites. Demobilization and cleanup would occur in October and November of each year after construction. The staging areas, landside levee slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

Construction materials are shown in Table 3.5.5-2. To the maximum extent possible, material removed from the bank and channels would be used to modify elevations elsewhere on the site to create additional upland riparian or VELB habitat. The exact volume of cut and fill material required to construct the ARMS has not yet been determined. This material would be obtained from other portions of the ARCF 2016 Project or from commercial sources within 50 miles of the site. Table 3.5.5-2 also lists the equipment, number of truck loads and durations of hauling in the construction materials. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used, and all haul trucks would have 2010 or newer engines.

Table 3.5.5-2. Preliminary Materials, Trips, and Equipment Required for ARMS

Item	Quantity	Unit	# Loads	# Trucks	# Truck Trips /Day	# Days	Construction Equipment/Day	# Days Equipment Operations	Notes
Mobilization/ Demobilization	1	JOB	50	3	2	8			
Traffic Control	1	JOB	10	2	2	3			
Stormwater Pollution Prevention Plan	1	JOB	20	2	2	5			
Dewatering/ Fish Salvage	1	JOB							
Contractor Surveying	1	JOB							
Clearing and Grubbing	40	ACRE	100	2	4	13	D4 Dozer + 902 Front end loaders + water truck	13	Trucking assumes disposal at local landfill or nearby green waste recycle operation
Demolition	1	JOB	40	3	3	4	320 Hydraulic Excavator + D4 Dozer + water truck	7	Trucking assumes disposal at local landfill
Excavation	146,000	CUBIC YARD	4	1	1	4	Excavate and stripping: 320 Hydraulic Excavator + D4 Dozer + water truck	100	
Imported Fill	857,000	CUBIC YARD	69,583	25	8	348	Onsite Fill: D4 Dozer + CP44B Vibratory Compactor + 0.25 CAT 140 Grader + water truck Borrow Site: 320 Hydraulic Excavator + D4 Dozer + water truck	348	Assumes a placement/production rate of approx. 2,500 cubic yard /day
Planting Benches (Material Processing and Placement)	34,560	CUBIC YARD					320 Hydraulic Excavator + D4 Dozer + water truck	38	
In-stream Woody Material	200	EACH	67	3	2	11	320 Hydraulic Excavator + 902 Front end loaders + water truck	20	
Rip Rap	100	CUBIC YARD	10	2	4	1	321 Hydraulic Excavator	3	

Item	Quantity	Unit	# Loads	# Trucks	# Truck Trips /Day	# Days	Construction Equipment/Day	# Days Equipment Operations	Notes
Jute Netting	40	ACRE	10	2	2	3			
Seeding	40	ACRE	4	2	2	1			
Planting	60	ACRE	12	2	2	3			
Aggregate Base	2100	TON	84	4	4	5	Motor Grader + water truck	5	
Plant Protection (fencing/cages placement and removal)	1	JOB	2	1	2	1			
		Subtotal	72,996						
		30% Contingency	21,899						
		TOTAL	94,895						

3.5.5.1.1 Haul Routes, Access Routes, and Staging Areas

The ARMS would be accessed either from Garden Highway by Natomas Park Drive going through Discovery Park, or from Northgate Boulevard via the Riverdale Mobile Home Park access and existing O&M roads for overhead power lines within the site. Trucks would access the regional road network via Northgate Boulevard and/or Garden Highway, SR-160, I-5, or I-80. Access to the site is controlled by a locking gate on Natomas Park Drive, but there are no existing access controls from Northgate Boulevard or Camp Pollock. Some road work such as tree trimming or minor road repairs may be needed for access. Staging for site construction would occur within the ARMS boundary, or within the local vicinity. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. Staging areas on the ARMS site would be subject to strict containment and spill prevention best management practices (BMPs) to help avoid SWPPP violations. Once work is complete, staging areas would be returned to their initial conditions or planted with native vegetation to provide additional habitat.

Operations and Maintenance

A habitat management plan would be developed in coordination with USFWS, NMFS, and non-federal sponsors (NFS) during design development, to guide how the native vegetation plantings are managed, monitored, and maintained. This document would be written in accordance with Engineering Regulation 1105-2-100 Appendix C Environmental Evaluation and Compliance and be completed before the project is turned over to the NFS. The site would require temporary irrigation and beaver fencing to ensure successful vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, and trash removal. USACE is required to prevent invasive plant species from spreading and management of existing populations is required by USACE Memo for US Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023. Performance and success criteria have not yet been defined and would be included in a Habitat Enhancement and Restoration Plan that is drafted in coordination with Project Partners. Once the site is determined to have met establishment period success criteria, the long-term maintenance would transfer to the NFS.

3.5.5.2 Proposed Action and Design Refinements for the American River Mitigation Site

Table 3.5.5-3 identifies which components of the Proposed Action for the ARMS are already analyzed by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.5-3. No Action Alternative and Design Refinement Comparison for American River Mitigation Site Improvements

Project Component	NEPA Status
Mitigation Location	Design Refinements
Construction Methods	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	Design Refinements

Source: USACE 2022a, Adapted by GEI

3.5.6 Sacramento River Mitigation Site (Program Level)

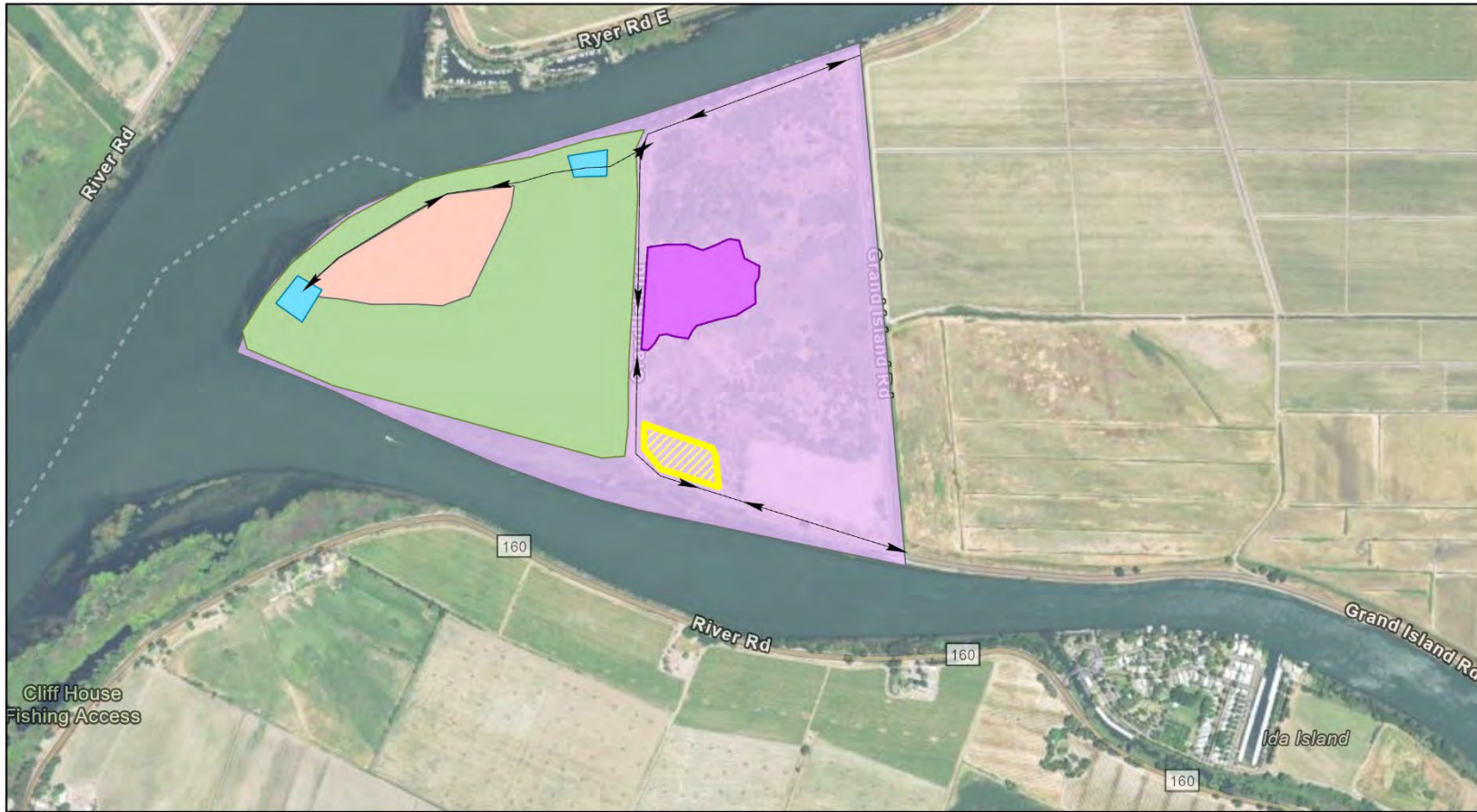
3.5.6.1 Features of the Proposed Action and Construction Details

The SRMS component would be constructed on approximately 200-acres at Grand Island, located near Sacramento RM 15 and the confluence of Cache and Steamboat Sloughs. Analysis of the SRMS is presented at a program level because only conceptual designs are available for environmental analyses. The SRMS location, staging, and haul routes were not analyzed in the 2016 ARCF GRR FEIS/EIR. Table 3.5.6-1 presents the mitigation needs for all Sacramento River impacts resulting from all ARCF 2016 Project contracts, not only the Sacramento River Erosion Contract 3 that is discussed in this SEIS/SEIR, to be met at the SRMS. Figure 3.5.6-1 illustrates the proposed mitigation locations.

Table 3.5.6-1. SRM1 Sacramento River Mitigation Needs

Type of Mitigation	Acres Needed
Salmon/Steelhead/Green Sturgeon	45
Delta Smelt	59
Riparian/Yellow-billed Cuckoo	36
Valley Elderberry Longhorn Beetle	0.0

Source: Compiled by USACE 2023 – Magpie Mitigation is included in Sac River Numbers



Sacramento River Mitigation Site Footprint

← Access Route	Potential staging
Potential Breach Zone	VELB and upper Riparian Zone
Potential Reconditioned Dredge Cell	Construction Access
Potential Fish and Lower Riparian Habitat Improvement Areas	0 500 1,000 Feet

Updated 12/7/2023

N

US Army Corps of Engineers®
Sacramento District

Source: USACE 2023

Figure 3.5.6-1. Sacramento River Mitigation Site Project Footprint

Habitat mitigation improvements at SRMS would include breaching the existing perimeter berms, grading to create channels, stabilizing bank protection, and vegetation planting. Breaching the berms would allow surface water to flow through constructed channels for tidal wetland habitat. Channels would be designed for tidal circulation to improve food production in the wetland. The design would incorporate instream woody material where appropriate. Revegetation would include a palette of native trees, shrubs, grasses, and aquatic vegetation. Aquatic vegetation should include native submerged and emergent wetland plants. The wetland habitat would provide sheltered slow-moving water, food and cover for Delta Smelt, juvenile Salmon and Steelhead. Appropriate aquatic invertebrate plankton may be transplanted into the wetland to support the food web for Delta Smelt. The wetland design will incorporate habitat features that reduce the presence of predators and do not create fish traps during low water circumstances. The riparian vegetation would provide resting, foraging, roosting, and nesting habitat for numerous avian species, as well as the local terrestrial fauna. The visual goal for the habitat mitigation is for the site to blend in seamlessly with the surrounding riparian forest, although many years would be required for the vegetation to fully mature. Additional soil exploration and laboratory testing would need to be completed as well as biological, cultural, and environmental resource surveys.

3.5.6.1.1 Construction Schedule, Materials, and Equipment

The SRMS would be constructed over two construction seasons in 2025 and 2026, with revegetation to occur after site contouring is complete. Wetland vegetation would be planted and established for several months prior to breaching the berms to the adjacent water bodies. Work would typically occur between 7am and 6pm Monday through Saturday; however, work times may be extended, including potential night work, due to the site's remote location. A balanced cut-fill design for the wetland (excavation) and riparian habitat (fill for terracing) is an objective to minimize transport of fill, greenhouse gas production, and cost. The construction area is enclosed by a high berm, separating it from water in the adjacent sloughs.

Vegetation grubbing and tree removal may occur prior to May. In-water work for aquatic beneficial use features along the outside perimeter of the sites and opening the berms to connect the wetland habitat to the adjacent waterbodies would be permitted between July 1 and October 31. Work around elderberry shrubs and transplanting would be permitted between November 1 and February 15. Demobilization and cleanup would occur in October and November of each year after construction is complete. The staging areas, landside berm slope, and any other bare earth areas would be reseeded with native grasses and forbs to promote revegetation and minimize soil erosion. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

Conservative estimates of the volumes of construction materials required to construct the SRMS are shown in Table 3.5.6-2 through Table 3.5.6-3 . To the maximum extent possible, material removed from the berm and channels would be used to modify elevations elsewhere on the site to create additional upland riparian or VELB habitat. The exact volume of cut and fill material required to construct the SRMS would be refined as design progresses. The site could also contain materials that would likely not be suitable for reuse due to the presence of chemical

contamination and these materials, would likely need to be hauled offsite for proper disposal at a local class 1 landfill. Table 3.5.6-2 through Table 3.5.6-3 also list the equipment, number of truck loads, and duration of hauling the construction materials. At a minimum, 90 percent of all heavy-duty off-road construction equipment of 50 horsepower or greater would meet EPA Tier 4 standards. No EPA Tier 0 engines would be used, and all haul trucks would have 2010 or newer engines.

Table 3.5.6-2. SRM-1 Conceptual Sacramento River Mitigation Site Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	433	CY
Aggregate Base Course	390	CY
Channel Fill	7,280	CY
Seeding & Mulching	67,600	SF
In-stream Woody Material	145	EA
Live Willow Cuttings (collect pole cuttings within 50 miles)	3,400	EA

Notes: Cubic Yards (CY), Square Feet (SF), Each (EA)

Table 3.5.6-3. SRM-1 Conceptual Sacramento River Mitigation Site Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/ Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	44	8	8	1	Tandem 10cy, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Wetland Channels		1		40	322B Excavator
Relocate Channel Fill		1		8	D4 Bulldozer
Relocate Channel Fill	728	12	8	8	Tandem 10cy, ISX Diesel 365hp
Relocate Channel Fill		1		1	902 Front End Loader
Stump Removal	541	19	6	5	Super Dump 20cy, ISX Diesel 485hp
Excavation to Dispose	10637	24	13	35	Tandem 10cy, ISX Diesel 365hp
Geotextile Fabric		1		1	Truck and Trailer (flatbed) Diesel 265hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	8	1	2	Tractor Trailer (flatbed) Diesel 430hp
In-stream Woody Material	8	3	1	3	Tractor Trailer (flatbed) Diesel 430hp
Live Willow Cuttings (collect pole cuttings within 50 miles)	7	3	1	3	Truck and Trailer (flatbed) Diesel 265hp

3.5.6.1.2 Haul Routes, Access Routes, and Staging Areas

The SRMS site access and haul routes would be via Grand Island Road and maintenance roads within the site. From Grand Island Road, trucks and workers would access the regional road network via SR-160, SR-4, I-5, I-80, I-580, and I-680. Access to the site is controlled by locked

gates at the turn off from Grand Island Road. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul routes to allow access to the site. The staging areas would be located within the SRMS boundary. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. Waterside staging areas would be subject to strict containment and spill prevention BMPs to help avoid SWPPP violations. Once work is complete, staging areas would be returned to their initial conditions or planted with native vegetation to provide additional habitat.

Operations and Maintenance

A habitat management plan would be developed in coordination with USFWS, NMFS, and NFS to ensure that the native vegetation plantings are managed, monitored, maintained and protected in perpetuity. This document would be written in accordance with ER-1105-2-100. The site could require temporary irrigation and beaver fencing or caging to ensure success vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, trash removal, and repairs to erosion at the channel entrance. The Corps is required to prevent invasive plant species from spreading and management of existing populations is required by USACE Memo for US. Army Corps of Engineers on Invasive Species Policy dated 21 Feb 2023. Long-term maintenance would transfer to the NFS after success criteria are met.

3.5.6.2 Proposed Action and Design Refinements for the Sacramento River Mitigation Site

Table 3.5.6-4 identifies which components of the Proposed Action for the SRMS already authorized by the 2016 ARCF GRR FEIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.6-4. No Action Alternative and Design Refinement Comparison for Sacramento River Mitigation

Project Component	NEPA Status
Mitigation Location	Design Refinements
Construction Methods	Design Refinements
Staging Areas	Design Refinements
Haul Routes	Design Refinements
Vegetation Removal	Design Refinements

Source: USACE 2022a, Adapted by GEI

3.5.7 Piezometer Network

A piezometer is used to measure underground water pressure and piezometers are extensively used to monitor groundwater levels and flow patterns. The purpose of installing a piezometer network is to provide an empirical data collection system to evaluate the performance of the

ARCF 2016 Project and to provide real time data to water resource managers, levee maintenance agencies, and project engineers. The piezometer network would allow USACE to evaluate the long-term performance of the flood control features throughout the project following construction of the proposed levee improvements. All sites receiving piezometers were included in the ARCF GRR FEIS/EIR; however, the installation of a piezometer network was not analyzed in the original document and is considered a design refinement.

3.5.7.1 Features of the Proposed Action and Construction Details

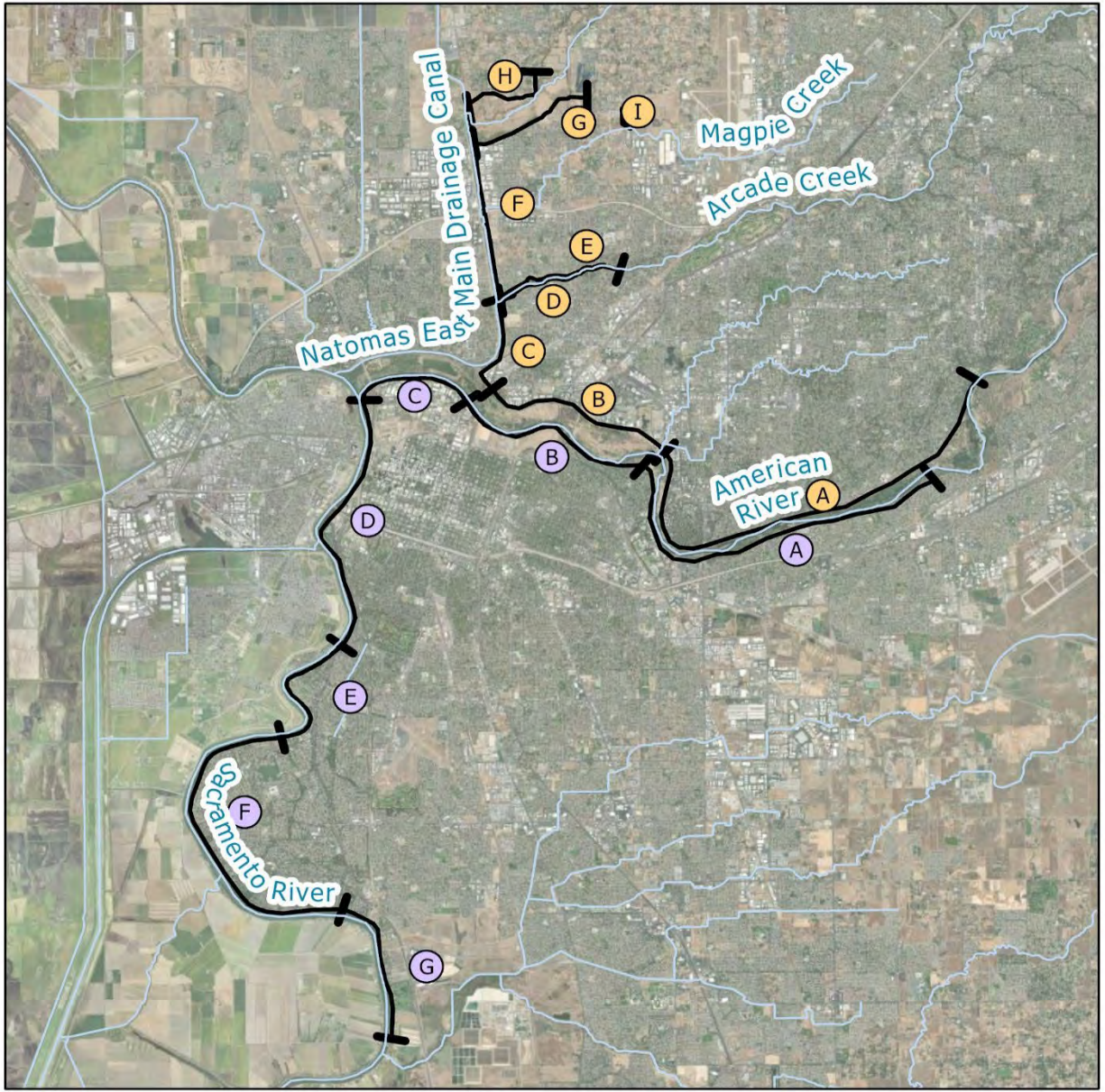
Piezometers would be installed permanently along the existing levees within the authorized footprint of the ARCF GRR FEIS/EIR. These installations could occur along the Sacramento River left bank, Lower American River left and right banks, Magpie Creek left bank, and Sacramento Bypass right bank that are all project areas of the ARCF 2016 Project. The distribution of piezometers will be based on the size of the project area and the local hydrologic conditions. It is anticipated that most, but not all piezometers would be installed within the spatial limits of the construction footprint. All piezometer installation locations would require pre-construction surveys for biological and cultural resources.

Approximately 100 piezometers would be installed at various locations along the levee segments listed above with piezometers on the levee crown and/or near the landside levee toe. Piezometers would be distributed between all ARCF 2016 Project reaches (see Figure 3.5.7-1 for reach locations) and some areas may have higher concentrations of piezometers than other areas. On average, between 3 and 15 piezometers would be installed at each project reach (see Figure 3.5.7-1 for reach locations). There is an existing network of previously installed piezometers within the authorized footprint. Some existing piezometers may require abandoning and/or full replacement.

Piezometer type and depth of installation would vary upon location and monitoring objectives. A standard piezometer (vibrating wire) installation diagram is shown in Figure 3.5.7-2 . Piezometers are recommended to be installed at the top of the aquifer, below the base of the blanket layer, to monitor the following conditions:

- Effectiveness of relief wells
- Effectiveness of deep cutoff walls
- Performance monitoring at transitions between deep and shallow cutoff walls
- Aid in verifying the calibration of the Bank Stability and Toe Erosion Model used in erosion assessment for the American River
- Verification of performance in segments where no remediation was installed
- Monitoring near in-ground swimming pools close to the landside levee toe

Following installation, each piezometer would be equipped with telemetry devices to provide real-time and remote data acquisition, which saves time and money by avoiding the need to take manual readings of each piezometer in the field.



ARCF 2016 Project Reaches

— Waterways

Reach Letters

- American River North
- American River South

US Army Corps of Engineers®
Sacramento District

0 2 4 Miles

Updated 9/8/2023

Figure 3.5.7-1. ARCF 2016 Project Reaches

3.5.7.2 Construction Schedule, Materials, and Equipment

The project would be completed as construction contracts are completed over the next four years. Each construction site is anticipated to take approximately 90 days, but the work may be spread out between multiple construction seasons. It is anticipated that between two and three piezometers would be installed per day depending upon soil conditions and depth to aquifer. The equipment for the installations would consist of a drill rig (sonic or hollow stem auger) and a support vehicle to provide well installation supplies. The piezometers would be installed in 2-inch diameter well casings. The range of boring size is expected to be between 6 to 12 inches in diameter, installed to a depth between 40 – 100 feet. All drill cuttings and purge water would be containerized and disposed offsite. Drill rig access would not require tree or vegetation removal but may require some minor regrading on the levee prism for access and installation of telemetry devices with anti-theft and security measures.

Standard utility clearance would be conducted as part of the site evaluation and borehole location marking. It is anticipated that piezometers would be connected to the electric infrastructure or be solar powered. Solar panels would be small, similar in size to those associated with call boxes along highways. There are no additional onsite habitat impacts anticipated by the installation of these piezometers because most locations would be within the construction footprint or included in the preconstruction survey. There would be no well installations below the ordinary high-water mark (OHWM) as they would be located on the crown of the levee, or landward of the levee.

Construction materials are shown in Table 3.5.7-1 through Table 3.5.7-4. Soil from borings would be containerized and hauled off-site to either an existing stockpile location or to a landfill within 20 miles of the project site.

Table 3.5.7-1. Piezometer Network Installation – Piezometer Quantities

Site Feature	QTY	Unit
Telemeter monitored Piezometers	100	wells
Environmental Contingency	N/A	

Table 3.5.7-2. Piezometer Network Installation – Quantity Summary

Material	QTY	Unit
Drill Cutting Disposal	200	cubic yard
Aggregate Base Course	100	cubic yard
Asphalt or Concrete Pavement	100	cubic yard
Sand for Well Pack	400	cubic yard
Bentonite	100	cubic yard

Table 3.5.7-3. Piezometer Network Installation – Quantity Summary Breakdown

Material	# Loads	#Trucks
Drill Cutting Dispose	20	1
Aggregate Base Course	15	1
Asphalt or Concrete Pavement	25	1
Sand for Well Pack	50	1

Table 3.5.7-4. Piezometer Network Installation – Materials and Equipment Summary

Material	# Loads	# Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Soil Cutting	20	1	1	50	Tandem 10 cubic yard, ISX Diesel 365hp
Asphalt or Concrete Pavement	25	1	1	25	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course	15	1	1	15	Super Dump 20 cubic yard, ISX Diesel 485hp
Sand for Well Pack	50	1	1	50	Tandem 10 cubic yard, ISX Diesel 365hp
Drill Rig	50	1	1	50	Hollow stem Auger Drill Rig Diesel 485hp

3.5.7.2.1 Haul Routes and Staging Areas

Existing haul routes would be utilized to access the piezometer installation locations. No temporary roads or ramps would be required to install the piezometers. The associated material delivery would occur with the start of each drilling operation.

Staging areas may be needed to store drilling equipment, such as drill rigs and support vehicles or trailers, safely overnight. Following piezometer installation, the resulting drill cuttings and excess soils would be stored in 55-gallon drums for proper disposal in compliance with any applicable regulations governing solid and hazardous waste. Staging areas may be fenced and have additional security features. These staging areas would be surveyed for sensitive biological and cultural resources prior to use.

Many staging areas already described and analyzed in this SEIS/SEIR (described in Sections 2.5.1, 2.5.2, 2.5.3, and 2.5.4) would be utilized for piezometer installation. Staging areas within the ARCF GRR Final EIS/EIR footprint that were analyzed in Supplemental NEPA and CEQA documents and utilized in previous construction contracts may also be used. Only 0.3 acre of land is needed for staging at each location, so it is not expected that the entire areas described for previous contracts would be used. In addition, there would be no full park closures associated with staging for piezometer work. These areas may include but are not limited to:

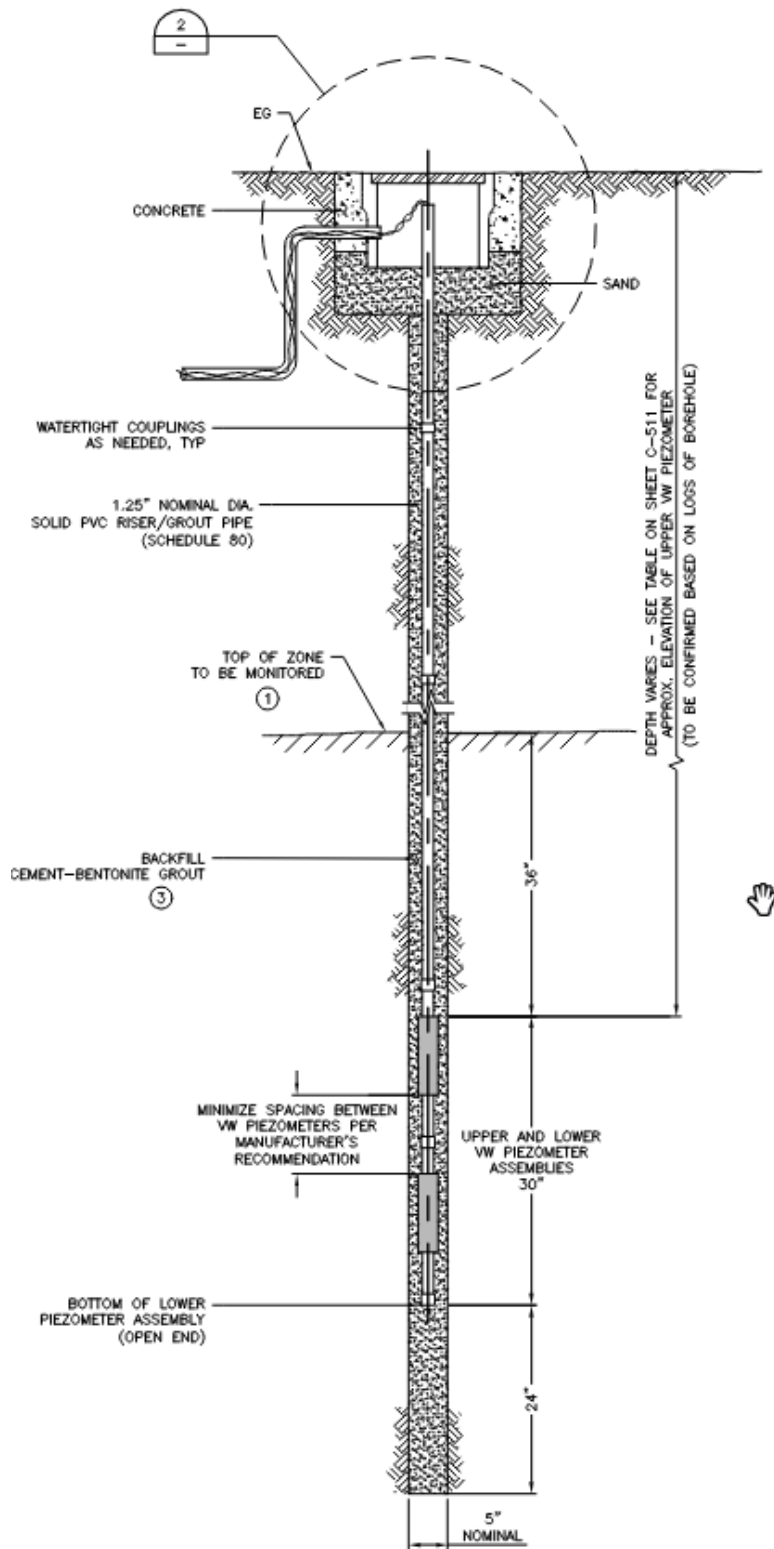
- Areas in Sutter’s Landing Park used for staging from American River Erosion Contract 3A.
- The land between Business I-80 Bridge and the UPRR bridge from American River Erosion Contract 3A.
- The staging area near Paradise Bend used in American River Erosion Contract 1.
- The six sites in the American River Parkway between H Street and Howe Avenue used for American River Erosion Contract 2.
- University Park used for American River Erosion Contract 2 and 3B North.
- The site in the American River Parkway just south of University Park used for American River Erosion Contract 2 and 3B North.

- A vacant lot at Jibboom Street and I Street used for SREL Contract 4.
- A vacant lot just north of Broadway used for SREL Contract 2.
- A vacant lot near Front Street south of R Street used for SREL Contract 2 and Reach D Contract 1.
- A vacant lot on the north side of Broadway at Marina View Drive used for SREL Contract 2 and SREL Contract 4.
- Miller Park used for SREL Contract 1.
- Miller Park Bike Trail used for SREL Contract 1.
- Westin Hotel Parking lot used for SREL Contract 4.
- The area above the OHWM at Chicory Bend used for SREL Contract 1 and SREL Contract 4.
- Ellsworth C Zacharias Park used for SREL Contract 2 and SREL Contract 3.
- Waterside levee toe at the south end of Little Pocket used for SREL Contract 2.
- The landside levee along North Point Way used for SREL Contract 3.
- The landside of levee near Benham Way used for SREL Contract 3.
- The waterside corridor at Arabella Way used for SREL Contract 3.
- An open area between Pocket Road and River Isle Way used for SREL Contract 3.
- The waterside corridor between Marlton Court and Aquapher Way used for SREL Contract 3.
- Sump 132 used for SREL Contract 1, Contract 3, and Contract 4.
- Garcia Bend Park used for SREL Contract 1, Contract 3, and Contract 4.
- The Freeport Intake Facility used for SREL Contract 1.
- A lot adjacent to Freeport Boulevard used for SREL Contract 4.
- A vacant lot in the southeast corner of the Bill Conlin Sports Complex used for SREL Contract 4.
- A vacant lot at the southeast intersection of Freeport Boulevard and Consumes River Boulevard.
- A highway shoulder on the east bank of Freeport Bridge.
- An abandoned agricultural field adjacent to North Beach Lake Levee at River Road.

Additional staging areas may be needed and would be located within the project footprint and be 0.3 acres or less. A qualified biologist and archeologist would survey new staging areas for sensitive resources prior to use. The biologist would recommend placing staging outside of areas of dense vegetation to limit vegetation trimming and removal to the greatest extent practicable. If vegetation removal is required, biological monitoring would be required during bird-nesting season of if there were special-status species in the vicinity. Long-term staging at recreational areas would be avoided to the greatest extent practicable.

3.5.7.2.2 Operations and Maintenance

Once construction is complete and the performance standards have been met, the non-Federal sponsors (CVFPB and SAFCA) with the local maintaining agency would be responsible for the O&M of the piezometer network. General maintenance is anticipated to include (at minimum) replacing locks, repainting covers, replacing damaged covers, adding concrete to stabilize or repair infrastructure, lubricating locks, checking flow quantities, checking piezometric levels, inspecting for water levels, inspecting for sand/material build up, inspecting parts to ensure they are functioning correctly, repairing broken parts, repairing broken bollards, and replacing broken bollards. The piezometers would be left in place for the life of the project and it is anticipated that the piezometers would be added to the California Data Exchange Center, so that USACE, the non-Federal sponsors and the public can monitor the data.



TYPICAL VIBRATING WIRE PIEZOMETER SECTION
 MTS

Figure 3.5.7-2. Typical Vibrating Wire Piezometer Section

3.5.7.3 Proposed Action and Design Refinements for the Piezometer Network

Table 3.5.7-5 identifies which components of the Proposed Action for the Piezometer Network that are already authorized by the ARCF GRR Final EIS/EIR and later supplemental documents and therefore part of the No Action Alternative, and which components are design refinements that must be compared to the No Action Alternative for NEPA purposes.

Table 3.5.7-5. No Action Alternative and Design Refinement Comparison for the Piezometer Network Installation

Project Component	NEPA Status
Piezometer Network Location	No Action and Design Refinements
Piezometer Network Installation Method	Design Refinements
Staging Areas	No Action and Design Refinements
Haul Routes	No Action and Design Refinements

Source: USACE 2022a, Adapted by GEI

3.6 Alternative 3: Alternatives for American River Erosion Contract 4A

The following alternatives would change American River Erosion Contract 4A. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network) would remain the same.

3.6.1 Alternative 3a: Landside Berm to Avoid Bike Trail Reroute

American River Erosion Contract 4A

Alternative 3a would be the same as the Proposed Action, but instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers (Figure 3.5.3-4) to avoid recreation impacts. Unlike the Proposed Action, this work would avoid both permanent and temporary re-routing of the bike trail. Since Alternative 3a is smaller than the Proposed Action, it is anticipated that the material and equipment needed for this work would be similar or slightly less than the Proposed Action. An access road off Del Paso Boulevard near Alpha Brothers Towing would need to be improved and slightly raised for access to the construction area. Alternative 3a would require real estate acquisition of UPRR property. Alternative 3a would also require an encroachment permit from Caltrans to construct the berm around the State Route 160 bridge piers. Additional work not accounted for in this SEIS/SEIR could be required by Caltrans before they approve an encroachment permit for Alternative 3a.

Table 3.6.1-1. American River Erosion Contract 4A Alternative 3a Berm Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	729	cubic yard
Aggregate Base Course	390	cubic yard
Imported Fill	4,680	cubic yard
Seeding & Mulching	23,140	square feet

Table 3.6.1-2. American River Erosion Contract 4A Alternative 3a Berm Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/ Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	73	12	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		1	CS-323C Compactor
Aggregate Base Course		1		1	D4 Bulldozer
Aggregate Base Course		1		1	322B Excavator
Aggregate Base Course	39	8	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Imported Fill		1		8	CS-323C Compactor
Imported Fill		1		8	D4 Bulldozer
Imported Fill	468	8	8	8	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel. 265hp
Mobilization/Demobilization	6	4	1	2	Tractor Trailer (flatbed) Diesel 430hp

American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation, Piezometer Network

All other components of the Proposed Action would remain unchanged after selection of Alternative 3a.

3.6.2 Alternative 3b: Permanent Bike Trail Reroute

American River Erosion Contract 4A

Alternative 3b would be similar to the Proposed Action but would use a different permanent bike trail reroute. Instead of going under the railroad and reconnecting to the bike trail near Del Paso Boulevard, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm (Figure 3.5.3-4). The route would be slightly longer than the Proposed Action, approximately 0.1 miles. Installing this route would require vegetation trimming, vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts of precast arches may need to be installed. There would be more vegetation trimming and vegetation clearing than the Proposed Action since a part of the bike trail reroute (the portion that heads north and follows the railroad) associated with Alternative 3b does not follow an existing trail.

Table 3.6.2-1. American River Erosion Contract 4A Alternative 3b Bike Reroute Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	4,066	cubic yard
Aggregate Base Course	5,456	cubic yard
Hot Mix Asphalt (Type A)	1,231	cubic yard
Imported Fill	6,845	cubic yard
Seeding & Mulching	328,857	square fee"
6" two-component paint traffic stripe	10,979	LF

Table 3.6.2-2. American River Erosion Contract 4A Alternative 3b Bike Reroute Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		2	D4 Bulldozer
Clearing & Grubbing		1		2	902 Front End Loader
Clearing & Grubbing	204	12	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		3	CS-323C Compactor
Aggregate Base Course		1		3	140H Grader 185 HP
Aggregate Base Course		1		3	D4 Bulldozer
Aggregate Base Course	546	24	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	123	16	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Imported Fill		1		4	D4 Bulldozer
Imported Fill		1		4	CS-323C Compactor
Imported Fill	684	24	8	4	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265h"
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mob/Demob	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation

All other components of the Proposed Action would remain unchanged after selection of Alternative 3b.

3.6.3 Alternative 3c: Bike Trail Reroute and Bridge

American River Erosion Contract 4A

Alternative 3c would be similar to the Proposed Action but would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm (Figure 3.5.3-4). Compared to the Proposed Action and other Alternatives, the route would be similar to the current bike trail route, only the alignment would be adjusted to go around the berm. A larger area of the wetland would need to be filled for the new alignment. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving and possible construction of a bridge. This alternative would require temporary closure of the bike trail and may require temporary detours to avoid significant impacts to recreation. These temporary detours may need to occur in the floodplain and could require temporary construction of the paths discussed for Alternatives 3b and 3d. Consequently, the same amount of vegetation clearing, vegetation trimming, regrading, and paving associated with Alternatives 3b and 3d could be needed for Alternative 3c as well.

Table 3.6.3-1. American River Erosion Contract 4A Alternative 3c Bike Reroute Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	618	CY
Aggregate Base Course	585	CY
Hot Mix Asphalt (Type A)	260	CY
Seeding & Mulching	33,378	SF
Imported Fill	6,648	CY
Structural Steel Pipe Arch'(1"-6"X "8")	1	EA
6" two-component paint traffic stripe	2,282	LF

Notes: Cubic Yards (CY), Square Feet (SF), Each (EA), Linear Feet (LF)

Table 3.6.3-2. American River Erosion Contract 4A Alternative 3c Bike Reroute Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day /Truck	#Days	Truck Capacity
Clearing & Grubbing		1		1	D4 Bulldozer
Clearing & Grubbing		1		1	902 Front End Loader
Clearing & Grubbing	31	4	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		1	CS-323C Compactor
Aggregate Base Course		1		1	140H Grader 185 HP
Aggregate Base Course		1		1	D4 Bulldozer

Material	# Loads	#Trucks	#Trips/Day /Truck	#Days	Truck Capacity
Aggregate Base Course	59	8	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	26	4	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		1		1	Truck and Trailer (flatbed) Diesel 265hp
Imported Fill		1		7	CS-323C Compactor
Imported Fill		1		7	D4 Bulldozer
Imported Fill	665	12	8	7	Tandem 10 cubic yard, ISX Diesel 365hp
Structural Steel Pipe Arch'(1"-6"X "-8")		1		1	Truck Mounted Cran"
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation

All other components of the Proposed Action would remain unchanged after selection of Alternative 3c.

3.6.4 Alternative 3d: Bike Trail Reroute Along Railroad

American River Erosion Contract 4A

Alternative 3d would be similar to the Proposed Action, except that the permanent bike trail route would be a paved bike trail closer to the river along an existing off-road bike trail (Figure 3.5.3-4). Instead of going under the railroad and reconnecting to the bike trail near Del Paso Boulevard, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, raising the existing road, and paving. Drainage features such as culverts or precast arches may need to be installed. This route would be longer than the Proposed Action, approximately 0.4 miles. Since the route is longer than the Proposed Action, installing this route would require more vegetation trimming, vegetation clearing, regrading, and paving than the Proposed Action.

Table 3.6.4-1. American River Erosion Contract 4A Alternative 3d Bike Reroute Quantity Summary

Material	Quantity	Unit
Clearing & Grubbing	4,915	cubic yard
Aggregate Base Course	6,553	cubic yard
Hot Mix Asphalt (Type A)	1,474	cubic yard
Seeding & Mulching	398,147	square feet
6" two-component paint traffic stripe	13,273	Linear feet

Table 3.6.4-2. American River Erosion Contract 4A Alternative 3d Bike Reroute Quantity Summary Breakdown

Material	# Loads	#Trucks	#Trips/Day/Truck	#Days	Truck Capacity
Clearing & Grubbing		2		3	D4 Bulldozer
Clearing & Grubbing		1		3	902 Front End Loader
Clearing & Grubbing	246	12	8	3	Tandem 10 cubic yard, ISX Diesel 365hp
Aggregate Base Course		1		4	CS-323C Compactor
Aggregate Base Course		1		4	140H Grader 185 HP
Aggregate Base Course		1		4	D4 Bulldozer
Aggregate Base Course	655	24	8	4	Tandem 10 cubic yard, ISX Diesel 365hp
Hot Mix Asphalt (Type A)		1		1	CS-323C Compactor
Hot Mix Asphalt (Type A)		1		1	AP-1000B Asphalt Paver (174 hp)
Hot Mix Asphalt (Type A)	147	20	8	1	Tandem 10 cubic yard, ISX Diesel 365hp
Seeding & Mulching		2		1	Truck and Trailer (flatbed) Diesel 265h"
6" two-component paint traffic stripe		1		1	Truck and Trailer (flatbed) Diesel 265hp
Mobilization/Demobilization	6	6	1	2	Tractor Trailer (flatbed) Diesel 430hp

American River Erosion Contract 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation

All other components of the Proposed Action would remain unchanged after selection of Alternative 3d.

3.7 Alternative 4: Alternatives for ARMS

The following alternatives would change SRMS. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, SRMS, and the Piezometer Network) would remain the same.

3.7.1 Alternative 4a: ARMS Pond Retention (CEQA only)

American River Mitigation Site

The Sacramento County Department of Regional Parks proposed an alternative for the ARMS during the NEPA Scoping Period that would be similar to the Proposed Action, except that the design would be changed to retain a portion of the existing man-made pond, reducing the need for fill material to create riparian topography and reducing the transportation, air quality, and GHG emissions impacts. This alternative would also retain the option for future limited interpretive activities in and around the pond as described in the Discovery Park Area Plan portion of the American River Parkway Plan. This alternative with a retained pond has been rejected from further consideration under NEPA as it does not meet mitigation needs for VELB and salmonid habitat but is being carried forward for consideration as Alternative 4a under CEQA only. As with the ARMS Proposed Action, Alternative 4a is being considered at a program level.

A berm with a top width of 30 feet would be constructed to retain the western portion of the existing man-made pond, and floodplain habitat (generally at elevations of 2 to 10 feet) would be constructed on the eastern portion of the site, removing a portion of the existing man-made pond. The remnant pond would be approximately 30 acres, and this alternative would include approximately 51 acres of floodplain habitat below elevation 24. This alternative was proposed to include an approximately balanced cut and fill, with about 720,000 cy of material being excavated and reused during construction of the berm and floodplain habitat. However, as design for the ARMS has progressed and soil data has become available, the Proposed Action and Alternative 4b both assume that only about 20 percent of material excavated from the ARMS is suitable for reuse. Therefore, the analysis for Alternative 4a assumes that approximately 576,000 cy of new material would need to be imported, compared to 857,000 cy for the Proposed Action, an approximately 30% reduction in imported material.

Figure 3.7.1-1 illustrates Alternative 4a. This alternative would not meet all of the ARCF habitat mitigation requirements at this site, requiring identification of another site to meet remaining mitigation needs, or requiring purchase of credits at approved mitigation banks. Depending on additional acreage needed to meet mitigation requirements, alternate sites could include Arden Pond (evaluated in the 2021 Lower American River Erosion Contract 2 SEIS/SEIR) and/or Wood Lake (evaluated conceptually in the 2007 Folsom Dam Safety Flood Damage Reduction EIS/EIR). Additionally, an existing bald eagle (*Haliaeetus leucocephalus*) nest had not yet been identified as a constraint at the time this conceptual design was developed. The nest tree and area immediately adjacent would need to be retained, requiring adjustments to the location of the berm and the grading boundary to permit a similar acreage of habitat creation and remnant pond

as originally proposed. Alternative 4b is also analyzed to demonstrate an alternative option for retaining a portion of the existing pond while avoiding conflict with the eagle's nest.

All other components of the Proposed Action would remain unchanged after selection of Alternative 4a.



Figure 3.7.1-1. Conceptual Site Design with Pond for Alternative 4a

3.7.2 Alternative 4b: ARMS Pond Retention (CEQA only)

American River Mitigation Site

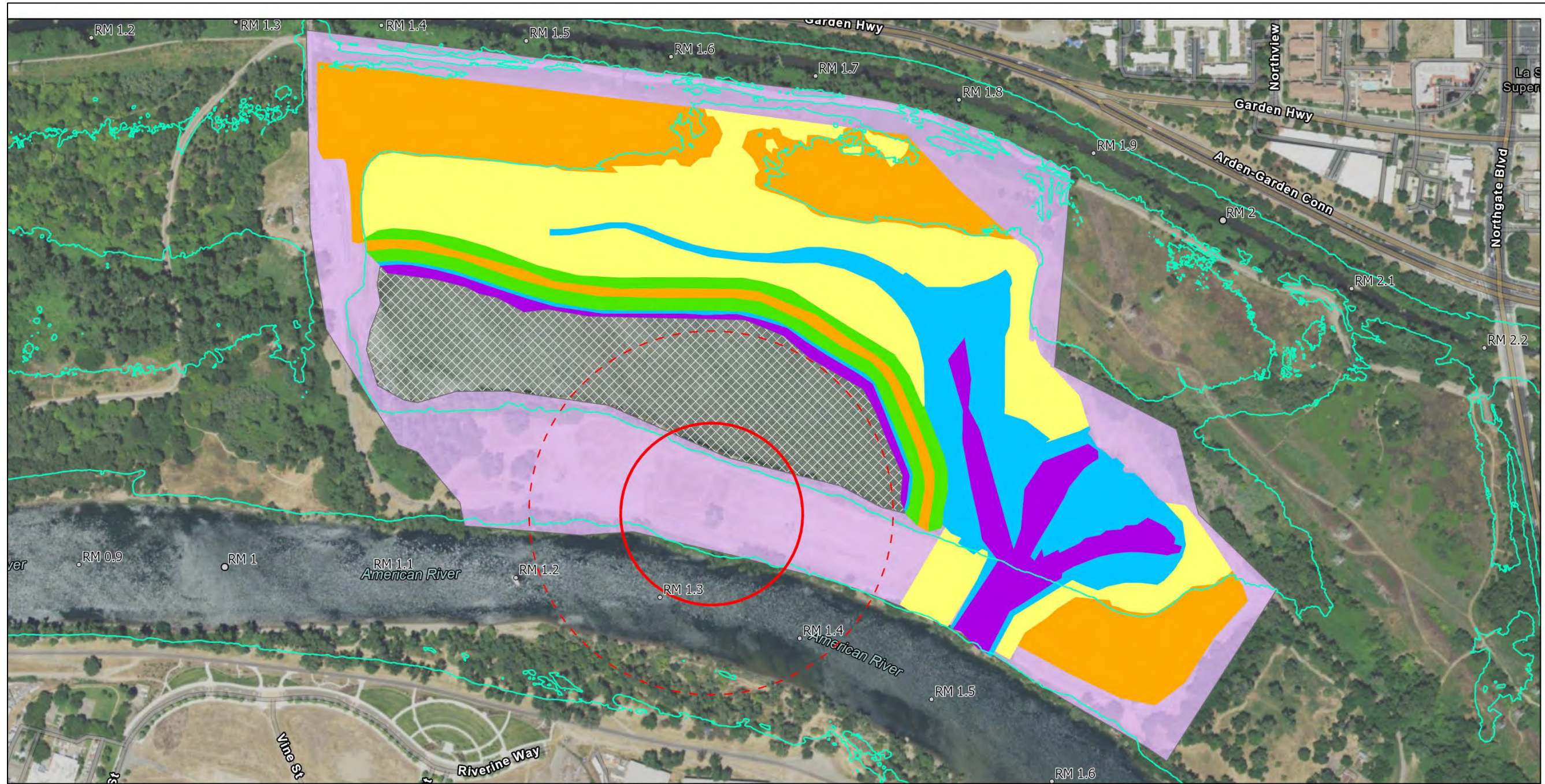
Alternative 4b is considered under CEQA only, at a program level. This alternative would be similar to the Proposed Action, except that the design for the ARMS would be changed to retain a portion of the existing man-made pond. This alternative was developed in response to County Parks' letter in response to the NOI, with the intention of identifying an alternative design that could retain a portion of the pond while avoiding known site constraints, including the eagle's nest. Retaining a portion of the pond would reduce the need for fill material to create riparian topography, thereby reducing the construction-related transportation, air quality, and GHG emissions impacts, enabling continued use of the pond by migratory waterfowl and retaining the option for future limited interpretive activities in and around the pond as described in the Discovery Park Area Plan portion of the American River Parkway Plan.

Design of this alternative was adjusted after field investigations identified site constraints relating to buried debris at various locations, pond sediments that cannot be disturbed, a bald eagle's nest requiring associated buffers, and the discovery of sensitive cultural and Tribal resources. In Alternative 4b, a berm with a top width of 30 feet would be constructed to retain the southern portion of the existing man-made pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. The remnant pond would be approximately 20 acres, and this alternative would include approximately 54 acres of floodplain habitat below elevation 24.

Mitigated acreage generated from this alternative would include 47 acres of salmonid habitat, 29 acres of YBCU habitat, and 22 acres of VELB habitat. Alternative 4b would not meet all the remaining mitigation requirements for VELB or salmonid habitat onsite, requiring the identification of another offsite mitigation site for this alternative, or requiring purchase of credits at approved mitigation banks. Arden Pond has previously been considered as a location for salmonid mitigation, and either Arden Pond or another location on the Lower American River would need to be added to accommodate the remaining mitigation need. This alternative would require approximately 718,000 cy of fill material imported (compared to approximately 857,000 cy of fill for the Proposed Action) and placed onsite, resulting in an approximately 15 percent reduction in import and soil handling compared to the Proposed Action. Figure 3.7.2-1 illustrates Alternative 4b.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, Piezometer Network

All other components of the Proposed Action would remain unchanged after selection of Alternative 4b.



E14
Sacramento
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Alternative 4b Project Footprint (CEQA Only)

Updated 12/8/2023

● RM tenths	■ Highflow Channel (Riverine)	■ Berm
□ OHWM	■ Low Riparian Connected Floodplain	■ Construction Access
	■ Lowflow Channel (Riverine)	▨ Pond
	■ Upland	■ Work Restriction Area

--- Seasonal Work Restriction Area

0 300 600 Feet

N

US Army Corps of Engineers
Sacramento District

Figure 3.7.2-1. Conceptual Site Design with Pit for Alternative 4b

3.8 Alternative 5: Alternatives for SRMS

The following alternatives would change SRMS. All other components of the Proposed Action (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would remain the same.

3.8.1 Alternative 5a: Purchase Mitigation Credits

Sacramento River Mitigation

Section 1163 of the Water Resources Development Act of 2016 (WRDA 2016) requires that the “Secretary shall issue implementation guidance that provides for the consideration in water resources development feasibility studies of the entire amount of potential in-kind credits available at mitigation banks approved by the Secretary and in-lieu fee programs with an approved service area that includes the location of the projected impacts of the water resources development project.” On March 25, 2019, the Director of Civil Works issued revised implementation guidance for Section 1163 of WRDA 2016, setting forth Corps policy governing use of mitigation banks and in-lieu fee programs to satisfy mitigation requirements for water resource development projects.

Alternative 5a would eliminate the need to construct the SRMS through the purchase of all remaining, required mitigation credits from USFWS-Approved Conservation Banks, whose service areas cover the ARCF 2016 Project impacts. There would be no additional resource impacts; however, this alternative would not comply with the current NMFS BO (WCRO-2020-03082, dated May 12, 2021). According to RIBITS, there are 20 mitigation banks whose service area covers our project and has credits available. Of those 20, only one lists VELB credits (River Ranch VELB Conservation Bank), and two list SRA/Salmon credits (Fremont Landing Conservation Bank and Cosumnes Floodplain Mitigation Bank). There are new banks being developed and proposed to Resource Agencies for VELB and SRA/Salmonids and Delta Smelt; However, their timeline is unknown.

American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network

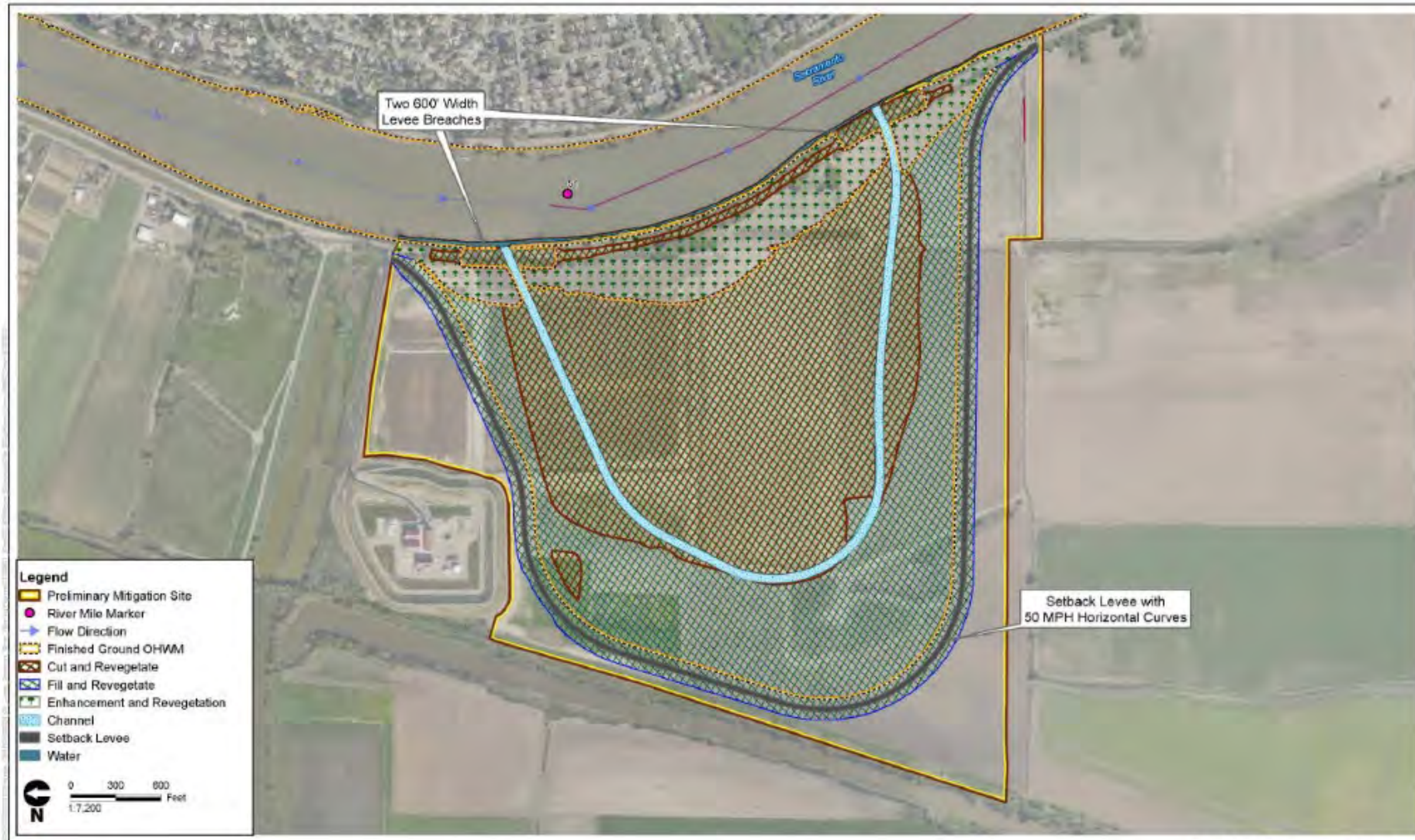
All other components of the Proposed Action would remain unchanged after selection of Alternative 5a.

3.8.2 Alternative 5b: Watermark Farms for Sacramento River Mitigation Site

Sacramento River Mitigation Site

This Alternative would consider an alternative location to complete the ARCF Sacramento River Mitigation requirements. The alternative site is named Watermark Farms and is located along the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25 and includes the water side of the levee, from top of slope to toe of slope, continuing from the toe of slope to the edge of the river, as well as the landward side of the levee and adjacent existing

farmland. This site is in private ownership and would need to be purchased before being used for mitigation as part of the ARCF 2016 Project. Figure 3.8.2-1 shows the conceptual design for Watermark Farms. All information available on Watermark Farms originated in the ARCF Mitigation Site Concept Development and Evaluation Report (GEI, cbec, and ICF 2020).



SRM-002 Conceptual Site Plan



Figure 4. Conceptual design for potential mitigation site SRM-002

Figure 3.8.2-1. Conceptual Designs for Watermark Farms

3.8.2.1 Features of the Alternative

The conceptual design would restore approximately 227 acres of riverine and floodplain habitat to provide ecological uplift for Federal and state special-status species and their habitats. The concept proposes breaching the existing levee along the banks of the Sacramento River and creating a new setback levee. Breaching the existing levee and creating a secondary channel would provide expansive floodplain and shallow-water channel habitat, suitable for salmonid species, green sturgeon, and Delta smelt. Grading on the interior of the site would gradually slope from the toe of the proposed setback levee to the secondary channel, with the secondary channel draining to the Sacramento River. The crown of the proposed setback levee maintains the elevation of the existing levee. The landward side of the proposed levee slopes to the existing ground with a 2:1 slope; the waterside extends to a proposed floodplain elevation of 22.5 feet with a 4:1 slope. South River Road would be realigned to follow the top of the proposed levee and would match existing conditions (two 10-foot-wide lanes with 5-foot-wide shoulders). The proposed levee alignment accommodates 50 mile per hour horizontal curves, which conforms to the existing speed limit of South River Road at this location. Horizontal curves were determined using 2011 American Association of State Highway and Transportation Officials standards with 4% super elevation. A total of 4,700 feet of the existing levee and road would be demolished, and two 600-foot-long levee breaches would be created at the north and south side of the site by excavating to the existing floodplain elevation. The remainder of the existing levee would be lowered by approximately 2 feet.

A 6,640-foot-long channel would connect the interior of the site to the Sacramento River and extend through both levee breaches. The invert of the channel would be 5 feet at the confluence with the Sacramento River and would extend to an elevation of 8 feet at a high point at the interior of the site. This falls within the tidally active range modeled for the site. The proposed channel would be 60 feet wide and would transition from 8 feet deep at the confluence to 2 feet deep at the channel high point. Channel dimensions were approximated and are not based on hydraulic modeling.

Grading within the interior of the proposed setback levee would maximize floodplain habitats within an elevation range between 8.1 and 22.5 feet. The setback levee is not included in habitat calculations. The concept provides 194.5 acres of modified (graded) habitat and 32.6 acres of enhanced habitat (areas that are revegetated but not graded). Of that habitat, approximately 9.8 acres would be tidally active (between 5.0 and 8.1 feet in elevation), About 208.8 acres would be floodplain (between 8.1 and 22.5 feet in elevation), and 6.8 acres would be upland (greater than 22.5 feet in elevation). Irrigation would be installed for the plant establishment period in the planted areas. Shoreline treatments would include placing IWM structures where feasible to enhance fish habitat. These zones may also include planting emergent vegetation such as bulrush (*Schoenoplectus* spp).

Concept grading was evaluated in two separate zones: the setback levee and habitat grading. The setback levee was delineated as the grading to the existing ground on the landward side and to an elevation of 22.5 feet on the water side. About 793,781 cubic yards of finished grade soil, compacted to levee construction standards, would be required. If a compaction standard of 25% is assumed, this may require closer to 1 million cubic yards of material for levee construction. Levee grading was not included in the grading volumes used for cost estimating in this report

because a separate unit cost for levee construction was provided instead. Habitat grading would not require strict compaction standards. Using a cut-to-fill ratio of 1:1, the concept would require 529,108 cubic yards of cut and 520,640 cubic yards of fill for habitat areas. A value of 530,000 cubic yards was used for cost estimating and it was assumed that habitat grading could be balanced on-site; measures may include steepening the levee embankment on the water side, enlarging the proposed channel, and/or providing additional channels, further lowering the existing levee elevation, and borrowing material from the land side of the proposed setback levee. This concept assumes that levee construction would not require hauling material from off-site. If it becomes necessary, the construction contractor would acquire construction materials from outside sources. The physical characteristics of this material would meet USACE requirements as established in the project plans and specifications. The material sources also must have current permits for operation, meet the required environmental standards, be approved in writing by USACE and within 50 miles of the project site. The construction contractor would be responsible for selecting a disposal site located outside the construction limits. This disposal site would have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

3.8.2.1.1 Construction Schedule, Materials, and Equipment

This site would need to be purchased prior to construction. It is anticipated that construction would occur over three construction seasons, with vegetation removal occurring the fall and spring before construction begins. Construction could be phased in a way that builds the setback levee the first season, grades the inner area and carves the channel the second season, and breaches the levee the third season, hydrologically connecting the site to the Sacramento River. Vegetation planting and greening could occur in any of the construction seasons. The site would be constrained by the flood season, in-water work window, and nesting bird work windows. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. Trash, excess construction materials, and construction equipment would be removed, and the site would be left in a safe and clean condition.

To the maximum extent possible, material removed from the levee and interior of the site would be used to build the levee setback and modify the internal elevations. The exact volume of cut and fill material required to construct the SRMS has not yet been determined; interior grading is estimated to be a balance of cut and fill with no import of material, but that up to 1 million cubic yards would be needed for the setback levee.

3.8.2.1.2 Haul Routes, Access Routes, and Staging Areas

The Watermark Farms site access and haul routes would be via South River Road and by private farm roads within the site. Trucks and workers would access the regional road network via Burrows Avenue, Courtland Road, Sutter Slough Bridge Road, Jefferson Boulevard/CA-84, and US-50. Access to the site is controlled by locked gates at the turn off from South River Road. Some work such as tree trimming, minor grading, paving, and adding aggregate may need to be done along the haul/access routes to allow access to the site. The staging areas would be located within the SRMS boundary. Staging areas would be fenced and would have security lighting. Staging areas would be used for material stockpiles, construction office and trailers, construction worker vehicle parking, and equipment staging. Haul traffic may also pass through staging areas. Waterside staging areas would be subject to strict containment and spill prevention BMPs. Once

work is complete, staging areas would be returned to their initial conditions or planted with native vegetation to provide additional habitat. Because of the remote location, the project is unlikely to affect bus routes, bike trails, or emergency responder routes.

3.8.2.1.3 Operations and Maintenance

A habitat management plan would be developed and implemented in coordination with USFWS, NMFS, and NFS to ensure that the native vegetation plantings are managed, monitored, maintained, and protected in perpetuity. This document would follow ER1105-2-100. The site could require temporary irrigation and beaver fencing to ensure vegetation growth and habitat success during the 8- to 10-year monitoring period. Maintenance and management activities could include, but are not limited to, plant replacement, weeding, invasive species management, irrigation, and trash removal. Long-term maintenance will transfer to the NFS.

American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network

All other components of the Proposed Action would remain unchanged after selection of Alternative 5b.

3.8.3 Alternative 5c: Delta Smelt Bank and Sunset Pumps Mitigation Credits

Sacramento River Mitigation

Section 1163 of PL 144-322 (Water Resources Development Act of 2016 (WRDA 2016)) requires that the “Secretary shall issue implementation guidance that provides for the consideration in water resources development feasibility studies of the entire amount of potential in-kind credits available at mitigation banks approved by the Secretary and in-lieu fee programs with an approved service area that includes the location of the projected impacts of the water resources development project.” On November 16, 2017, the Acting Assistant Secretary of the Army, issued a memorandum with implementation guidance for WRDA 2016 covering Civil Works activities’ wetland mitigation (including other waters of the U.S.). It applies to habitat mitigation for general fish and wildlife under the Fish and Wildlife Coordination Act and Federally listed species habitat under the Endangered Species Act.

This implementation guidance aligns the USACE Civil Works policy partially with the USACE Regulatory 2008 “Compensatory Mitigation Rule” (40 CFR Part 230 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule) preferences hierarchy. Instead of onsite and offsite mitigation being viewed most favorably as it had been in the past in Civil Works policy, the 2019 implementation guidance shifted preferences to use offsite mitigation banks and in-lieu fee programs as coequal mitigation alternatives so long as those programs or banks were USACE-approved by Regulatory, and a USACE-approved functional assessment is conducted. The implementation guidance also states that pre-release credits can be reserved; if the bank is approved and if a USACE-approved functional assessment is conducted. In practice, this allows USACE to react to the current market conditions in terms of analyzing alternatives that take into consideration 1) bank credit availability, 2) in-lieu fee availability, 3) availability of suitable on-site mitigation, and 4) off-site mitigation properties.

This Alternative would combine three less-conventional components to complete the ARCF Sacramento River Mitigation requirements. The first component is purchasing Delta Smelt Conservation Bank credits from USFWS-approved banks whose service area complies with the requirements in the BO. The second component is funding a project identified on NMFS recovery plans and listed as high priority for Reclamation, DWR, and USFWS. The project is called Sunset Pumps and includes the removal of a rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon, and steelhead. A Feasibility/Alternatives Evaluation Study for the Sunset Weir and Pumps Fish Passage Project was prepared by DWR in 2022 (Department of Water Resources, 2022). The project is undergoing its own NEPA/CEQA compliance; however, there are no publicly available documents at the time this Draft SEIS/SEIR has been written. The third component of this alternative is also facilitated through the Sunset Pumps Project. In agreements with USFWS to remove a weir and update the pumping facility, the local irrigation district would be required to provide water to two local wildlife refuges. By funding the project and supporting the water allocation, the USACE would receive “credit” for riparian habitat mitigation within the yellow-billed cuckoo migration corridor for the 2016 ARCF Project.

American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek, American River Mitigation, Piezometer Network

All other components of the Proposed Action would remain unchanged after selection of Alternative 5c.

3.9 Alternative 6: No Project Alternative (CEQA)

For CEQA, the No Project analysis must discuss the existing conditions (generally those at the time the Notice of Preparation (NOP) is published), as well as what would be reasonably expected to occur in the foreseeable future, based on current plans and consistent with available infrastructure and community services, if USACE and CVFPP were not to adopt and implement the Proposed Action (State CEQA Guidelines Section 15126.6[e][2]). For this document, the existing conditions are set at January 2023.

Although some previously authorized ARCF 2016 Project components have been constructed, the CEQA No Project Alternative does not include additional improvements beyond those already constructed and would result in a continued risk to catastrophic flooding.

Under the No Project Alternative, USACE and CVFPP would not conduct any additional work to improve flood system protection in the Sacramento and American Rivers or Magpie Creek, or to address levee erosion concerns that have been identified along the Sacramento and American Rivers. Because additional flood risk reduction measures would not be implemented to address existing flood control concerns on the lower American and Sacramento Rivers, the Sacramento metropolitan area would remain at risk for catastrophic flooding which could result in the loss of lives and irreparable damage to homes and business.

Under the No Project Alternative, current O&M activities by USACE and CVFPP would continue, and the existing flood protection system would continue to provide some protection from flooding events. However, the existing system would continue to require risk reduction

measures to meet current levee design criteria. In addition, the associated risk to human health and safety, property, the environment, and the adverse economic effect that serious flooding could cause would continue, and the risk of a catastrophic flood would remain high.

3.10 Environmentally Superior and Environmentally Preferred Alternative(s)

The State CEQA Guidelines require identification of an environmentally superior alternative from among the proposed project (i.e., Proposed Action) and the alternatives evaluated. CEQA Guidelines section 15126.6(e)(2) states that “If the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives”. Federal NEPA guidelines also recommend that an environmentally preferred alternative be identified; however, under NEPA, that alternative does not need to be identified until the final record of decision is published. Therefore, the discussion in this section of the environmentally superior alternative is intended to satisfy CEQA requirements.

Under the No-Action Alternative, the remaining components of the authorized 2016 ARCF GRR FEIS/EIR would be constructed. As defined in the 2016 ARCF GRR FEIS/EIR and the previous supplemental documents identified in Section 2.1.1., development of the action alternatives included consideration of potential effects on environmental resources (e.g., waters of the United States, air quality, and habitat).

Analysis of these and other impacts is provided in Chapter 4. Significant impacts to certain environmental issue areas (e.g., noise, transportation, natural resources, visual resources), would not vary regardless of the action alternative selected. The Proposed Action and Action Alternatives analyzed in this SEIS/SEIR represent both new alternative components and substantial refinements to Alternative 2 of the ARCF GRR FEIS/EIR. These refinements would substantially reduce or avoid several of the significant impacts identified in the ARCF GRR FEIS/FEIR, including hydraulic impacts, impacts on riparian vegetation, and loss of heritage oaks. Table 3.3.4-1 presents a summary of the various alternatives that have been considered for the project components.

Based on the conclusions in Chapter 4, the Proposed Action (Alternative 2) would have the fewest overall environmental impacts, as well as the least environmentally damaging impacts, and therefore would be the environmentally superior alternative under CEQA.

Chapter 4. Affected Environment and Environmental Consequences

4.1 Introduction

4.1.1 Approach to the Analysis

Chapter 4, “Affected Environment and Environmental Consequences,” includes a summary of the impacts of the Proposed Action and the Alternatives and identifies mitigation measures that could be implemented to reduce significant impacts. The chapter subsections in Chapter 4 summarize the detailed analyses that are included in Appendix B of this SEIS/SEIR containing comprehensive existing conditions, laws, and regulations applicable to the individual resources, methodology of analysis, and the basis of significance for impact determination.

Included in this SEIS/SEIR is analysis required by NEPA implementing regulations, 40 CFR § 1502.16 Environmental Consequences, which includes the following:

1. The environmental impacts of the proposed action and reasonable alternatives to the proposed action and the significance of those impacts. The comparison of the proposed action and reasonable alternatives shall be based on this discussion of the impacts.
2. Any adverse environmental effects that cannot be avoided should the proposal be implemented.
3. The relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity.
4. Any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented.
5. Possible conflicts between the proposed action and the objectives of Federal, regional, State, Tribal, and local land use plans, policies, and controls for the area concerned.
6. Energy requirements and conservation potential of various alternatives and mitigation measures.
7. Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.
8. Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.

9. Means to mitigate adverse environmental impacts.
10. Where applicable, economic and technical considerations, including the economic benefits of the proposed action.

The State CEQA Guidelines require an EIR to include an evaluation of potentially significant effects on the physical environment associated with a “proposed project” (Alternative 2 or “Proposed Action” for this project) and to identify feasible mitigation for any significant adverse effects. As stated in 14 California Code of Regulations (CCR) Section 15126.2:

An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, and human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected.

An EIR must also discuss inconsistencies between the project and applicable adopted general plans and regional plans (14 CCR Section 15125[d]). An EIR must describe potentially feasible measures that could avoid or minimize significant adverse impacts (14 CCR Section 15126.4[a][1]) and feasible and practicable measures that are fully enforceable through permit conditions, agreements, or other legally binding processes (CCR Section 15126.4[a][2]). Under CEQA, mitigation measures are not required for effects that are found to be less than significant. Chapter 4, “Affected Environment and Environmental Consequences,” is organized by issue area, and includes all of the topics in the CEQA Environmental Checklist (State CEQA Guidelines Appendix G, as amended).

4.1.2 Format and Content

Each section of Chapter 4 identifies the key setting information and effects analysis for a particular topic area. These sections provide an overview focused on the significant effects of the Proposed Action and the Alternatives, briefly summarizing more detailed analysis which is included in Appendix B, “Detailed NEPA and CEQA analyses.” Sections in Chapter 4 do not necessarily include a discussion of every topic included in Appendix G of the State CEQA Guidelines, nor do the “Existing Conditions” include all regulations and setting information considered in the analysis. The topic sections in Appendix B include additional detailed information and analysis, including analysis for each of the questions included in Appendix G of the State CEQA Guidelines, and additional topics required for NEPA analysis, including Environmental Justice.

The sections in Chapter 4 are intended to provide a concise summary of anticipated effects for each topic area.

Mitigation measures have been previously adopted for the ARCF 2016 Project in the ARCF GRR FEIS/EIR and the previous supplemental documents identified in Section 2.1.1, “Related Documents and Resources.” New mitigation measures, or any mitigation measures that have been modified after their previous adoption, are identified in the text.

4.2 Human Environment

4.2.1 Transportation and Circulation

4.2.1.1 Existing Conditions

4.2.1.1.1 Regional and Local Roadways

Major highways used to access the project sites include Interstate 5 (I-5), I-80, I-80 Business, State Route (SR) 160, and U.S. Highway 50. Other major roads used to access project sites and haul materials primarily include Howe Avenue, Watt Avenue, Folsom Boulevard, Fair Oaks Boulevard, Exposition Boulevard, American River Drive, Raley Boulevard, Vinci Avenue, and Dry Creek Rd. A complete description of haul routes and access areas for each project component can be found in Section 3.5, “Alternative 2: Proposed Action.”

4.2.1.1.2 Bicycle and Pedestrian Facilities

The Jedediah Smith Memorial Trail extends 32-miles from Discovery Park near where I-5 crosses the American River, to Beal’s Point Recreation Area. The trail can be accessed from most parks in the American River Parkway and several parks in Folsom. The trail is paved and is commonly used by bicyclists for commuting and recreational purposes.

The American River Contract 3B (North and South) and Contract 4A project components include sites located alongside the Jedediah Smith Memorial Bike Trail.

The Sacramento River Parkway includes a paved trail along the levee top from Garcia Bend Park to Freeport Boulevard, passing through the project site for the Sacramento River Erosion Contract 3.

The Sacramento Northern Bike Trail extends from C Street in midtown Sacramento to the community of Elverta in northern Sacramento County. The Sacramento Northern Bike Trail passes the American River Erosion Contract 4A and MCP components.

4.2.1.2 Environmental Effects

4.2.1.2.1 No Action Alternative

Impacts to transportation analyzed under the 2016 GRR FEIS/EIR and thus for this SEIS/EIR No Action Alternative would involve use of heavy vehicles to transport materials along highways and local roads that provide access to the project levees. Haul trucks would increase traffic on major streets such as Watt Avenue, Fair Oaks Boulevard, Howe Avenue, and Folsom Boulevard

for American River levee improvements and on Pocket Road, Freeport Boulevard, and Riverside Boulevard for Sacramento River improvements.

Impacts under the No Action Alternative would be short-term and significant until construction is completed. However, after construction is completed, there would be no long-term impacts and traffic would return to the pre-project conditions.

4.2.1.2.2 Proposed Action

Table 4.2.1-1. Summary of Transportation and Circulation Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.1-a and c	Conflict with a program, plan, ordinance or policy relating to transportation, or increase hazards due to design or uses	Significant and Unavoidable	Significant and Unavoidable.
2.1-d	Result in inadequate emergency service.	Less than Significant with Mitigation Incorporated	Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Table 4.2.1-2. Transportation and Circulation Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.1-a,c	MCP, ARMS, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B	TRANS-1	Significant and Unavoidable	Significant and Unavoidable
2.1-a, c	Sacramento River Erosion Contract 3, SRMS	TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated
2.1-d	MCP, ARMS, SRMS, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	TRANS-1	Less than Significant with Mitigation Incorporated	Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated

Notes: The Piezometer Network installation would have minimal to no effect on Transportation and Circulation.

A more detailed description of the impacts of the Proposed Action to transportation and details of Mitigation Measure TRANS-1 is available in Appendix B Section 2.1 “Transportation”.

Magpie Creek Project

Raley Boulevard would be closed to through traffic between Santa Ana Avenue and Vinci Avenue for an estimated 3-month period during the construction of the new crossing structure for the MCDC. Impacts to emergency routes from the road closures would be mitigated with

Mitigation Measure TRANS-1; however, the Raley Boulevard closure would still be significant and unavoidable under both NEPA and CEQA.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B

Erosion protection work from American River Contract 3B and American River Contract 4A would impact the Jedediah Smith Memorial Trail. These impacts would be temporary, only occurring during the summer construction seasons. Mitigation Measure TRANS-1 would reduce the transportation impact to bicycle and pedestrian facilities to less than significant.

Transportation of materials on and off project sites for American River Erosion Contract 4A and American River Erosion Contract 4B would occur throughout the construction timeline. As for other project components, the increased truck trips for material hauling would cause a significant impact to transportation resources, remaining significant and unavoidable after implementing Mitigation Measure TRANS-1.

Sacramento River Erosion Contract 3

Erosion protection work would impact the Sacramento River Parkway trail between Garcia Bend Park and Freeport Boulevard. These impacts would be temporary, only occurring during the summer construction season. Detours for work disrupting this segment of the Sacramento River Parkway trail would be coordinated with the City of Sacramento. Mitigation Measure TRANS-1 would be implemented to reduce the significant impacts to bicycle and pedestrian facilities to less than significant. Materials would be hauled to the project location for erosion work by barge; therefore, this project component would include only incidental truck trips for small volumes of materials not transportable by barge. The impact from increased heavy truck trips would be less than significant with mitigation.

American River Mitigation Site, Sacramento River Mitigation Site

Construction activities for the ARMS and the SRMS would include material hauling via truck over a 2-year (SRMS) or 3-year (ARMS) period. For the ARMS, this would result in a significant impact that would remain a significant and unavoidable impact even after implementing Mitigation Measure TRANS-1. However, Mitigation Measure TRANS-1 would reduce SRMS impacts to Less than Significant with mitigation (under CEQA) and short-term and minor effects that are less than significant with mitigation incorporated (under NEPA).

4.2.1.2.3 Alternatives

Alternative 3a

Alternative 3a would only change the American River Contract 4A by replacing the waterside berm with a landside berm between the levee and the State Route 160 bridge piers. This would avoid temporary or permanent bike trail closures and reduce the amount of materials and equipment needed that are part of the Proposed Action, reducing transportation impacts for the American River Contract 4A project component compared to the Proposed Action, but not changing significance conclusions. All other project components would be the same as the Proposed Action.

Alternatives 3b, 3c, and 3d

Alternatives 3b, 3c, and 3d would slightly change the American River Contract 4A bike trail re-route. The modifications to the bike re-route under these Alternatives would not substantially change the distance and the materials volumes and associated truck trips and transportation impacts would be unchanged from the Proposed Action. Therefore, impacts would remain the same as the Proposed Action.

Alternative 4a (CEQA-Only)

Alternative 4a (CEQA-Only) would change the ARMS by retaining a portion of the existing man-made pond, which would reduce the need for fill and associated truck trips compared to the Proposed Action. Implementing Alternative 4a would reduce the number of heavy truck trips by approximately 30 percent compared to the Proposed Action but would still result in a significant and unavoidable impact for this project component.

Alternative 4b (CEQA-Only)

Alternative 4b (CEQA-Only) would change the ARMS by retaining a portion of the existing man-made pond, which would reduce the need for fill and associated truck trips compared to the Proposed Action. Implementing Alternative 4b would slightly reduce the number of heavy truck trips compared to the Proposed Action but would still result in a significant and unavoidable impact for the ARMS project component.

Alternatives 5a and 5c

Alternatives 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no impacts to transportation and circulation for the SRMS project component under this alternative, compared to the Proposed Action's less than significant impact after mitigation is incorporated for the SRMS project component.

Alternative 5b

Watermark Farms, located on the right bank of the Sacramento River between RM 50.5 and 51.25 would be used as the mitigation site for Sacramento River-related habitat impacts. This alternative would use different haul routes than those identified for the Proposed Action, and would require substantially greater soil import, resulting in a substantial increase in truck trips and an increase in transportation impacts compared to the Proposed Action. Alternative 5b would have a significant and unavoidable transportation impact for the SRMS project component, compared to a less-than-significant impact after mitigation for this project component under the Proposed Action.

4.3 Recreation

4.3.1.1 Existing Conditions

Water recreation such as rafting, kayaking, paddleboarding, and fishing are common on the American River. Motorized boating, fishing and water skiing are common on the Sacramento River. The Watt Avenue boat launch is within the project site. Garcia Park and Miller Park boat launches would be used to access the Sacramento Erosion Contract 3 project site. There are no water based recreational opportunities known within the Magpie Creek area.

The Jedediah Smith Memorial Trail is an important multi-use trail within the project site. In addition, the Sacramento Northern Bike Trail is within the project site. Both the American River Parkway (used for walking, cycling, running, hiking, bird watching, wildlife viewing, and horse riding) and the Sacramento River Parkway (used for biking and pedestrian access) are in the project site. Larchmont Community Park, University Park, Oak Meadow Park, Glenbrook Park River Access, Garcia Ben Park, Miller Regional Park, Camp Pollock, Discovery Park, the Walter S Ueda Parkway, the Dry Creek Parkway, Waterton Way River Access, Kadema Drive River Access, Estates Drive River Access, and North Point Way River Access are within the Project Site. In addition, Grand Island is in the Sacramento- San Joaquin Delta which is an area frequented by boaters and other water recreators. A more detailed description, maps of the project sites in relation to the recreational areas are available in Appendix B Section 2.2.

4.3.1.2 Environmental Effects

4.3.1.2.1 No Action Alternative

The detours and disruptions caused by closure of portions of the Jedediah Smith Memorial Trail and the top of levees along the American River during project construction conflict with the requirements of the Wild and Scenic Rivers Act, having a significant direct impact on the tranquility of river areas within the project site, and causing a significant unavoidable impact to recreational resources. Mitigation measures listed in section 3.14.6 of the 2016 ARCF GRR FEIS/EIR are being implemented to minimize the impacts as much as feasible, although short-term significant unavoidable impacts to recreational resources will occur. In addition, construction vehicles will cause significant unavoidable impacts to recreational resources kept open due to increases in traffic, noise, visual effects, odors, and air emissions. University Park would be closed during construction of American River Contract 2, reducing the recreational experiences of the park. Garcia Park and Miller Park would be used for construction staging for Sacramento East Levee Seepage, Stability and Overtopping Contract 2 and Contract 4.

Closures of the levee crown along the Sacramento River is having direct short-term impacts to recreation due to closure of the recreational trail along some sections of the top of the levee. Walking trails and the bike path may be rerouted during construction. Paved parking areas of Miller Park and Garcia Bend Park are being used for staging; however, the boat ramps are accessible to the public. Overall, direct short term significant impacts to recreation along the Sacramento River are occurring.

Construction of Magpie Creek will have a less than significant impact on recreational facilities. The only recreational facility in the area is the Sacramento Northern Bike Trail and it will not be negatively impacted by construction activities.

The short-term significant unavoidable impacts related to recreational resources cannot be reduced to a less-than-significant level with implementation of mitigation measures listed in Section 3.14.6 of the ARCF GRR Final EIS/EIR. Disturbances associated with construction work and hauling are unavoidable effects of the work to be completed and consequentially the significant impact on recreation cannot be avoided.

4.3.1.2.2 Proposed Action

Table 4.2.2-1. Summary of Recreation Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	Less than Significant	Short-term to Medium-Term and Moderate to Major effects that are Less than Significant.
2.2-b	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant
2.2-c	Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable, Long-term Negligible Effects that are Less than Significant with Mitigation Incorporated

Table 4.2.2-2. Recreation Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a	ARMS, SRMS, Piezometer Network	N/A	No Impact	No Impact
2.2-a	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP	N/A	Less than Significant	Short-term to Medium-Term and Moderate to Major effects that are Less than Significant
2.2-b	MCP, American River Erosion Contract 3B, Sacramento River, ARMS, SRMS, Piezometer Network	N/A	No Impact	No Impact
2.2-b	American River Erosion Contract 4A	REC-1	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant with Mitigation Incorporated
2.2-c	MCP	REC-1	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated	Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated
2.2-c	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable with Mitigation Incorporated, Long-term No Impact
2.2-c	American River Erosion Contract 4A	REC-1	Short-term Significant and Unavoidable, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant.
2.2-c	Sacramento River Erosion Contract 3	REC-1, REC-2	Less than Significant with Mitigation Incorporated	Short Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated
2.2-c	ARMS	REC-1	Short-term Significant and Unavoidable impact, Long-term Less than Significant	Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant
2.2-c	SRMS	REC-2	Less than Significant with Mitigation	Short-term and Negligible effects that are Less than Significant.
2.2-c	Piezometer Network	N/A	Less-than Significant	Short-term and Minor effects that are Less than Significant

A more detailed description of the impacts of the Proposed Action to recreational resources and details of Mitigation Measures REC-1 and REC-2 are available in Appendix B Section 2.2 “Recreation.”

Magpie Creek Project

There would be a less than significant impact related to increasing existing use of nearby recreational facilities. No new recreational facilities would be built or expanded, so there would be no environmental impact from construction of new recreational facilities. The Sacramento Northern Bike Trail, which is the only major paved bike trail in the area and a major bike connection for the area to central Sacramento, would be detoured while the culvert under it is installed. The bike trail would be closed for several months and bicyclists would have to use streets instead. The detour and resulting loss of natural views and sounds would result in a direct short-term significant and unavoidable impact on recreation. Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), would be implemented but the impact would remain direct short-term significant and unavoidable impact on recreation.

Small portions of Walter S. Ueda Parkway and Dry Creek Parkway would be used for staging. Staging and site access would have a less than significant impact to recreation since only a small portion of the Walter S. Ueda Parkway and Dry Creek Parkway would be used and that area is generally fenced off.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B

Because the service ratios (the parkland to population ratios that are set by local governments to ensure adequate parklands are incorporated into development) would not significantly change due to closures (Appendix B 2.2, Table 2.2-1) and because the recreational area closures would be temporary, there would not be any anticipated accelerated degradation on nearby recreational areas. There is a less than significant impact to increasing existing use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. Closures of portions of the American River Parkway, disruptions from construction equipment, disruptions from haul trucks, and possible closures to hiking and equestrian trails, and impacts to recreational events would create short-term significant and unavoidable impacts on recreation in the American River Parkway. Previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4) would be implemented to try to reduce impacts as much as possible, but the impacts would still be short-term significant and unavoidable.

Many parks are in the project site and would be used for staging and site access. All or part of these parks would be made unavailable during tree clearing, construction, and greening of the site. Larchmont Community Park hosts soccer leagues, which would be impacted by use of two of the soccer fields for staging. Some trees within the parks may need to be removed to allow for use of parks for access and staging. In addition, recreationalists at parks kept open near the

project site would have degraded recreational experiences due to the views and sounds of construction equipment and haul trucks. Park closures, tree removal, soccer league impacts, and recreational experience disruptions to nearby parks would create a short-term significant and unavoidable impact to the recreational use of these parks. In the long term, American River Erosion Contract 3B would result in less-than-significant impacts after construction activities are complete and vegetation matures.

American River Erosion Contract 4A

As described under American River Erosion Contract 3B North and South, American River Contract 4A would not cause an increase in existing use of nearby recreational facilities in a manner that would cause a significant impact. The Jedidiah Smith Recreational Trail would be rerouted as part of the Proposed Action. The rerouted path would follow existing trails, but there would be vegetation removal along the trail. This rerouted bike trail is also adjacent to an equestrian route, so consultation would be conducted with Sacramento County Department of Regional Parks to ensure that the bike trail reroute is designed in a manner that does not cause safety issues for equestrian use. The rerouted bike path would also be closer to the river and provide a larger buffer between the bicyclists and the urban areas on the landside of the levee, which would provide a recreational benefit to the area. Previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4) would be implemented to reduce impacts as much as possible, but the impacts would still be short-term significant and unavoidable. However, the Proposed Action would result in a long-term less-than-significant impact to recreation after construction activities are complete and vegetation matures.

Sacramento River Erosion Contract 3

Similar to what is already described under American River Erosion Contract 3B North and South, Sacramento River Erosion Contract 3 would not cause an increase in existing use of nearby facilities in a manner that would cause a significant impact. The top of levee portions of the Sacramento River Parkway, the North Point Way River Access, and bike trails would be closed to recreation for 8 weeks during tree clearing which is anticipated to occur between November and February prior to the 2025 and 2026 construction years. Since this closure would only be during tree clearing, detours would be provided under previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), there would be a less-than-significant impact on recreation in the area due to tree clearing. Small portions of the Sacramento River Parkway, consisting of a strip of land at the edge of the park and project, would be closed during construction. Since these areas are small and most of the Sacramento River Parkway would be accessible there would be a less-than significant-impact on recreation in the area due to construction.

Construction from barges could disrupt boaters recreating on the Sacramento River; however, Mitigation Measure REC-2, Implement Measures to Notify Boaters (See Appendix B 2.2, Section 2.2.3.4), would be implemented to ensure that impacts to boaters would be less than significant. Finally, use of private docks within the project footprint could be impacted by

construction. A less-than-significant impact to the recreational use of private docks is anticipated because of the limited in-water rights specified in dock owners' encroachment permits, including the condition that docks may be removed to facilitate levee reconstruction work.

American River Mitigation Site

There would be a no increase of use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. It is not anticipated that recreational facilities would need to be closed due to the Proposed Action. Accordingly, no project-related pressure on nearby recreational facilities will arise. The ARMS is privately owned, and the design features would not include developing additional recreational resources. Additionally, "No Trespassing" signs would be installed. Since the property would remain closed to the public, there would be no direct impact to recreation from direct use of the site as a mitigation site. The area is used for wildlife and bird watching from adjacent parcels. During construction, wildlife and birds would likely be scared away from the site but once the mitigation site is established, it is anticipated that restoring a more natural habitat would provide benefits to a wider range of native and migratory birds.

Access to the site during construction might be needed through Camp Pollock and Discovery Park. If this were to occur, there would be a short-term significant and unavoidable impact to the recreational use of Camp Pollock and Discovery Park. Haul trucks would disrupt the noise, air pollution, odors, and visual resources for those wanting to recreate at Camp Pollock and Discovery Park. Because flaggers would be present when there is high construction traffic, this would be a less-than-significant impact with implementation of previously adopted Mitigation Measure REC-1, Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas (See Appendix B 2.2, Section 2.2.3.4), to those using the Jedediah Smith Memorial Trail. However, the Proposed Action would result in a long-term less-than-significant impact on recreation after construction activities are complete.

Sacramento River Mitigation Site

Use of nearby recreational facilities will not increase due to work associated with SRMS. It is not anticipated that recreational facilities would need to close due to the Proposed Action so there would be no impact on nearby recreational facilities. There are no major roads leading to the site or through the site that could encourage the public to use the site for recreation and there are "no trespassing" signs posted at the borders of the site. The SRMS will not be directly used for recreation. Temporary disturbance of the riverbank during site construction may look displeasing for those boating or fishing on the Sacramento River or using the Hidden Harbor Marina. Because the effects would be localized and short term in nature, and implementation of the previously adopted Mitigation Measure REC-2, Implement Measures to Notify Boaters (See Appendix B 2.2, Section 2.2.3.4) would alert boaters to the work in the area, impacts would be reduced to less than significant.

Piezometer Network

There would be no impact to use of nearby recreational facilities. No new recreational facilities are being built or expanded, so there would be no environmental impact from construction of new recreational facilities. Installation of the Piezometer Network could disturb bike trails and maintenance roads used for recreation on the tops of levees. Only one lane of paved bike trails would be closed at a time for equipment access during installation of the Piezometer Network. In addition, the infrastructure associated with the Piezometer Network is small enough that it would be installed in locations that would not disturb recreational activities. Because all permanent infrastructure associated with the Piezometers would be installed in locations that do not conflict with recreation and because the infrastructure is generally small, there would be a less-than-significant impact on recreation.

Some staging areas (Appendix B 2.2 Recreation) would be located in recreational areas. Long term storage would be limited on recreational areas as much as feasible, but there is a chance that up to 0.3 acres of a recreational area could be used for up to 4 months. Because no full park closures are expected, long term staging would be limited as much as possible and because construction activity would not be consistent at the staging areas, the short-term impacts to the recreational areas would be less than significant.

4.3.1.2.3 Alternatives

Alternative 3a

Alternative 3a would only change the American River Contract 4A by replacing the waterside berm with a landside berm between the levee and the State Route 160 bridge piers. This would avoid temporary or permanent bike trail closures and would substantially reduce the impacts of the Proposed Action on the Jedediah Smith Memorial Trail, avoiding a short-term significant and unavoidable impact of the Proposed Action. All other project components would be the same as the Proposed Action.

Alternatives 3b, 3c, and 3d

Alternatives 3b, 3c, and 3d would slightly change the American River Contract 4A bike trail re-route. The modifications to the bike re-route under these Alternatives would not substantially change the recreation effects of the Proposed Action.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b (CEQA-Only) would change the ARMS by constructing a berm to maintain a portion of the manmade pond. These alternatives would not affect existing recreation opportunities differently than the Proposed Action, and future recreational opportunities at the ARMS would be similarly limited by the presence of mitigation areas and sensitive species. There would be no change in significance for recreation impacts compared to the Proposed Action.

Alternatives 5a and 5c

Alternative 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects for which environmental review

is the responsibility of other agencies. Consequently, there would be no impacts to recreational resources for the SRMS project component for these alternatives, compared to a less-than-significant impact after mitigation for the Proposed Action.

Alternative 5b

Alternative 5b would include mitigation for Sacramento River impacts at the Watermark Farms site in Yolo County instead of at the SRMS. The Watermark Farms site is currently in private ownership and used for agriculture; modifications at the site would not affect existing recreation opportunities or require new recreational facilities. This alternative would have no impacts to recreational resources.

4.3.2 Public Utilities and Services

4.3.2.1 Existing Conditions

Section 2.3, “Public Utilities and Services,” in Appendix B provides details on service providers and existing utility facilities at the project sites.

4.3.2.2 Environmental Effects

4.3.2.2.1 No Action Alternative

The project authorized in the ARCF GRR Final EIS/EIR anticipated effects to public utilities and service systems. Public utilities and services systems analyzed in the ARCF GRR Final EIS/EIR included water supply, storm water, wastewater, solid waste, electrical and natural gas, telephone and cable, and fire and police protection services.

Implementation of the No Action Alternative requires the relocation or alteration of water supply infrastructure at all ARCF GRR Final EIS/EIR project sites. These relocations or alterations could result in minor service interruptions. In the Sacramento River portion of the ARCF GRR Final EIS/EIR project, increased turbidity near the in-stream intake facilities, due to construction of bank protection sites and increased fugitive dust during slurry wall and slope reshaping work, could result in service disruptions while water quality is degraded. Service disruptions to stormwater systems could occur due to increased turbidity in runoff in all ARCF GRR Final EIS/EIR project areas.

Temporary interruptions to wastewater, telephone, cable, electrical, and natural gas service are likely during temporary relocations of infrastructure, such as poles, lines, or pipes in all ARCF GRR Final EIS/EIR project areas.

Construction under the No Action Alternative will result in the generation of project related waste and debris, some which would be directed to local or regional landfills. Construction and operational activities associated with the No Action Alternative are unlikely to need increased fire or police protection services, such as additional officers and equipment. Impacts associated with traffic and vehicular access are assessed in Appendix B 2.1 Transportation and Circulation.

Evaluation of utility and service systems impacts was based on the duration and extent to which such services would be affected, as well as the ability of a service provider to continue to provide

a level of service that could meet the needs of an affected community. Previously adopted mitigation measures identified in the ARCF GRR Final EIS/EIR, are being implemented and all impacts to public utilities and service systems are expected to be less than significant with mitigation.

4.3.2.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to public utilities and services is available in Appendix B Section 2.3 “Public Utilities and Services”.

The Proposed Action may require temporary interruptions of services during construction or relocation of utilities for some project components (MCP, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network). These potentially significant impacts to public utilities and service systems will be reduced through implementation of mitigation measure UTL-1.

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

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

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the project area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would 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 would 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 would 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.

Timing: Before construction

Responsibility: USACE

Other utilities and service systems impacts, including solid waste generation, water supply, or the need for new utilities or services, would either be less than significant or would have no impact. Table 4.2.3-2 provides a summary of impacts for the various project components.

Table 4.2.3-1. Summary of Public Utilities and Services Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effect Determination
2.3-a	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, schools, park, other public facilities.	Less than Significant	Short-term and Minor effects that are Less than Significant.
2.3-b	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board	No Impact	No Impact
2.3-c	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Less than Significant with Mitigation Incorporated	Less than Significant with Mitigation Incorporated
2.3-d	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less than Significant	Short-term to Medium-Term and Minor effects that are Less than Significant
2.3-e	Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	No Impact	No Impact
2.3-f	Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Less than Significant	No Impact
2.3-g	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	No Impact	No Impact

Note: Impacts 2.3-b and 2.3-e were dismissed from detailed analysis in Appendix B 2.3.

Table 4.2.3-2. Summary of Public Utilities and Services by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Piezometer Network		Less than Significant	No Effect
2.3-a	SRMS, ARMS		Less than Significant	Short-term and Minor effects that are Less than Significant.

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-b	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	No Impact	No Effect
2.3-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, ARMS, SRMS	UTL-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant with Mitigation Incorporated
2.3-c	Sacramento River Erosion Contract 3, Piezometer Network	UTL-1	Less than Significant with Mitigation Incorporated	No Effect
2.3-d	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, SRMS, ARMS, Piezometer Network	None Required	Less than Significant	Short-term to Medium-Term and Minor effects that are Less than Significant
2.3-e	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	No Impact	No Effect
2.3-f	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	Less than Significant	No Effect
2.3-g	MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, ARMS, Piezometer Network	None Required	No Impact	No Effect

4.3.2.2.3 Alternatives

Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-Only), 4b (CEQA-Only), 5b

All of these alternatives proposed would have a similar impact on public utilities and service systems compared to the Proposed Action, and the mitigation proposed for those alternatives is the same as the mitigation that would be implemented for the Proposed Action. A more detailed description of the impacts of the Alternatives is available in Appendix B, Section 2.3, “Public Utilities and Services.”

Alternatives 5a and 5c

These alternatives would have no impact on public utilities and services because they would replace the SRMS with purchase of mitigation credits and financial support of a project undergoing separate NEPA and CEQA review. A more detailed description of the impacts of the Alternatives is available in Appendix B, Section 2.3, “Public Utilities and Services.”

4.3.3 Land Use, Farmland, and Forestland

4.3.3.1 Existing Conditions

Land Use impacts to the different project areas covered in this document were considered in detail in the 2016 ARCF GRR FEIS/EIR. The City of Sacramento and surrounding districts are mostly urban and built-up areas, with reservations for recreational areas along the American and Sacramento Rivers, while more outlying surrounding areas consist of open land or farmland. The project areas are near light industrial uses, highways, residential areas, and/or recreational areas. The American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network are on the waterside of levees along either the American or Sacramento Rivers, located in or near recreational areas, and are separated from any residences or farmland by either the river, a highway, or the levee. The proposed SRMS is in the Sacramento-San Joaquin Delta (the Delta) and was formerly used by USACE as a dredge material placement site. It is on the waterside of a levee and shares a boundary with an agricultural field that is considered Prime or Unique Farmland. The property associated with Alternative 5c is on the left bank of the Sacramento River and is currently used for agricultural purposes. The MCP is in a mixed area of residential and light industrial business buildings. The MCDC was constructed prior to most of the building in this area.

4.3.3.2 Environmental Effects

4.3.3.2.1 No Action Alternative

The projects covered by the 2016 ARCF GRR FEIS/EIR were considered to have a less than significant impact on Land Use and Farmland with implementation of previously adopted mitigation measures identified in section 3.3.6 of the 2016 ARCF GRR FEIS/EIR. While land conversion would be required as a part of the Project, these parcels would be acquired and negotiated at a fair market price. USACE and the Project Partners will identify lands to be used for Project purposes, in order to prevent land use impacts such as dividing established communities, removing Prime or Unique Farmland from production, or converting Forest lands.

4.3.3.2.2 Proposed Action

Table 4.2.4-1. Summary of Land Use, Farmland, and Forestland Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.4-a	Divide an established community.	Less than Significant	Short-term and Moderate effects that are Less than Significant.
2.4-b	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than Significant with Mitigation Incorporated	Short-term and Moderate with Mitigation Incorporated, Medium-Term to Long-term and Minor effects that are Less than Significant.
2.4-c	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural.	No Impact	No Impact
2.4-d	Conflict with existing zoning for agricultural use, or a Williamson Act contract.	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-e	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))	No Impact	No Impact
2.4-f	Result in the loss of forest land or conversion of forest land to non-forest use	No Impact	No Impact
2.4-g	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use	No Impact	No Impact

Table 4.2.4-2. Land Use Effects by Project Component

Impact Number	Project Component	Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
2.4-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-a	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
2.4-a	SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact
2.4-b	MCP	N/A	No Impact	No Impact
2.4-b	American River Erosion Contract 4A	N/A	Less than Significant	Medium-Term to Long-term and Minor effects that are Less than Significant

Impact Number	Project Component	Mitigation Measures	CEQA Significance Conclusion	NEPA Effects Determination
2.4-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4B	VEG-1, VEG-2, GEO-1, WQ-1	Less than Significant after Mitigation	Short-term and Moderate with Mitigation Incorporated
2.4-b	Sacramento River Erosion Contract 3, SRMS	N/A	Less than Significant	No Impact
2.4-b	ARMS	GEO-1; WQ-1	Less than Significant with Mitigation	No Impact
2.4-b	Piezometer Network	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
2.4-c	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-d	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact
2.4-d	MCP	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant
2.4-e	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-f	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact
2.4-g	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, SRMS, MCP, American River Contract 4A, ARMS, Piezometer Network, Sacramento River Erosion	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to land use, farmland, and forestland and details of Mitigation Measures VEG-1 and VEG-2 is available in Appendix B Section 2.4 “Land Use and Prime and Unique Farmland”.

American River Erosion Contract 3B North and South and American River Erosion Contract 4B

Work would be done on an existing levee system so there would be a less than significant impact from the work on the connectivity of communities. American River Contract 3B has some work within areas designated as conservation areas in the 2023 American River Parkway Resource Management Plan. Because most conservation areas being impacted by the Proposed Action would become mitigation once work is complete, there would be a less than significant impact on these conservation areas.

American River Erosion Contract 4A

A part of American River Contract 4A footprint is within land designated as Farmland of Local Importance by the California Department of Conservation (DOC) and Prime Farmland if irrigated by U.S. Department of Agriculture, National Resources Conservation Service (NRCS). Because the area has an existing bike trail and because there is no plan to use the area for farmland, construction of the paved bike trail reroute in the area would have a less than significant impact.

Sacramento River Erosion Contract 3

Work will be done on an existing levee system so there would be a less than significant impact from the work on the connectivity of communities.

Magpie Creek Project

The potential Land Use effects of the MCP are from the land taken to widen the canal and flatten the slopes of the canal. The property to be taken does not include any residences or create a barrier between the existing homes so the community in this area would not be isolated or divided.

Part of the staging areas and the location where the culvert would be installed under the Northern Sacramento Bike Trail are considered Farmland of Local Importance by the DOC and Prime Farmland if irrigated by NRCS. Staging areas would only be temporary and installation of the culvert would not change the land use from agricultural to a different use, so there would be a less than significant impact on Farmland. Also, the area is considered an urbanized area by the U.S. Census Bureau, so it is not considered farmland under the Farmland Policy Protection Act (FPPA). In addition, there is land within the area where the levee would be extended and widened that is Farmland of Local Importance by the DOC and Prime Farmland if irrigated by NRCS. Generally, this area is already a part of the levee system and would not be used for agriculture. As mentioned above this area is considered urbanized area by the U.S. Census Bureau, so it is not considered farmland under the FPPA. Because the area is generally not used for agriculture and not considered farmland under the FPPA, there would be a less than significant impact. Some staging areas are on land zoned for agricultural purposes. After use for staging the land would be returned to its original condition, so the land use would not be changed

to something other than agricultural due to the Proposed Action. There would be a less than significant impact on agricultural uses specified by zoning.

Sacramento River Mitigation Site

The SRMS, located in the Delta, has been used as a dredge waste dumping site for the USACE and shares a border with an agricultural field that is considered Unique farmland. After considering the type of work that would be performed and preventative measures that can be used there would be no Unique farmland taken out of production, eliminating any impacts to Land Use Less from construction of the Sacramento River Mitigation Site.

American River Mitigation Site

The ARMS is located on the American River, east of Discovery Park. The site includes a former gravel pit, and there is no farmland in the project footprint to impact. The Land Use effects for the American River Mitigation project component would be less than significant. The Proposed Action for the ARMS project component has been designed to minimize impacts on vegetation as much as possible to reduce impacts on native vegetation and wildlife corridors, consistent with American River Parkway Plan policies 3.1, 3.3, 4.10, 4.12, and 4.16. Additional policies specific to the ARMS (10.5 and 10.6) include acquiring the ARMS, enhancing fish and wildlife habitat, accommodating historical and cultural interpretive activities, establishing an unsurfaced trailhead and parking area, and allowing non-motorized boating as well as fishing in the pond for interpretive purposes at the discretion of the Park Manager Alignment with policies 10.5 and 10.6, which were not adopted for the purpose of avoiding or mitigating an environmental effect, is addressed in detail in Appendix B, Section 2.4, “Land Use and Prime and Unique Farmlands.”

The 2023 American River Parkway Resource Management Plan identifies the area around the man-made pond in the “naturalization” resource management category, which includes areas that were substantially altered in the past and should be modified in order to improve existing natural resource conditions. The types of activities that will be implemented to create the mitigation sites align with the types of activities listed under the naturalization category of the natural resource management activities listed in the 2023 American River Parkway Resource Management Plan. The activities associated with the ARMS would be consistent with the policies of the 2023 American River Parkway Resource Management Plan that are intended to avoid or mitigate environmental effects (Please refer to Appendix B, Section 2.4, “Land Use and Prime and Unique Farmlands,” for a detailed comparison), leading to an avoidance of significant impact with planned mitigation.

Piezometer Network

Generally, the Piezometer Network consists of small infrastructure improvements on portions of the project site for the ARCF 2016 Project as a whole. These minor improvements would have no effects related to land use.

4.3.3.2.3 Alternatives

Alternatives 3a, 3b, 3c, 3d

These Alternatives would change the locations of the improvements in the American River Erosion Contract 4A project component. All land use impacts would be the same as for the Proposed Action.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include designs for the American River Mitigation area that retain a 30 acre and a 20-acre portion of the existing manmade pond, respectively, while channels would be constructed on the eastern portion of the site. Because these alternatives retain a portion of the existing pond, they would be consistent with the American River Parkway Plan without requiring interpretation or approval by the County Board of Supervisors. However, there would be no change in impact conclusions for land use, farmland, or forestland compared to the Proposed Action.

Alternatives 5a and 5c

There would be no new construction or disturbance associated with Alternatives 5a and 5c, as existing mitigation banks would be used (and a project that would be separately addressed under CEQA and NEPA would be funded under Alternative 5c). Consequently, there would be no impacts to land use.

Alternative 5b

Alternative 5b includes a different site for Sacramento River Mitigation. Watermark Farm, located on the right bank of the Sacramento River between RM 50.5 and 51.25, would be used as the mitigation site for Sacramento River-related habitat impacts.

Alternative 5b would have a significant impact related to the conversion of agricultural land to non-agricultural use. Mitigation Measure AG-1 would be implemented to reduce this effect to less than significant.

Mitigation Measure AG-1: Purchase Conservation Easements to Offset Conversion of Prime Farmland

USACE will require purchase or establishment of property interests in agricultural land (i.e., conservation easements) requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to offset conversion of prime farmland to construct project facilities. These easements may include but are not limited to establishing agricultural conservation easements, paying in-lieu fees toward agricultural conservation easements, supporting agricultural land trusts, and participating in habitat conservation plans or natural community conservation plans that include conservation of agricultural lands. Conservation easements will be purchased at a 1:1 ratio. Where feasible, the agricultural conservation easements should be acquired in the county in which the conversion would take place, Yolo County. If there is not a sufficient supply of similar prime farmland where the conversions would occur, the agricultural conservation easements may be obtained in a different county. Where

conservation easements are established by USACE, they may be held by land trusts, local governments, or other appropriate agencies that are responsible for ensuring that these lands will be maintained in agricultural use. Where easements are considered for other resources such as terrestrial biological resources, purchase of easements will be coordinated where possible so that agricultural resources are also addressed.

Responsibility: USACE and Project Partners

Timing: Project Construction

Implementing Mitigation Measure AG-1 would reduce the impact by protecting a similar area of prime farmland in perpetuity. However, implementing Alternative 5b would nevertheless remove 340.3 acres of Important Farmland from agricultural use and the impact would remain significant and unavoidable.

4.3.4 Environmental Justice

4.3.4.1 Existing Conditions

The U.S. Environmental Protection Agency (EPA) has defined environmental justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. USACE and other federal agencies are required to take EJ concerns into consideration pursuant to the NEPA and Executive Orders 12898, 13985, 14008 and the Justice40 initiative. At the time that the ARCF GRR FEIS/EIR was completed in 2016, neither Justice40 nor EOs 13985 and 14008 had been written. Appendix B, Section 2.5, “Environmental Justice,” includes new analysis for compliance with recent EJ guidance.

In accordance with EO 14008, identification of EJ impacts was initiated using the Climate and Economic Justice Screening Tool (CEJST) developed to identify the presence of disadvantaged communities. Disadvantaged communities are defined as those that are marginalized, underserved, and overburdened by environmental hazards. A tract is considered disadvantaged in CEJST by meeting at least one burden threshold or the associated socioeconomic threshold. Additional analysis of real-world conditions was conducted during routine site visits and community outreach.

Disadvantaged communities were identified at the following project sites: American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, MCP, and the ARMS. No disadvantaged communities were located on or in the vicinity of the Sacramento River Erosion Contract 3, SRMS, Watermark, or Sunset Pumps project sites.

4.3.4.2 Environmental Effects

4.3.4.2.1 No Action Alternative

Section 3.18.3 in the 2016 ARCF GRR FEIS/EIR describes some impacts to EJ resources under the socioeconomic chapter of the NEPA No Action Alternative; however, several pieces of EJ guidance have been distributed since the publication of the GRR, necessitating a reanalysis of EJ impacts. The current analysis demonstrates that EJ impacts within the MCP would be temporarily elevated. Without the current design refinements to the 2016 GRR Proposed Action;

however, known disadvantaged communities will be at risk of flooding and could incur damages to homes, properties, and businesses.

4.3.4.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to environmental justice and details of Mitigation Measures EJ-1, EJ-2, EJ-3, and TRANS-1 is available in Appendix B Section 2.5 “Environmental Justice”.

Impacts from the Proposed Action would be temporary, while improvements would result in long-term flood damage risk reduction for surrounding disadvantaged communities. A summary of EJ Effects for each Project Component is found in Table 4.2.5-2.

USACE pedestrian surveys and analysis from the Council on Environmental Quality’s Climate and Economic Justice Screening Tool (CEJST) have revealed EJ concerns within the American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, MCP, and the ARMS project components. These consist of well-established communities of unhoused individuals in and near the project sites, and potential transportation disruptions to area schools.

The Sacramento River Erosion Contract 3 and SRMS components of the Proposed Action were not considered in detail because no disadvantaged communities are identified on the project sites or in surrounding areas. The Piezometer Network was analyzed in conjunction with each spatially distinct project footprint.

Table 4.2.5-1. Summary of Environmental Justice Effects (NEPA Only)

Impact Number	Impact Title	NEPA Effects Determination
2.5-a	Result in substantial impacts to unhoused populations residing in the project area, through displacement or other means	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-b	Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST	Short-term and Major effects that are Less than Significant with Mitigation
2.5-c	Result in substantial adverse impacts to tribal communities	Impact
2.5-d	Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST within the communities	Significant and Unavoidable

Table 4.2.5-2. Summary of Environmental Justice Effects (NEPA-Only)

Impact Number	Project Component	Mitigation Measure	NEPA Effects Determination
2.5-a	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS	EJ -1 (Conduct Outreach with Local Advocacy Groups) EJ -2 (Prepare a Transient Population Safety Plan)	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-b	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B	EJ-3 (Consults with School Districts)	Short-term and Major effects that are Less than Significant with Mitigation

Impact Number	Project Component	Mitigation Measure	NEPA Effects Determination
2.5-b	ARMS	N/A	No Effect
2.5-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, ARMS	N/A	No Effect
2.5-d	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B	TRANS-1 (Prepare and Implement a Traffic Control and Road Maintenance Plan)	Significant and Unavoidable
2.5-d	American River Erosion Contract 4A	TRANS-1 (Prepare and Implement a Traffic Control and Road Maintenance Plan)	Short-term and Moderate effects that are Less than Significant with Mitigation
2.5-d	ARMS	N/A	Short-term and Minor effects that are Less than Significant

4.3.4.2.3 Alternatives

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d consist of alternative designs for improvements to the American River Erosion Contract 4A project component. All alternatives would be constrained within the construction buffer limits of the Proposed Action; therefore, these alternatives would have the same EJ effects as the Proposed Action.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b are being considered under CEQA only and are not evaluated for EJ (a NEPA-only topic).

Alternative 5a

Alternative 5a would consist of purchasing mitigation credits from USFWS Approved Banks, instead of constructing SRMS and would similarly have no effect on EJ.

Alternative 5b

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms. This area is not identified as a disadvantaged area on the CEJST and based upon land use and distance from the urban areas of Sacramento, this alternative would have no impact of EJ concerns, including unhoused communities or schools.

Alternative 5c

Alternative 5c would include the purchase of mitigation credits and funding the Sunset Pumps Project, which would be evaluated under NEPA/CEQA by the Project Proponents. Purchasing credits has no EJ impacts.

4.3.5 Socioeconomic Conditions

4.3.5.1 Existing Conditions

The environmental setting described in Section 3.18.1 of the ARCF GRR FEIS/EIR covering socioeconomic resources is generally applicable to the current conditions of population, housing, and local economy in Sacramento County. Appendix B 2.6 Socioeconomic Conditions contains the detailed analysis summarized below.

The population of Sacramento County is approximately 1.6 million people and contains the following jurisdictions: the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, Sacramento City and Unincorporated Sacramento County. Some well-known portions of the Unincorporated County with a population and housing units are considered Census Designated Places (CDP). In 2021, the employment rate in Sacramento County was 58.2 percent with a median household income of \$80,063 (U.S. Census Bureau, 2021).

The population of the City of Sacramento is about 525,000 people and is divided into the following Community Plan Areas (CPA): Arden Arcade, Central City, East Sacramento, Fruitridge/Broadway, Land Park, North Natomas, North Sacramento, Pocket, South Area, and South Natomas. Arden Arcade is not within city limits and is considered a CPA Study Area for future incorporation. The employment rate in the city is 58 percent with a median household income of \$75,311. The unemployment rate is 7.5 percent (U.S. Census Bureau, 2021).

Most components of the Proposed Action are located within the City of Sacramento jurisdiction. Some of these projects extend into the Unincorporated area of Sacramento County, like American River Erosion Contract 3B and 4B, and the MCP. SRMS is solely located in the Unincorporated County area. Alternative sites for SRMS include Watermark Farms (Alternative 5b) located in Yolo County and Sunset Pumps (Alternative 5c) located in Butte County.

4.3.5.2 Environmental Effects

4.3.5.2.1 No Action Alternative

Under the CEQA No Project, the urbanized areas in the greater Sacramento area will continue to be at risk of flooding due to levee failure or overtopping. Flooding will directly impact the health and safety of the population, resulting in injuries or even fatalities in communities along the American and Sacramento Rivers. Many homes and businesses could be damaged or destroyed. Flooding would result in significant socioeconomic impacts, could be detrimental to Sacramento County residents and have local, State-wide, and potentially even national economic impacts.

Section 3.18.3 in the ARCF GRR FEIS/EIR describes the impacts to socioeconomic resources under the NEPA No Action Alternative. Under this Alternative, short-term socioeconomic impacts would occur for the duration of construction due to noise, increased traffic, road detours and temporary loss of use of recreational areas. These socioeconomic impacts, while unavoidable, would be less than significant, not requiring mitigation.

Project activities will occur immediately adjacent to established communities and will require private property acquisition, primarily for staging areas and levee access. Property with residences and business would be avoided to the greatest extent practicable to prevent

displacement of people and loss of housing inventory. All property negotiation would comply with the Uniform Relocation Assistance and Real Property Acquisition Act (Uniform Act). Levee improvement activities would not induce development in the floodplain because these lands and communities are protected by existing levees.

4.3.5.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to socioeconomic conditions and details of Mitigation Measure SOCIO-1 is available in Appendix B Section 2.6 “Socioeconomic Conditions”.

The Proposed Action would result in beneficial impacts, rather than disproportionate negative outcomes to Sacramento City and county. The Proposed Action would reduce the risk of flooding that could result in the catastrophic loss of lives, irreparable damage to homes and business, and would have compounding and cascading socioeconomic impacts. The long-term socioeconomic impacts include protection of the greater Sacramento area population, housing, and economic prosperity.

Short-term construction related socioeconomic impacts would be minor. Consequences include disruption to existing homes and businesses along the construction limits such as increased noise, dust, and traffic. There would be short-term recreational detours and impacts. Short-term benefits include increased construction-related job availability and potentially economic growth due to increased demand of construction goods and services.

For the majority of the levee improvements in the Proposed Action, construction is limited to erosion protection on existing levees. Therefore, no new lands are needed for construction, except for temporary staging areas of equipment and trailers. USACE and the non-Federal partners would prioritize using lands that are not developed to reduce the likelihood of displacing residents or removing housing from the existing inventory. Fair market value for the property, relocation benefits and compensation would be provided by the Uniform Act. Due to the nature and location of project activities, the displacement of population or housing would be less than significant.

Table 4.2.6-1. Summary of Socioeconomic Conditions Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a	Induce substantial population growth in an area.	Less than Significant	Long-term and Moderate effects that are Less than Significant. Short-term and potentially beneficial effects that are Less than Significant.
2.6-b	Displace substantial numbers of people or housing.	Less than Significant	Short-term and Moderate effects that are Less than Significant with Mitigation. Long-term and Minor to Moderate effects that are Less than Significant with Mitigation

Table 4.2.6-2.: Socioeconomic Conditions Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a	MCP	N/A	Less than Significant	Long-term and Moderate effects that are Less than Significant
2.6-a	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	N/A	Less than Significant	Short-term and potentially beneficial effects that are Less than Significant
2.6-a	SRMS, ARMS	N/A	No Impact	No Impact
2.6-b	SRMS	N/A	No Impact	No Impact
2.6-b	ARMS	Mitigation Measure SOCIO-1 (NEPA)	Less than Significant	Long-term and Negligible effects that are Less than Significant with Mitigation
2-6-b	MCP	Mitigation Measure SOCIO-1 (NEPA)	No Impact	Short-term and Moderate effects that are Less than Significant with Mitigation
2-6.b	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

4.3.5.2.3 Alternatives

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. All alternatives would be constrained within the construction buffer limits of the Proposed Action. None of these alternatives would increase effects to socioeconomic conditions when compared to the Proposed Action. There is no existing housing in this area of the American River Parkway. While the area is heavily recreated by bicyclists, no permanent populations live in the area legally. Construction may have temporary effects on local business due to increased traffic and noise.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b would modify the design for the ARMS to incorporate either a 30-acre (Alternative 4a) or 20-acre (Alternative 4b) portion of the existing man-made pond. These adjustments to the design would not change the significance of any impacts on socioeconomic resources compared to the Proposed Action.

Alternative 5a

Alternative 5a would eliminate the need to construct the SRMS, and would include purchasing the remaining, required mitigation credits from Service approved conservation banks, but all other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects as the Proposed Action. Purchasing credits would have no effect on socioeconomic resources.

Alternative 5b

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms restoring 227 acres of riverine and floodplain habitat, but all other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects as the Proposed Action. Similar to the Proposed Action, construction of the mitigation site would not induce population growth nor would the site displace people or housing. The land is actively farmed and there are no existing residences. Alternative 5c would have less than significant effects on socioeconomic resources.

Alternative 5c

Alternative 5c includes a combination of purchasing Delta Smelt conservation bank credits, providing funding for the Sunset Pumps rock weir removal project, and assisting in funding the riparian mitigation requirements for the Sunset Pumps project. There would be no effect on socioeconomic resources by purchasing credits. The effects of the Sunset Pumps project would be covered under NEPA and CEQA documentation written by Project Proponents, including DWR, USFWS, and BOR.

4.4 Physical Resources

4.4.1 Aesthetics and Visual Resources

4.4.1.1 Existing Conditions

The American River Parkway area, which includes American River Erosion Contract 3B North and South, American River Erosion Contract 4A and American River Erosion Contract 4B, has a highly valued natural setting and feeling of serenity in the midst of a developed urban area. The ARMS is also within the American River Parkway and consists of a man-made pond surrounded by grassy areas with riparian forest in the background.

The Sacramento River in the vicinity of the Sacramento River Erosion improvements is a narrow riparian corridor. The SRMS is also along the Sacramento River, but is located in the Delta, and has views consisting of a mix of riparian forest, open grassy areas with disbursed shrubs, dispersed early successional vegetation areas, interior sandy flats, and sandy beaches.

The project site for the MCP has views of open space with some small ranchettes and light industrial uses. The visual character of local parks being used as staging area or for access is generally high. Overall, these parks have many trees and grassy fields that bring a green and lush view and block out the surrounding suburban development. A more detailed description of the visual character of the sites, including site photos, is available in Appendix B Section 3.1, “Aesthetics and Visual Resources.”

The main viewer group that would be affected by project improvements consists of recreationalists using the rivers and parks for recreation. In addition, people traveling across bridges and State Route (SR) 160 would be affected viewers.

SR 160 is designated as a scenic highway on the left bank of the Sacramento River near the SRMS. This designated scenic highway has views across the Sacramento River to the SRMS, particularly trees and riparian vegetation along the southern boundary of the site. In addition, the City of Sacramento General Plan identifies the Sacramento River and American River as important visual resources that need to be protected.

4.4.1.2 Environmental Effects

4.4.1.2.1 No Action Alternative

Construction activities will result in short-term significant and unavoidable direct impacts on the visual tranquility of the American River Parkway due to construction equipment regularly in the American River Parkway over 10 years. Loss of vegetation along the American River, due to removal and construction of levee improvements, will result in significant and unavoidable short-term effects on visual resources of the mature vegetation, but a minor long-term impact on visual resources because of trees left onsite and the addition of onsite mitigation plantings. Similarly, there will be a short-term unavoidable direct impact on visual resources along the Sacramento River due to construction equipment on the levees that could be visible to residents and boaters. In addition, there will be a short-term significant impact on visual resources due to removal of vegetation along the Sacramento River. Since proposed work for MCP will only be one season, and since MCP is not located in an area used for recreation or where viewer sensitivity is high, the flood risk reduction work on MCP will create short term and less than significant impacts on visual resources.

The long-term significant impact on visual resources would be reduced to a short-term significant impact level with implementation of mitigation measures listed in Section 3.15.6 of the ARCF GRR Final EIS/EIR since vegetation would grow back and create a more natural view.

4.4.1.2.2 Proposed Action

Table 4.3.1-1. Summary of Aesthetic/Visual Resources

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a	Have a substantial adverse effect on a scenic vista.	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable.
3.1-b	Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Impact.
3.1-c	Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
3.1-d	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Less than Significant	Short-term and Long-term effects that are Less Than Significant with Mitigation Incorporated

Table 4.3.1-2. Aesthetics/Visual Resources Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a	MCP	N/A	No Impact	No Impact
3.1-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Mitigation, American River Mitigation	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation.	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant with Mitigation.
3.1-a	American River Erosion Contract 4A	N/A	Short-term and Long-term Less Than Significant	Short-term and Long-term Minor to Moderate effects that are Less Than Significant
3.1-a	Sacramento River Erosion Contract 3	N/A	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
3.1-a	Piezometer Network	N/A	Short- and Long-term Less than Significant	Short- and Long-term Minor Impact that are Less than Significant
3.1-b	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS	N/A	No Impact	No Effect

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-b	SRMS	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Effect
3.1-b	Piezometer Network	N/A	Less than Significant	No Effect
3.1-c	American River Erosion Contract 3B North and South	VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation.	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation.
3.1-c	American River Erosion Contract 4B	VEG-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation.	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation.
3.1-c	American River Erosion Contract 4A	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
3.1-c	Sacramento River Erosion Contract 3	N/A	Short- and Long-term Significant and Unavoidable	Short- and Long-term Significant and Unavoidable
3.1-c	MCP	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.1-c	ARMS	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant
3.1-c	SRMS	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant.
3.1-c	Piezometer Network	N/A	Less Than Significant	Short-term Moderate Impact that is Less than Significant and Long-Term Minor Impact that is Less than Significant.
3.1-d	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS	VIS-1, VIS-2	Less Than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less Than Significant with Mitigation Incorporated
3.1-d	Piezometer Network		Less than Significant	Short-term and Long-term Minor Impacts that are Less than Significant

A more detailed description of visual impacts of the Proposed Action and details of Mitigation Measures VIS-1, VEG-1 and VEG-2 are available in Appendix B Section 3.1, “Aesthetics and Visual Resources.”

Magpie Creek Project

Lighting associated with construction and staging could create new temporary light sources at the project site, causing short-term significant impact on visual resources for sensitive receptors. Mitigation Measure VIS-1 and VIS-2 would be implemented to reduce the impact to less than significant. The area around Magpie Creek where planned flood risk reduction features would be installed is zoned light industrial and light industrial zoning does not contain restrictions related to aesthetics. There would be less than significant CEQA impacts from construction and from the flood risk reduction features. Because the area is industrial in general there would be a less than significant NEPA impact from vegetation removal and construction of the flood risk reduction features. The northern staging areas is within the Dry Creek Parkway and the Walter S Ueda Parkway. In addition, work would impact the Sacramento Northern Bike Trail. The visual disruptions for all of the staging areas would be limited to a small portion of these recreational areas and would only occur for 2 years. Because these impact on visual resources would be limited to a small part of the recreational resources and because the visual impact would be limited to 2 years, the impact to visual resources within these recreation areas would be less than significant.

American River Erosion Contract 3B North and South

Lighting associated with construction and staging could create new temporary light sources at the project site, causing short-term significant impact on visual resources for sensitive receptors. Mitigation Measure VIS-1 and VIS-2 would be implemented to reduce the impact to less than significant. Construction activities, ground disturbance, and tree removal would temporarily change the scenic views of the American River area. Mitigation Measure VEG-2 would decrease the effect of ground disturbance and tree removal over time, the maturation of the riparian vegetation will return the visual quality of the project area to pre-construction conditions. The removal of trees would have a short-term significant unavoidable impact on the scenic views that would be reduced to less than significant over time. View and tranquility of parks and other recreational areas within the project site would also be impacted by the Proposed Action in the short term. Some trees may need to be removed from parks to allow use of parks for construction purposes. Tree removal and construction use of the parks would create a short-term significant impact to the viewshed of these parks.

American River Erosion Contract 4A

Like American River Contract 3B, a significant impact on visual resources caused by construction lighting would be reduced to a less-than-significant level by implementing Mitigation Measures VIS-1 and VIS-2. The area impacted by the American River Contract 4A flood is reduction work is only 1 acre and the flood risk reduction work is along bridges and an existing levee. Because of the existing visual character of the site, building a berm would be a less-than-significant impact on the scenic and natural views of the area. The proposed reroute of the Jedediah Smith Memorial Trail would also create a less than significant impact on the views

of the area because the American River Parkway area already contains paved bike trails and the views from the new route would be similar to those from the existing trail.

American River Erosion Contract 4B

Like American River Erosion Contract 3B, a significant impact on visual resources caused by construction lighting would be reduced to a less-than-significant level by implementing Mitigation Measures VIS-1 and VIS-2. Also, like American River Erosion Contract 3B, the view and tranquility of parks and other recreational areas within the project site would also be impacted by the Proposed Action in the short term. Even though there will be an attempt to save every native tree impacted at the American River Erosion Contract 4B site, the possible need to remove heritage oaks would create long-term significant and unavoidable impacts.

Sacramento River Erosion Contract 3

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is implemented. In addition, construction activities, ground disturbance and tree removal would permanently change the scenic views of the Sacramento River. Since less than 25% of the riverbank would be replanted the impact to views of the Sacramento River would be short term- and long term- significant and unavoidable.

American River Mitigation Site

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measures VIS-1 and VIS-2 are implemented. Improvements at the ARMS would change the topography of the site from a man-made pond to sloped topography and drainages with inundated channels connecting back to the American River. Ground disturbance and vegetation removal conducted for the ARMS project would disrupt the scenic views of the American River area. As vegetation matures and returns visual quality to the site, the short-term significant unavoidable impact to the scenic views would reduce to a less than significant impact. In addition, the views and tranquility of the Jedediah Smith Memorial Trail, Camp Pollock, and Discovery Park would also have short-term significant unavoidable impacts from implementing the Proposed Action.

Sacramento River Mitigation Site

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is implemented. Work along the riverbank for the SRMS would be visible from a portion of SR 160 that is designated a scenic highway. There would be a short-term significant and unavoidable CEQA impact to views along SR 160 during construction and until vegetation matures enough to return the visual quality to the site. Once the vegetation has established there would be a long-term less than significant CEQA impact to views along SR 160. Work along the riverbank would also disrupt the scenic views of the Sacramento River until vegetation matures, causing a short-term significant unavoidable impact and a long-term less than significant impact on the scenic views of the Sacramento River.

Piezometer Network

Like American River Contract 3B, a significant impact on visual resources from construction lighting would be reduced to less than significant after Mitigation Measure VIS-1 and VIS-2 is implemented. The infrastructure associated with the Piezometer Network is generally small and would be spread apart enough that the infrastructure would not be noticeable. This project component would therefore have a less than significant impact on the scenic vistas of the Sacramento and American Rivers. The views of the drill rigs would be temporary at specific locations along the Sacramento and American Rivers, so there would be a less than significant impact to the scenic vistas of the Sacramento and American Rivers. Most of the staging areas would not be visible along the Sacramento and American Rivers. The staging areas that would be visible along the rivers would not be used for more than 4 months. There would be a less than significant impact to the vistas of the Sacramento and American River. In addition, because the infrastructure would be spread out, there should not be new sources of glare so there would be a less than significant impact on glares.

4.4.1.2.3 Alternatives

A more detailed description of visual impacts of the Alternatives is available in Appendix B Section 3.1, "Aesthetics and Visual Resources."

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d would involve changes to the berm location and bike trail alignment on American River Erosion Contract 4A, with similar aesthetics impacts to the Proposed Action.

Alternatives 4a and 4b (CEQA-Only)

CEQA-Only Alternatives 4a and 4b would have reduced impacts on visual resources because these alternatives would retain a portion of the existing manmade pond, maintaining an artificial water feature in the visual character of this site. Visual resources impacts would nevertheless remain significant. Other impacts would be similar to the Proposed Action.

Alternatives 5a and 5c

Alternative 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no new additional impacts to visual resources.

Alternative 5b

Alternative 5b would use a different site for Sacramento River Mitigation, the Watermark Farm site. This alternative would permanently change the views from agricultural and residential views to a channel with a riparian forest. Overall, the views from the road and the views from the Sacramento River would become more natural once work is complete and once vegetation establishes, creating a long-term beneficial impact on visual resources. Because the area would initially look disturbed and viewer sensitivity is high along the Sacramento River, there would be short-term significant unavoidable impacts on visual resources. Since work would occur over a

3-year period and since viewer sensitivity is high on the Sacramento River, the view of construction activities and the view of disturbed area would be a short-term significant unavoidable impact to visual resources.

4.4.2 Geologic Resources

4.4.2.1 Existing Conditions/Affected Environment

4.4.2.1.1 Geology, Seismicity, and Soils

The existing conditions and affected environment related to Geology, Seismicity, and Soils is consistent with what is provided in the ARCF GRR Final EIS/EIR.

4.4.2.1.2 Mineral Resources

The Study Area lies within the Greater Sacramento Area Production-Consumption Region for Portland concrete aggregate as well as the Portland Cement Concrete-grade Aggregate and Kaolin Clay Resource Area (CGS 1999 and 2018). The Improvement Areas are not located within known areas of significant mineral deposits (Sacramento County 2011: Figure 8).

4.4.2.1.3 Paleontological Resources

Paleontological remains may be found in numerous types of rock formations. However, vertebrate fossils are most commonly recovered from sedimentary formations, as well as from a few igneous formations where sedimentary deposits are interbedded. The MCP is underlain by the Riverbank Formation, which is the most extensive Quaternary unit in the Sacramento area (Wagner et al. 1981). The Pleistocene-age Riverbank Formation consists of weathered gravel, sand, and silt, and it is the only fossil bearing formation located within Sacramento County.

4.4.2.2 Environmental Effects

4.4.2.2.1 No Action Alternative

Construction of the No Action Alternative will include substantial construction and earth-moving activities over large areas that will result in temporary disturbance of soil during the construction period and could expose these disturbed areas to substantial erosion during rainstorms following construction if not properly restored. This potentially significant impact was reduced to a less-than-significant impact with mitigation (consolidated in this SEIS/SEIR as Mitigation Measure GEO-1).

The No Action Alternative will not substantially alter the composition of the levees or foundation soils or change their susceptibility to liquefaction. Additionally, the potential for failure or significant damage to project structures from seismic issues was determined to be low.

4.4.2.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to geologic resources and details of Mitigation Measures GEO-1 and GEO-2 are available in Appendix B Section 3.2 “Geology”.

There are no unique geologic features in the project areas with exception of the River Bank Formation which is known to contain fossils and could be encountered on the MCP site. With best management practices in the new Mitigation Measure GEO-2 the project would not damage unique paleontological features.

Table 4.3.2-1. Summary of Geologic Resources Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.2-a	Cause Exposure to seismic hazards	No Impact	No Impact
3.2-b	Cause substantial soil erosion or the loss of topsoil.	Less than Significant with Mitigation Incorporated	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
3.2-c and 3.2-d	Cause exposure to unstable soils	No Impact	No Impact
3.2-e	Place wastewater systems in unstable soils	No Impact	No Impact
3.2-f	Damage a unique paleontological resource or site or unique geologic feature.	Less than Significant with Mitigation Incorporated.	Negligible effects that are Less than Significant with Mitigation Incorporated.
3.2-g	Reduce availability of a known mineral resource	No Impact	No Impact

Table 4.3.2-2. Geologic Resources Effects by Project Component

Impact Number	Project Component	Significance before Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.2-a	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	No Impact	N/A	No Impact	No Impact
3.2-b	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	Potentially Significant	GEO-1	Less than Significant with Mitigation	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
3.2-c and 3.2-d	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	No Impact	N/A	No Impact	No Impact
3.2-e	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	No Impact	N/A	No Impact	No Impact
3.2-f	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	Less than Significant	N/A	Less than Significant	Negligible effects that are Less than Significant
3.2-f	MCP	Less than Significant	GEO-2	Less than Significant with Mitigation	Negligible effects that are Less than Significant with Mitigation incorporated
3.2-g	American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	No Impact	N/A	No Impact	No Impact

American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, American River Mitigation

The Geological Resources discussion in Section 3.2 of the 2016 ARCF GRR Final EIS/EIR addresses geologic resources impacts for the American River, Sacramento River, and Magpie Creek portions of the project. The American River and Sacramento River project sites are not near paleontologically sensitive materials, so there would be no impact related to paleontological resources. The MCP improvement area is located on the paleontologically sensitive Riverbank Formation; however, the extent of disturbance of the Riverbank Formation would be small, and the potential to encounter unique paleontological resources would be low.

Construction could result in the temporary and short-term disturbance of soil and could expose disturbed areas if a storm event were to occur during project implementation. Rainfall of sufficient intensity could dislodge soil particles from the soil surface. Once particles are dislodged and the storm is large enough to generate runoff, substantial localized erosion could occur. In addition, soil disturbance during summer could result in substantial loss of topsoil because of wind erosion. The Proposed Action would result in a potentially significant impact due to the temporary, short-term construction impact. Mitigation Measure GEO-1, which has been previously adopted, would be applied to reduce this impact to a less-than-significant level. For the MCP, there is the potential to encounter unique paleontological resources due to the presence of the Riverbank Formation in the project site. This potentially significant impact would be reduced to a less-than-significant level with new Mitigation Measure GEO-2.

4.4.2.2.3 Alternatives

Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-Only), 4b (CEQA-Only), 5b

A more detailed description of the impacts of the Alternatives on geology resources is available in Appendix B 3.2, “Geologic Resources.” None of these Alternatives would change any of the construction impacts associated with geologic resources, mineral resources, or paleontological resources.

Alternatives 5a and 5c

These alternatives would replace construction of the SRMS with purchase of mitigation credits and/or financial support for the Sunset Pumps project. These alternatives would have no impact on geologic resources.

4.4.3 Hydraulics and Hydrology

4.4.3.1 Existing Conditions

Section 3.4.1 of the 2016 ARCF GRR FEIS/EIR describes the hydrologic setting of the project area, mainly focusing on the Sacramento and American Rivers, which have been significantly altered by human activities, including hydraulic and dredge mining for gold, building of levees for land reclamation and flood control, bank protection, land use changes, reservoir construction, water export projects, and dredging of alluvium for navigation and levee maintenance purposes.

Surface waters in the project area include the MCDC, Don Julio Creek, Steelhead Creek /Natomas East Main Drainage Canal (NEMDC), American River, man-made pond, Sacramento River, Cache Creek, Steamboat Slough, the Sacramento River Deep Water Ship Channel, and wetlands. All the individual projects are located in designated flood hazard areas or in areas with reduced flood risk due to the presence of levees, according to Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer geospatial database. The project area overlies the North American and South American groundwater sub-basins, and the Sacramento Valley – Solano groundwater sub-basin.

4.4.3.2 Environmental Effects

4.4.3.2.1 No Action Alternative

Under the NEPA No Action Alternative, the remaining work on MCP, Lower American River, and Sacramento River authorized under the ARCF 2016 Project will be constructed. This work includes fix-in-place levee improvements which would improve flow conveyance and improve the flood risk reduction system. Since flows are not expected to be adversely altered, the effects to hydrology and hydraulics described in the GRR Final EIS/EIR are found to be less than significant, and no mitigation would be required.

The SRMS and ARMS will not be constructed, and the existing hydrology and hydraulic conditions would continue. As a part of the 2016 ARCF GRR Project, on-site mitigation such as planting berms will be constructed along the riverbanks. In addition, off-site mitigation sites that have already been discussed in previous NEPA documents such as Rossmoor, Rio Americano, and the Glenn Hall mitigation site would be construction as well. This mitigation strategy will not alter river hydrology or hydraulics.

However, portions of the American and Sacramento River levee system have been recently identified as highly vulnerable to erosion. New hydraulic modeling along the American River discovered the potential for a levee breach due to adverse conditions during high flows. Design Refinements including levee protection and the new seepage berm at American River Erosion Contract 4A will not be constructed. The greater Sacramento area will remain susceptible to the risk of flooding. North Sacramento will remain vulnerable to flooding as the new levee will not be constructed on Magpie Creek east of Raley Boulevard nor will the canal improvements. Magpie Creek will continue to lack the channel capacity and levee infrastructure to contain a 1 in 200-year flood event. Effects to hydraulics will be significant.

4.4.3.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to hydraulics and hydrology is available in Appendix B Section 3.3 “Hydraulics and Hydrology”.

Hydraulic analyses were conducted for Magpie Creek, the American River, and the Sacramento River during design refinements for the Proposed Action and alternatives. The effects of the Proposed Action on the water surface elevations were evaluated using the Hydrologic Engineering Center’s River Analysis System (HEC-RAS) computer software. HEC-RAS performs one-dimensional steady flow, one- and two-dimensional unsteady flow calculations, sediment transport/mobile bed calculations, and water temperature/water quality modeling. The development and use of this hydraulic modeling is described in Section 3.4.2 of the 2016 ARCF GRR FEIS/EIR.

Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees (MFR ARCF 2016, Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees, 21 February 2023) was presented in a Memorandum of Record dated 21 Feb 2023, which was prepared to determine cumulative stage impacts to the American and Sacramento Rivers Erosion Improvement designs. The results of the analysis show that the hydraulic conditions without Sacramento Weir widening (future without ARCF 2016 Project) or the hydraulic conditions with Sacramento Weir widening and ECMs (future with ARCF implemented) do not provide significant changes in water surface elevations along the Sacramento River. The cumulative hydraulic impacts for the current representation of the “With ARCF Project condition” (which includes the Proposed Action) do not result in an increase in Annual Overtopping potential at any of the index locations compared to the baseline condition. When considering geotechnical failures, the Annual Erosion Potential (AEP) at all index locations was reduced by the levee improvements proposed under the WRDA 2016, ARCF 2016 Project. The changes in conveyance capacity resulting from different designs do not have a significant impact on the AEP compared to the reduction provided by the system-wide levee improvements.

Table 4.3.3-1. Summary of Hydraulics and Hydrology Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.3-a	Decrease groundwater supplies or interfere with groundwater recharge	Less than Significant	Long-term Negligible effects that are Less than Significant
3.3-b	Alter existing drainage pattern of the site through the alteration of a stream or river, or addition of impervious surfaces, in a manner which would: 1) result in a substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or 4) impede or redirect flood flows;	Potentially significant and unavoidable	Potentially significant and unavoidable

Table 4.3.3-2. Hydraulics and Hydrology Effects by Project Component

Impact Number	Location	Significance before Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3-a	MCP	Less than Significant	N/A	Less than Significant	Long-term and Negligible effects that are Less than Significant
3.3-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3	No Impact	N/A	No Impact	No Impact
3.3-a	American River Erosion Contract 4A	Less than Significant	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
3.3-a	ARMS, SRMS	Beneficial/Less than Significant	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant; Long-term and Beneficial effects
3.3-a	Piezometer Network	No Impact	N/A	No Impact	No Impact
3.3-b	MCP	Significant	Mitigation Measures HYDRO-1: Obtain flowage easements on adjacent floodplain. HYDRO-2: Address downstream stage increases	Potentially significant and unavoidable	Potentially significant and unavoidable
3.3-b	American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3	Less than Significant	N/A	Less than Significant	Long-term and Negligible (AR 4A); Short-term and Negligible (AR 3A); and Long-term and Minor (SR 3) effects that are Less than Significant
3.3-b	ARMS, SRMS	Beneficial/Less than Significant	N/A	Less than Significant	Long-term and Beneficial
3.3-b	Piezometer Network	No Impact	N/A	No Impact	No Impact

The Proposed Action would impact the hydrology and hydraulics of the project components in various ways that are worth highlighting in this section. Magpie Creek components would have a significant and unavoidable impact on drainage patterns due to potential downstream stage increases of up to 0.3 feet. Magpie Creek components would have a less than significant impact on groundwater supplies and recharge. The channel realignment east of Raley Boulevard could interfere with groundwater recharge in that area and the realigned and widened channel between

Raley Boulevard and Vinci Avenue would not accommodate the design flow of 3,169 cfs and therefore, would have a potentially significant impact on the existing drainage pattern of the site. Implementation of Mitigation Measure HYDRO-1 and HYDRO-2 would reduce impacts through establishment of flowage easements and assessment and potential compensation for downstream impacts, but not to a less-than-significant level.

The American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3 components would have no impact on groundwater supplies and recharge and a less than significant impact on drainage patterns. The American River Erosion Contract 3B North and South, and American River Erosion Contract 4B design refinements include construction of launchable rock toe and tiebacks that would narrow the channel and raise the river stage. Model results indicate these project components do not increase the risk of overtopping of the North and South Levee Systems. Therefore, the impact would be less than significant. The Sacramento River Erosion Contract 3 components include a launchable rock toe, which would supplement the standard rock revetment with an additional 10 feet of rock at the revetment base. Results of the modeling indicate the rock revetment design would lead to stage increases of less than 0.2 ft and would not increase the risk of overtopping, thereby resulting in a less than impact to hydrology and hydraulics.

The American River Erosion Contract 4A, Sacramento River Mitigation Site and American River Mitigation Site components would have a less than significant impact on hydrology and hydraulics. The American River Erosion Contract 4A components consist of an armored berm, paving and regrading the Jedediah Smith Memorial Bike Trail, and use of staging areas. All of which would be designed so there would be a less than significant impact on drainage patterns. The design of the American River Mitigation Site would incorporate erosion control measures, accommodate natural sedimentation processes, and ensure that flood flows would not be impeded or redirected such that they would contribute to flooding. Finally, the Sacramento River Mitigation Site's conceptual design involve breaching the levee on the western half and excavation of one or more channels to reconnect the floodplain to the adjacent waterbodies. This would provide additional flood storage at the site resulting in lower river stages and erosion potential.

4.4.3.2.3 Alternatives

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. These alternatives would have no effect on groundwater supplies or interfere substantially with groundwater recharge (Criteria 3.3-a). Similar to the Proposed Action, there would be less-than-significant impacts related to altered drainage due to construction of the landside berm that impacts an existing wetland (Criteria 3.3-b).

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b would retain a portion of the man-made pond at the ARMS. The retained pond would have similar less-than-significant adverse effects related to groundwater infiltration and drainage as the Proposed Action.

Alternatives 5a, 5b, and 5c

Alternative 5a would have no impact on groundwater supply or recharge, or existing drainage patterns. Alternative 5b would have beneficial effects (NEPA) as the setback levee opens the natural floodplain reconnecting the hydrology (Adverse effects would be less than significant for CEQA purposes). Alternative 5c would have no impact on groundwater supplies or drainage patterns.

4.4.4 Water Quality

4.4.4.1 Existing Conditions

Section 3.5 of the ARCF GRR Final EIS/EIR describes existing conditions of the American and Sacramento Rivers within the project area. Water temperature is a critical parameter for aquatic life, and the American and Sacramento Rivers have cool water temperatures. The 2019 Central Valley Water Quality Control Board Basin Plan (CVRWQCB 2019) established dissolved oxygen and water temperature criteria for waters with cold- and warm-freshwater habitat. The Basin Plan states that temperatures cannot deviate more than 5°F from ambient river temperatures. Dissolved oxygen is inversely related to temperature, higher temperatures decrease the amount of oxygen that the water can carry. Sediment is considered a pollutant by the CVRWQCB. Suspended sediment may transport certain contaminants, smother benthic organisms, and have negative aesthetic impacts to surface waters. Methylmercury is a highly toxic form of mercury which bioaccumulates in aquatic organisms and is formed by bacteria in wetlands, lakes, and stream beds. To minimize mercury and methylmercury discharges to Delta waterways, the Basin Plan requires that Clean Water Act 401 Water Quality Certifications include management practices to minimize the extent that sediment erodes into waterways.

4.4.4.2 Environmental Effects

4.4.4.2.1 No Action Alternative

Under the NEPA No Action Alternative, the remaining work on Magpie Creek, Lower American River, and Sacramento River described in the ARCF GRR Final EIS/EIR will be constructed. The MCP consists of a levee raise and widening, a landside maintenance road, a new levee, culvert installation, and floodplain acquisition. With the exception of the floodplain acquisition, the Magpie Creek work is to occur west of Raley Blvd. The No Action Alternative does not include in-water work around Magpie Creek and effects to water quality were found to be less than significant.

The ARCF GRR Final EIS/EIR found that construction of the launchable rock trenches on the American River will not impact water quality because this work would occur outside of the wetted channel. Construction of standard bank protection along the American and Sacramento Rivers will involve placement of underwater rock revetment along the riverbanks and could result in turbidity exceedances caused by sediment plumes, resulting in a significant but temporary impact. Equipment operation on land could result in stormwater runoff of soil from access and staging areas on the American River, while barge movement and anchoring could increase turbidity levels on the Sacramento River.

Water temperature effects on the American and Sacramento Rivers were found to be less than significant because removed vegetation will primarily consist of shrubs and grasses which do not contribute significantly to shade, and trees would be protected in place. Additionally, the bank protection sites will include riparian plantings, which would contribute to shade long-term. Therefore, water quality effects are mainly temporary and during construction. With the avoidance and minimization measures discussed in the ARCF GRR Final EIS/EIR Section 3.5.6, which include BMPs and water quality sampling, effects to water quality will be reduced to less than significant.

However, since the analysis in the ARCF GRR Final EIS/EIR, additional analysis determined that design refinements described under the Proposed Action were needed to better meet the flood risk management goals of the ARCF 2016 Project. Without these additional improvements, portions of the American and Sacramento River levee system will be vulnerable to erosion, and Magpie Creek will not have capacity to convey a 200-year flood event. This could leave portions of the project area vulnerable to flooding and the adverse water quality impacts related to that flooding. The effects to water conveyance capacity under the No Action Alternative will be significant.

4.4.4.2.2 Proposed Action

Table 4.3.4-1. Summary of Water Quality Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a	Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality	Less than Significant with Mitigation Incorporated	Long-term and Moderate with Mitigation effects that are Less than Significant with Mitigation Incorporated.
3.4-b	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	Short-Term Significant and Unavoidable, Long-Term Less than Significant with Mitigation	Short-Term Significant and Unavoidable; Long-Term and Minor effects that are Less than Significant

Table 4.3.4-2. Water Quality Effects by Project Component

Impact Number	Project Component	Significance before Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and Piezometer Network	Significant	GEO-1, HAZ-1, WATERS-1, and WQ-1	Less than Significant with Mitigation	Long-term and Moderate with Mitigation; effects are Less than Significant with Mitigation Incorporated
3.4-b	MCP	Short-term Significant and Unavoidable; Long-term Less than Significant	GEO-1, HAZ-1, WATERS-1, and WQ-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation	Short-Term Significant and Unavoidable, Long-term and Minor effects that are Less than Significant with Mitigation
3.4-b	American River Erosion Contract 3B North and South, and American River Erosion Contract 4B	Significant and Unavoidable	N/A	Short-term Significant and Unavoidable, Long-term Less than Significant	Significant and Unavoidable
3.4-b	American River Erosion Contract 4A	Less than Significant	WQ-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant with Mitigation
3.4-b	Sacramento River Erosion Contract 3	Significant and Unavoidable	N/A	Short-term Significant and Unavoidable, Long-term Less than Significant	Significant and Unavoidable
3.5-b	ARMS	Significant	GEO-1, HAZ-1, and WATERS-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation	Short-Term Significant and Unavoidable; Long-Term and Negligible effects that are Less than Significant with Mitigation
3.5-b	SRMS	Significant and Unavoidable	GEO-1 and HAZ-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation	Significant and Unavoidable
3.4-a and 3.4-b	Piezometer Network	No Impact	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to water quality and details of Mitigation Measures GEO-1, HAZ-1, WATERS-1, and WQ-1 are available in Appendix B Section 3.4 “Water Quality”.

The Proposed Action would involve ground-disturbing activities adjacent to surface waters, which could increase sedimentation entering those waters, potentially impacting aquatic organisms, water clarity, and the beneficial uses. Construction contractors would be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), as a part of their Construction Stormwater General Permit, which includes installation of Best Management Practices (BMPs) to help protect surface water quality from storm water runoff. In addition, The Proposed Action would either use or amend its existing Section 401 Water Quality Certification from the CVRWQCB and follow the avoidance and minimization measures prior to commencement of construction to ensure compliance with the Basin Plan and protect beneficial uses. The Proposed Action would also require a Section 404(b)(1) evaluation for discharges of fill into Waters of the U.S.

Magpie Creek Project

The proposed construction includes substantial in-channel work, including the realignment and widening of Magpie Creek, levee widening, culvert installation, and the removal of channel vegetation. Cofferdams would be installed for the culvert installation, channel realignment, and channel widening for pumps to dewater the construction area. Water would be pumped and diverted around the construction area so that limited in-water work would occur, and minimal sediment would enter receiving waters. Greater quantities of sediment would be anticipated downstream while the vegetation becomes established on the channel banks.

American River Erosion Contract 3B North and South, and 4B

The impacts to water quality would primarily arise during construction of the launchable toe erosion protection during the in-water work window. Installation of tie-backs would require additional ground disturbance above the launchable rock toe and planting benches; however, the tie-back construction is not anticipated to directly affect water quality because use of turbidity curtains would help contain any sedimentation from entering the river. The planting benches would be constructed between the launchable rock toe erosion protection and the existing riverbank, resulting in the conversion of open water habitat to riparian forest. Loss of shade along portions of the reach would result in impacts on water temperature in the river.

American River Erosion Contract 4A

The entire project is located above the river’s OHWM and approximately 1,600 ft from the channel; therefore, water quality impacts to the American River are not anticipated. However, the project would involve filling approximately 0.60 acres of an 11.5-acre wetland to construct the berm. In the event that water is in the wetland when construction is planned to occur, USACE would obtain a Low Threat Discharge General Order (LTGO) permit for dewatering which would require water quality monitoring to ensure that any water that is dewatered from the construction zone meets Basin Plan requirements as part of the LTGO permit prior to discharging back into the wetland.

Sacramento River Erosion Contract 3

Approximately 29 acres of material would be placed below the OHWM for Sacramento River Erosion Contract 3. The turbidity impacts caused by launchable rock toe construction are similar to those described for American River Erosion Contract 3B; likewise, tieback construction is not anticipated to affect water quality because the work would occur outside the wetted channel and use of a turbidity curtain would contain any sediment. All materials would be brought to the sites by barges, which could impact turbidity during the barges' movement into position and anchoring. Loss of shade along portions of the reach would result in impacts on water temperature in the river.

American River Mitigation Site

The habitat mitigation features at the 120-acre ARMS would include breaching the existing 58-acre man-made pond to connect it with the American River and grading of the site to create channels and floodplain forest for juvenile salmonid habitat. Soil and water at the site will be tested to determine the presence of chemical contamination. Water quality testing of the man-made pit would need to be conducted to ensure that the American River would not receive water which could cause violation of water quality standards or degradation of water quality.

Sacramento River Mitigation Site

Habitat mitigation at the 200-acre SRMS would entail breaching the existing levee in at least one place and grading the site to create one or more channels and expose the interior to tidal influence. There is potential for contaminated sediment on site with a closed municipal solid waste landfill is located on the eastern portion of the site which would be avoided. The western portion has been used as a dredge material disposal site and this material would be tested to assess its suitability for use in mitigation features. The water quality impacts resulting from ground disturbance and operation of construction equipment are anticipated to be similar to the ARMS. Water quality impacts related to temperature, dissolved oxygen, salinity, and methylmercury are expected to be less than significant.

Piezometer Network

Installation of the piezometers for monitoring water levels throughout the project area requires drilling wells on the landside of the levee system and would not conflict with any water quality control plans or sustainable groundwater management plans.

4.4.4.2.3 Alternatives Comparison

A more detailed description of the impacts of the Alternatives on water quality is available in Appendix B 3.4 Water Quality. This section will briefly summarize changes to significant effects, including greater/lesser significant effects than the Proposed Action.

Alternatives 5a and 5c would require no new construction or disturbance as existing mitigation banks would be used or funds would be contributed to projects already being covered under NEPA/CEQA from other agencies. Consequently, there would be no impacts to water quality. The impacts of Alternatives 3a, 3b, 3c, 3d, 4a (CEQA-only), 4b (CEQA-only), and 5b would be similar to those of the Proposed Action.

4.4.5 Air Quality

4.4.5.1 Existing Conditions

The Study Area is located within the Sacramento Valley Air Basin (SVAB); however, Sacramento River Erosion Improvements include transporting materials by barge in the San Francisco Bay Area Air Basin (SFBAAB). The majority of the Proposed Action is located in Sacramento County, which places the project primarily under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). However, material associated with the Sacramento River Erosion Improvements would be transported from within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

4.4.5.1.1 Sensitive Receptors

Sensitive receptors include schools, residences, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, churches, and retirement homes. The majority of the levees in the project area are in close proximity to local residences, with many peoples' backyards very close to the toe of the levee. Additionally, there are a number of schools located along the Sacramento and American Rivers, within 2 miles of the Proposed Action.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and nearby parks including Miller Park, Discovery Park, and Garcia Bend Park, are also considered to be sensitive receptors.

4.4.5.1.2 Criteria Air Pollutants

The Clean Air Act established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM₁₀), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less (PM_{2.5}), and lead (Pb). O₃ is a secondary pollutant that is not emitted directly into the atmosphere. Instead, it forms by the reaction of two ozone precursors: reactive organic gases (ROG) and nitrogen oxides (NO_x). The California Ambient Air Quality Standards (CAAQS) also include specific air pollutant standards for the aforementioned criteria air pollutants.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs). In California, the California Air Resources Board (CARB) is responsible for the establishment of the SIP. The local air quality management districts are responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in "attainment." However, areas that are noncompliant are designated "non-attainment" areas. Once attainment has been achieved, the air basin may be placed under a maintenance plan to demonstrate long-term compliance with the NAAQS.

Due to the non-attainment designations for the SVAB, the Sacramento Metropolitan Air Quality Management District (SMAQMD) is required to prepare SIPs for O₃, PM₁₀, and PM_{2.5} to establish how the area would attain the standards by dates specified within the plans. (The

SMAQMD is currently under a maintenance plan for PM₁₀, which must show maintenance of the NAAQS through 2033.)

Barges transporting material to the site will travel through the San Francisco Bay Area Air Basin (SFBAAB) in addition to the SVAB. The SFBAAB is in nonattainment for O₃ (1-hour and 8-hour averaging), PM₁₀ (24-hour and annual), and PM_{2.5} (24-hour and annual) (BAAQMD 2017). Due to the non-attainment designations for the Bay Area, the Bay Area Air Quality Management District (BAAQMD) is required to prepare SIPs for O₃, PM₁₀, and PM_{2.5} to establish how the area would attain the standards by dates specified within the plans.

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

4.4.5.1.3 Toxic Air Contaminants

In addition to criteria air pollutants, EPA regulates toxic air contaminants (TACs), also known as hazardous air pollutants. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health.

4.4.5.2 Environmental Effects

4.4.5.2.1 No Action Alternative

Construction of the No Action Alternative will exceed the SMAQMD and BAAQMD emission thresholds for NO_x and PM₁₀. Mitigation will be implemented to reduce PM emissions in the form of dust due to construction to less than significant. Although mitigation measures will be implemented to reduce NO_x for off-road equipment by 20 percent, construction-related emissions will still exceed SMAQMD's emission thresholds for NO_x. The USACE would be required to pay an off-site mitigation fee for NO_x emissions in the SVAB, which would reduce the effect to a less-than-significant level.

Borrow activities and barge delivery emissions would not exceed YSAQMD thresholds and will result in a less-than-significant impact. Since less than 50 percent of emissions associated with borrow activities could occur in the Feather River Air Quality Management District jurisdiction, it was assumed that district's thresholds will not be exceeded. Borrow activities emissions associated with potential borrow sites located north of the project site were captured in the SMAQMD off-site soil estimates.

Annual construction emissions from the No Action Alternative will exceed the General Conformity threshold for NO_x in the Sacramento Federal Nonattainment Area (SFNA), resulting in a significant adverse effect. Implementing Enhance Exhaust Control Practices for off-road equipment and only using on-road heavy-duty diesel trucks or equipment that comply with

USEPA 2010 on-road emission standards will reduce annual construction emissions below the *de minimis* threshold. Therefore, this direct effect will be reduced to a less-than-significant level.

Construction activities will result in short-term diesel particulate (DPM) emissions from onsite heavy-duty equipment and trucks and could expose sensitive receptors to DPM generated during construction, therefore resulting in a potential adverse health effect. However, implementing mitigation measures will reduce DPM and associated health risks during construction to less than significant.

The No Action Alternative is not a major source of odor. Finally, long-term O&M activities will result in limited emissions of criteria pollutants from activities such as driving trucks on the levees for inspections and maintenance actions, mowing of grasses on the levees, and possibly limited heavy earth-moving equipment for repair of any damage to the site.

4.4.5.2.2 Proposed Action

Table 4.3.5-1. Summary of Air Quality Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a	Result in a Cumulatively Considerable Net Increase of Any Criteria Area Pollutant Leading to a Conflict with Applicable Air Quality Plans During Construction Activities	Significant and Unavoidable	Significant and Unavoidable
3.5-b	Conflict with Applicable Air Quality Plan for Operation, Maintenance, and Inspection	Significant and Unavoidable	Significant and Unavoidable
3.5-c	Expose Sensitive Receptors to Substantial Pollutant Concentrations	Less than Significant	Short-term and Minor effects that are Less than Significant
3.5-d	Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	Less than Significant	Short-term and Negligible effects that are Less than Significant

Table 4.3.5-2. Air Quality Effects by Project Component

Impact Number	Location	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a	Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	AIR-1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-b	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	Significant and Unavoidable	Significant and Unavoidable
3.5-c	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, ARMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant

Impact Number	Location	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.5-d	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant

Note: The Piezometer Network would have minimal air quality impacts.

A more detailed description of the impacts of the Proposed Action to air quality and details of Mitigation Measures AIR-1, AIR-2, AIR-3, AIR-4 and AIR-5 are available in Appendix B Section 3.5 “Air Quality”.

American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, American River Mitigation

Construction-related Impacts

Maximum daily and annual emissions were estimated for ROG, NO_x, PM₁₀, and PM_{2.5} and compared to the SMAQMD and BAAQMD thresholds, as well as the federal *de minimis* thresholds. These results are shown in Appendix B, 3.5 Air Quality, Tables 3.5-3 and 3.5-6. Construction-related emissions would exceed the SMAQMD’s emission threshold for NO_x, PM₁₀, and PM_{2.5}. Construction-related emissions would exceed the BAAQMD’s emission thresholds for NO_x and ROG. Construction-related emissions would exceed SVAB federal General Conformity standards for PM₁₀ in 2024, 2025 and 2026. The Proposed Action would not exceed SFNA federal General Conformity standards. The actual emissions generated in the SMAQMD may be reduced depending on the availability of the borrow sites that are located closer to the Proposed Action. Given that construction emissions under the Proposed Action would exceed the SMAQMD, BAAQMD, and *de minimis* thresholds, the project would result in a significant impact.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 30 or 70-year exposure period is often assumed. However, while cancer can result from exposure periods of less than 30 or 70 years, exposure periods of 2 to 3 years are not anticipated to result in increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic (OEHHA 2015).

Construction of the Proposed Action would result in short-term emissions of TACs, primarily diesel particulate (DPM) emissions, from on-site heavy-duty equipment and on-road haul trucks. Construction activities associated with the ARCF 2016 Project, which includes the Proposed Action would continue through 2027. As shown in Table 3.5-11 of Appendix B, 3.5 Air Quality, the exhaust component of the PM 2.5 is a small portion of this total generated emissions and would not be above SMAQMD or General Conformity *de minimis* thresholds. Regardless, SMAQMD-recommended construction mitigation which would further reduce emissions of TACs.

During construction, the project would generate odor from the use of diesel fuels over the construction period from 2024 to 2027. However, the project would not generate a considerable volume of other emissions that would adversely affect a substantial number of people.

- Mitigation measures AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5, which have been previously adopted, would reduce emissions of significant construction-related criteria air pollutants. Implementation of Mitigation Measures AIR-1 to AIR-5 would require establishment of BMPs and other on-site controls, including use of Tier 4 equipment for off-road equipment and higher-tier marine engines, to reduce NO_x and PM₁₀ emissions at the project site. USACE would pay a mitigation fee to offset remaining NO_x emissions by reducing emissions at off-site sources. There is no off-site fee program or other options to further reduce PM emissions generated at the project site during construction. As a result, the project would continue to generate maximum daily PM emissions that exceed SMAQMD thresholds of significance in 2024, 2025, and 2026. There are no other feasible mitigation measures, or additional mitigation measures approved by the SMAQMD, that can be implemented to further reduce this significant adverse impact related to PM₁₀ emissions generated at the project site during construction. Therefore, this impact would be significant and unavoidable

Operation-related Impacts

Long-term operational and maintenance activities under the Proposed Action would result in limited emissions of criteria air pollutants and precursors from the use of on-road vehicles on the levees for inspection and maintenance activities, mowing grasses on the levees, vegetation removal from channels, and possibly limited heavy earth-moving equipment for repair of any damage to the site. These emissions would be limited to a temporary time frame once or twice per year, and O&M activities would be similar to those conducted under current conditions. Emissions resulting from long-term operational and maintenance activities would not exceed SMAQMD or *de minimis* thresholds and would be less than significant.

4.4.5.2.3 Alternatives

Alternative 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMs, and ARMS) would be unchanged. That the material and equipment needed as well as construction activities for these alternatives would be similar to the Proposed Action. Therefore, these alternatives would not change any of the air quality related construction impacts.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b would include alternative designs for improvements to the ARMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged. Alternative 4a would preserve an approximately 30-acre portion of the existing man-made pond, and Alternative 4b would preserve an approximately 20-acre portion; therefore, reducing the need for fill materials, construction-related transportation, and construction equipment usage. Alternatives 4a and 4b would result in a decrease in the generation of criteria air pollutants and toxic air contaminants due to the preservation of a portion of the man-made pond. However, the emissions generated would nevertheless exceed significance thresholds, and significance conclusions, including significance after implementing mitigation measures, would be similar to the Proposed Action.

Alternatives 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and proposes alternative mitigation fulfillment. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. This alternative would eliminate air quality impacts associated with the SRMS.

Alternative 5b

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. It is anticipated that the material and equipment needed to perform construction activities for this alternative would be substantially greater than the Proposed Action, due to the need to construct a new levee. Therefore, this alternative would increase the amount of criteria air pollutants, however, the impact conclusion would be similar to the Proposed Action.

4.4.6 Greenhouse Gas Emissions, Climate Change, and Energy Consumption

4.4.6.1 Existing Conditions

The existing conditions and affected environment related to GHG and Climate Change are consistent with conditions described in the ARCF FEIS/EIR. This analysis has been updated with the 2023 Interim NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change promulgated by CEQ.

Although the scientific community largely agrees on GHGs as a major driver of climate change and uses CO_{2e} to compare the total GHG emissions from various projects, CEQ has not yet issued a threshold for determining whether mobile source emissions from a project would result in a significant impact. In lieu of a quantitative threshold, CEQ has provided interim GHG guidance that builds upon and updates CEQ's 2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews (“2016 GHG Guidance”), highlighting best practices for analysis grounded in science and agency experience. These include quantifying the size and impact of the proposed action's reasonable direct, indirect, long-term, and short-term GHG emissions while also considering reasonable alternatives that avoid or mitigate for those emissions.

4.4.6.2 Environmental Effects

4.4.6.2.1 No Action Alternative

The construction emissions estimated for the No Action Alternative exceeds the SMAQMD and YSAQMD GHG threshold of 1,100 metric tons (MT) CO_{2e} per year, but project-components within BAAQMD territory, GHG emissions will be well below the BAAQMD GHG threshold of 10,000 MT CO_{2e} per year. These local thresholds are only adopted for the CEQA significance conclusion. In accordance with USACE policy and CEQ guidelines, for the NEPA effects

determination, USACE has completed a comparative, qualitative analysis demonstrating the No Action Alternative will result in negligible GHG emissions (less than 10,000 MT) when compared to the Sacramento County GHG emissions data that estimates over 4 million MT of GHG were released in 2021 (Sacramento County 2023). Implementing mitigation measures would reduce GHG emissions during construction to the maximum extent practicable. For any emissions not reduced through proposed mitigation, the USACE would purchase carbon offset credits in coordination with SMAQMD and YSAQMD, as needed, in accordance with Mitigation Measure GHG-1. With these offset credits, impacts to climate change from construction of the No Action Alternative will be reduced to less than significant.

4.4.6.2.2 Proposed Action

Table 6.3.6-1. Summary of Greenhouse Gas Emissions, Climate Change, and Energy Consumption Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant
3.6-b	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant
3.6-c	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Less than Significant	No Impact
3.6-d	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	No Impact	No Impact

Table 4.3.6-2. Greenhouse Gas Emissions, Climate Change, and Energy Consumption Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	GHG-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant
3.6-b	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	GHG-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant
3.6-c	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, ARMS, ARMS	N/A	Less than Significant	No Impact
3.6-d	American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B Sacramento River Erosion Contract 3, MCP, SRMS, ARMS	N/A	No Impact	No Impact

Note: The Piezometer Network would have minimal GHG impacts.

A more detailed description of the impacts of the Proposed Action and details of Mitigation Measure GHG-1 is available in Appendix B Section 3.6 “Greenhouse Gas Emissions, Climate Change, and Energy Consumption”.

American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

The Proposed Action would be constructed using typical construction methods and would not include any activities identified as wasteful or having unusually high energy consumption. Operational activities and energy use would be similar to the No Action Alternative activities. The Proposed Action would result in energy consumption during construction activities; however, the Proposed Action would not result in energy consumption that would conflict with State or local plans for renewable energy or energy efficiency.

The Proposed Action would generate construction-related emissions from vehicle engine exhaust from operation of heavy-duty construction equipment, haul trips, and construction worker vehicle trips. The construction related GHG emissions estimated for each year of construction are presented in Appendix B Section 3.6 “Greenhouse Gas, Climate Change, and Energy.” The project would generate construction related GHG emissions exceeding the SMAQMD construction threshold of 1,100 MT of CO₂e per year during all construction years; these thresholds were used to determine significance under CEQA. As discussed under the No Action, a qualitative analysis was used for the NEPA analysis as there are currently no Federal thresholds. To determine if GHG emissions would provide a significant effect, the qualitative analysis considered the quantity of greenhouse gas emissions anticipated and the potential for preventing greenhouse gas reduction goals or climate change goals from being met.

Given the above, generation of construction related GHG emissions from the Proposed Action would cause a potentially significant impact to the environment. The design refinements include substantial changes to the project schedule, but annual emissions of the reduced schedule would still be potentially significant.

However, implementing the project would increase the likelihood that the flood management system could accommodate future flood events because of climate change. The Proposed Action 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.

The intent, purpose, and function of the Proposed Action aligns with the goals of California Assembly Bill (AB) 32 Scoping Plan to protect the State from the detrimental effects of climate change. The Proposed Action is an adaptive measure against the potential effects of climate change (i.e., increased flooding frequency, magnitude, and duration). However, the project would include new temporary, short-term GHG emissions during construction, which could result in a significant impact.

Because the Proposed Action and the design refinements would exceed the 1,100 MTCO₂e/year threshold established by SMAQMD, climate change impacts would be significant under CEQA.

Implementing Mitigation Measure GHG-1, which was previously adopted, 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 purchasing carbon offset credits.

In accordance with USACE policy and CEQ guidance, NEPA significance determination of the Proposed Action is tiered commensurate with the level of impact. Quantitative analysis of GHG impacts resulting from the Proposed Action is compared to the overall GHG emissions on an annual basis at the County level. GHG modeling shows that from 2024-2027, construction emissions would release an estimated range of 3,213 MT/CO₂e to 14,002,34 of MT/CO₂e GHG. Comparably the most recent data from Sacramento County, states that in 2021 off-road vehicles were estimated to factor for 2.5% of emissions in Sacramento County, which is 107,174 MT CO₂e out of a total of 4,026,910 MT CO₂e GHG emitted that year (Sacramento County 2023). This qualitative analysis demonstrates that emissions from this project would increase overall GHG inventory in Sacramento County by a range of .0008-.0034% each year of construction. The Proposed Action would generate short-term, direct construction emissions in accordance with the federal GHG reduction and climate change goals. Based on Federal guidelines the Proposed Action would have long-term but minor effects that are less than significant.

4.4.6.2.3 Alternatives

A more detailed description of the impacts of the Alternatives on Greenhouse Gas, Climate Change, and Energy is available in Appendix B Section 3.6, “Greenhouse Gas, Climate Change and Energy.”

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. These alternatives would not change any of the construction impacts associated with GHG, climate change, or energy consumption.

Alternatives 4a and 4b

Alternatives 4a and 4b includes alternative designs for improvements to the ARMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion 4B, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged. Alternatives 4a and 4b would result in a decrease in the generation GHG emissions due to the preservation of a portion of the man-made pond. However, the combined project related GHG emissions generated during the years in which the ARMS project component would be constructed 2025 and 2026 would remain above the SMAQMD threshold.

Alternative 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and proposes alternative mitigation fulfillment. All other project components (MCP, American River

Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. These alternatives would eliminate GHG, climate change, and energy consumption impacts associated with the SRMS.

Alternative 5b

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. It is anticipated that the material and equipment needed as well as construction activities for Alternative 5b would be similar to the Proposed Action. Therefore, this alternative would not change any of the construction impacts associated with GHG, climate change, or energy consumption compared to the Proposed Action.

4.4.6.2.4 Social Cost of Greenhouse Gas Emissions (NEPA Only)

The social costs of greenhouse gases (SC-GHG) include the sum of social costs from carbon, nitrous oxide, and methane, which is an estimate of monetized economic damages associated with the incremental increases in GHG emissions annually. These damages are resultant from climate change with estimated values of public health effects, changes in net agricultural productivity, property damage from increased flood risk, natural disasters, interruptions of energy supply and services, risk of conflict, environmental migration, and the value of ecosystem services (U.S. Interagency Working Group on the Social Cost of Greenhouse Gases [IWG] 2021).

Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, was issued on January 20, 2021, by President Biden. Correspondingly, the CEQ rescinded its 2019 “Draft National Environmental Policy Guidance on Considering GHG” and issued interim NEPA Guidance on Consideration of GHG and Climate Change on January 9, 2023. The public comment period was extended until April 10, 2023, and at the time of draft release of this SEIS/SEIR, final guidance has not been released by CEQ. On September 21, 2023, the Biden-Harris Administration issued a Fact Sheet as the first steps in holding the federal government accountable for analyzing climate change impacts during budgeting, procurement, and agency decisions. The President directed agencies to consider SC-GHG in NEPA environmental reviews when appropriate to provide the public context about their climate change impacts.

The best available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide, methane, and nitrous oxide developed by the IWG of the SC-GHG, which are published in the 2021 Technical Support Document. IWG and the Institute for Policy Integrity have developed a tool to calculate the social costs of the three most common GHG by entering the metric tons of emissions per GHG over a period of analysis and monetizes by applying a discount rate. The IWG’s SC-GHG estimates reflect state-of-the-art advances in science and economics accounting for the Intergovernmental Panel on Climate Change (IPCC) climate driver impacts such as warming trends, precipitation, damaging cyclones, carbon dioxide concentration, sea level rise, coastal flooding, and storm surges. Climate impact drivers excluded from the

estimates include inland flooding, extreme temperature, drying trends, extreme precipitation, snow cover and ocean acidification.

The federally available tools currently developed for assessing climate change by calculating the SC-GHG are limited to sectors that have long operational periods with ongoing emissions including agriculture and forestry, electricity, energy, industrial processes, land use and development, transportation, and waste (CEQ 2023). The Proposed Action and Action Alternatives presented in this SEIS/SEIR have discrete, multi-year construction emissions which have been calculated for the air quality analysis. Once constructed and implemented, there are no long-term operational GHG emissions associated with the project; therefore, USACE has not prepared a quantitative analysis on the SC-GHG.

The Proposed Action will have long-term benefits by incorporating climate resiliency into the Project, providing flood risk reduction to communities susceptible to climate change effects such as increased precipitation and inland flooding.

4.4.7 Noise and Vibration

4.4.7.1 Existing Conditions

Noise Generation

The majority of the project area is located in urban and residential areas. The primary existing noise sources near the project sites include vehicular traffic, trains, common urban uses such as those in downtown Sacramento, air traffic, boats operating along the American River and Sacramento River, and light industrial uses and agricultural machinery in the vicinity of the MCP improvements. Certain areas along the Sacramento River have higher boating noise due to public marinas such as Discovery Park, Garcia Bend Park, Miller Park, Stan's Yolo, and Sherwood Harbor. MCP may experience higher levels of air traffic noise due to the proximity to the McClellan Airport.

Noise Receptors

The majority of the levees in the project area are in close proximity to local residences, with many backyards very close to the toe of the levee. Since the levee elevation is higher than the houses, noise on the levees travels into nearby yards and houses. Some areas have trees between the levee and homes, which would filter some noise from levee activities. Additionally, residential properties near haul routes would be subject to a temporary increase in noise levels. Refer to Chapter 2, "Description of Project Alternatives," for proposed haul routes.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and local parks including Miller Park, Discovery Park, and Garcia Bend Park, are considered to be sensitive noise receptors. In addition, local wildlife near these American and Sacramento River, and Magpie Creek are considered sensitive receptors.

4.4.7.2 Environmental Effects

4.4.7.2.1 No Action Alternative

The No Action Alternative generates temporary, short-term, and intermittent noise at or near noise sensitive receptors in and around the project area due to construction activities associated with the previously authorized levee and erosion repairs. Construction activities along the American River, Sacramento River, and East Side Tributaries result in temporary significant impacts to residents, recreationists, and other noise sensitive groups. However, implementation of mitigation measures reduces this impact to less than significant.

Ground vibration from construction of the No Action Alternative is expected to be discernible only at residences within 40 feet of the construction equipment resulting in a potentially significant impact. However, implementation of mitigation measures should reduce this impact to less than significant.

4.4.7.2.2 Proposed Action

Construction of the Piezometer Network would include minimal construction equipment (a drill rig and support truck) and duration of work at each individual location would be short (generally less than a day) because the network would be dispersed throughout the Proposed Action Area. Therefore, noise impacts from installation of the Piezometer Network are captured in the analysis of the remaining project components and do not require a separate evaluation.

Table 4.3.7-1. Summary of Noise and Vibration Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards to other agencies	Significant and Unavoidable	Significant and Unavoidable
3.7-b	Generation of excessive ground borne vibration or ground borne noise levels	Significant and Unavoidable	Significant and Unavoidable

Table 4.3.7-2. Noise and Vibration Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, Sacramento River Erosion Contract 3, MCP, ARMS	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-a	SRMS	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant

Impact Number	Project Component	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.7-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, Sacramento River Erosion Contract 3	NOI-1	Significant and Unavoidable	Less than Significant and Unavoidable
3.7-b	MCP, SRMS, ARMS	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

A more detailed description of the impacts of the Proposed Action to noise and vibration and details of Mitigation Measure NOI-1 is available in Appendix B Section 3.7 “Noise and Vibration”.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, and Piezometer Network

Flood risk reduction improvements for the American River Erosion Contract 3B North and South, 4A, and 4B, Sacramento River Erosion Contract 3, MCP, ARMS, and Piezometer Network under the Proposed Action would include similar equipment and produce similar noise levels as the No Action Alternative. However, much of the erosion protection work along the Sacramento River would occur from barges, and the existing levee would act as a natural barrier between the construction work area and nearby sensitive receptors on the landside of the levee (i.e., residential properties). Therefore, noise generation at nearby sensitive receptors during construction of the Sacramento River Erosion Contract 3 would be slightly reduced because of the attenuation provided by this natural barrier. The MCP and ARMS components include the potential for nighttime construction activities.

Construction of these project components would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, including at nearby residential properties and recreation sites, in excess of local standards. The closest sensitive receptors to these American River and Sacramento River erosion improvement areas (with the exception of American River Erosion Contract 4A) include single family residences located as close as 25 feet from proposed haul routes and construction areas. The closest sensitive receptors to the Magpie Improvements are residential properties located approximately 200 feet north of the northern section of the project alignment where canal and slope flattening would occur. The closest sensitive receptors to the ARMS are residential properties located approximately 400 feet north of the project site.

Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq} for daytime, and 50dBA L_{eq} for nighttime) would be exceeded where daytime construction activity occurs within approximately 600 feet of existing sensitive land uses and nighttime construction activity would occur within 1,200 feet of existing sensitive land uses. Therefore, this impact would be significant. The Proposed Action would have similar effects as the No Action Alternative.

Implementing previously adopted Mitigation Measure NOI-1 would reduce significant construction-related noise generation to the extent feasible by requiring the preparation of a noise control plan, implementing feasible best management practices such as placing noise barriers between the construction site and nearby residence, and notifying sensitive users of excessive noise generation during the day. However, it is still possible that noise levels would exceed significance thresholds and no further mitigation measures are feasible to further reduce construction-related noise impacts. Since construction noise exceeding the L_{eq} thresholds is still likely to be generated, after implementation of all feasible mitigation measures, this impact would be significant and unavoidable.

Sacramento River Mitigation Site

Construction activities at the SRMS would be similar to the activities described above for other project improvements. Construction of the SRMS would include the potential for nighttime construction activities. Construction would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, however, there are no nearby sensitive receptors and this temporary increase in noise levels would be consistent with the Sacramento County General Plan ordinances. Therefore, this impact would be less than significant. The Proposed Action would therefore have a less-than-significant noise impact.

4.4.7.2.3 Vibration Impacts

American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3

In accordance with Caltrans guidance for determining impacts from vibration to structures (i.e., vibration levels that exceed 0.2 inch per second peak particle velocity [PPV]) and based on reference vibration levels and standard attenuation rates for a vibratory compactor, vibration from heavy-duty equipment may damage structures located within 25 feet of construction activity. 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 2018; Caltrans 2004]). Regarding disturbance to sensitive land uses, construction equipment would exceed FTA-recommended criteria for infrequent events (i.e., 80 VdB) within 75 feet of construction activity. Based on aerial imagery, sensitive receptors near the American River Erosion Contract 3B and 4A, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3 sites are located as close as 25 feet from the project footprint. Therefore, the use of heavy-duty construction equipment would exceed the FTA threshold for sensitive land uses and would result in a significant impact to nearby residential receptors.

Implementing previously adopted Mitigation Measure NOI-1 would reduce construction-related vibrations to the extent feasible by requiring the preparation of a vibration control plan, implementing feasible best management practices such as routing heavy loaded trucks away from sensitive receptors and limiting the use of vibratory rollers and packers near sensitive receptors. Additionally, a pre- and post- construction survey would be conducted to assess the existing condition of structures prior to construction and potential architectural/structural damage induced by levee construction vibration at each structure within 100 feet of construction

activities, including staging areas. However, it is still possible that vibration levels would exceed significance thresholds and no further mitigation measures are feasible for implement to further reduce construction-related vibration impacts. This impact would be significant and unavoidable.

Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

The No Action Alternative includes a similar mix of equipment along the American and Sacramento Rivers. The nearest sensitive receptors to these project components are located more than 75 feet from project improvements. Therefore, the use of heavy-duty construction equipment would not exceed the FTA threshold for sensitive land uses and would result in a less-than-significant impact to nearby residential receptors. The No Action Alternative includes a similar mix of equipment along the American and Sacramento Rivers.

4.4.7.2.4 Alternatives

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River Erosion Contract 3B, Sacramento River, MCP, SRMS, and ARMS) would be unchanged. The project elements that would be altered would not change any of the construction effects on noise and vibration.

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include an alternative design for the improvements to the ARMS project components. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would have the same effects as the Proposed Action. The project elements that would be altered would not change any of the construction effects on noise and vibration.

Alternatives 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the SRMS project component and propose alternative mitigation fulfillment. Alternative 5a includes purchasing all remaining, required mitigation credits from Service Approved Conservation Banks. Alternative 5c include the combination of three less conventional approaches to mitigation fulfillment including purchasing Delta Smelt Conservation Bank Credits, providing funding for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, and funding the Sunset Pump project. These alternatives would eliminate noise and vibration impacts associated with the SRMS.

Alternative 5b

Alternative 5b would replace the SRMS project component with the new Watermark Farms Mitigation Site. This alternative would generate new significant and unavoidable noise impacts (compared to the less than significant noise impacts of the Proposed Action) due to the proximity of residences to the Watermark Farms Mitigation Site. The SRMS is located in a more rural area with only scattered rural residences, the closest of which is located 1,400 feet south of the

mitigation site. Consequently, this alternative would not cause vibration impacts to sensitive residential receptors.

4.4.8 Hazards and Hazardous Materials

4.4.8.1 Existing Conditions

Phase 1 Environmental Site Assessments (ESA) are required by USACE policy for all Civil Works projects during the feasibility study phases for all construction activities. A Phase 1 ESA was conducted in 2012 for the project locations considered in the 2016 ARCF GRR FEIS/EIR and included areas within a 1-mile buffer of these locations. Within this buffer a search of federal, state, and local environmental databases and historic aerial, topographic, and fire maps were reviewed. A site visit of the study area was also conducted to identify recognizable environmental concerns. The purpose of a Phase 1 ESA is to identify potential current or former hazardous, toxic, or radioactive waste sites. The ARCF GRR Final EIS/EIR summarized the Phase 1 ESA results in Section 3.17.1 of that document and the full report is in Appendix H of that document. The 2012 Phase 1 ESA identified seven sites with the potential to affect the ARCF footprint in the 2016 GRR FEIS/EIR; however, none of those sites impact the areas considered under the Proposed Action in this SEIS/SEIR.

Due to the addition of new areas considered under the Proposed Action, updated Phase 1 ESAs were conducted at the American River sites and MCP. All Phase 2 ESAs, which consist of laboratory analyses of soil and water samples, were conducted at MCP. Below is a list of sites, dates, and findings of the new ESAs:

- American River Erosion Contract 3B: A Phase 1 ESA was conducted in 2020 and did not find any new hazardous materials sites. Contaminated groundwater is unlikely due to overall groundwater gradients and presence of a levee cutoff wall.
- American River Erosion Contract 4A: A Phase 1 ESA was conducted in 2023 and found a record of a drinking water well within ¼ mile of the site with PFAS (per- and polyfluoroalkyls substances) contamination.
- MCP: A Phase 1 ESA was conducted in 2015 on the undeveloped parcels to the east and west of Raley Blvd to be acquired by SAFCA for floodplain conservation. Due to the former agricultural use and the proximity of McClellan Airforce Base, the report recognized the potential for soil and groundwater contamination. A limited Phase II ESA followed in 2017. A Phase I ESA was conducted at Magpie Creek between Raley Blvd and Vinci Avenue in 2020. A Phase II ESA was conducted in this same area in 2021.

A search of hazardous materials sites within the study area, including the new areas considered under the Proposed Action, was conducted in February 2023 using the CalEPA Cortese List and EnviroStor database, GeoTracker database, and list of Cease and Desist / Cleanup and Abatement Orders for sites containing hazardous materials which overlap with the projects considered under the Proposed Action. The ARMS and the McClellan Airforce Base are Cortese-listed sites whose contaminants could affect areas considered under the Proposed Action. A municipal solid waste landfill exists on the southeastern portion of SRMS with no listed contaminants of concern. It has been closed since 1980.

4.4.8.1.1 Known Hazardous Materials Sites

McClellan Airforce Base

McClellan Airforce Base was a maintenance depot for aircraft and electronic equipment from 1939 to 2001 and was designated a federal superfund site and was listed on National Priorities Lists (NPL) in 1987. Magpie Creek and its tributaries run through the base east of Raley Blvd. A search of the California Department of Toxic Substances Control (DTSC) EnviroStor and California EPA Cortese list databases of hazardous waste identified at the facility in significant quantities. These include organic solvents, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), vinyl chloride, metals, pesticides, oils and greases, and radioactive compounds. From the 1940s through 1978, these materials were disposed and burned at various sites along the western side of the base. Environmental investigations beginning in 1979 identified soil and groundwater contamination both on and off the base. DTSC has been overseeing cleanup of the site, and much of the base has been converted to McClellan Business Park. Cleanup of the base extended as far west as the confluence of Don Julio and Magpie Creeks at Raley Blvd, within the project area, where Don Julio Creek was dewatered and bed sediment was excavated and transported away. Test results of the excavated material did not exceed cleanup criteria for the contaminants of concern (AECOM 2016).

As part of the 2017 Phase II ESA on the floodplain conservation parcels, 20 surface soil samples were collected between 0 and 1 feet below the ground surface and analyzed for pesticides and herbicides, metals, dioxins, semi-volatile organic compounds, volatile organic compounds, total petroleum hydrocarbons, and polychlorinated biphenyls (PCBs). The analytical results found detections of DDE and DDT, PCBs, and several metals that were below levels of concern to human health based on the use of the site as a floodplain area, but of possible concern to ecological health.

As part of the Phase II ESA along the channel between Raley Blvd and Vinci Ave, 7 soil borings taken to 12 feet below ground surface at 4-foot intervals, 7 surface soil samples, two composite samples from stockpile sites, and two surface water samples were tested for metals, mercury, organochlorine pesticides, and PCBs. Arsenic was the only analyte detected above the U.S. Environmental Protection Agency regional screening levels and California DTSC screening levels for commercial/industrial soil. However, arsenic in California is known to have higher background concentrations than the screening levels.

American River Mitigation

The ARMS is located on the northern bank of the American River at River Mile 1.3 within the American River Parkway. The property was initially used for agriculture beginning in the 1930s until approximately 1966 when the Urrutia family began sand and gravel operations on a portion of the property. By 1997, historic excavation activities resulted in the creation of an approximately 60-acre pond. The property was later used for sorting, distributing, and recycling soil and construction debris followed by a concrete pumping business operation (CVRWQCB 2023). The western portion of the site contains a garage and shop and three shipping containers. The property is used to stage concrete pumping equipment used by the property caretaker. The southwest corner of the property contains a wooded area. There are approximately 10 stockpiles of construction debris located east and south of the lake.

An environmental consultant was contracted by the Sacramento Area Flood Control Agency (SAFCA) to conduct environmental due diligence in preparation of SAFCA's planned acquisition of the property. The property has undergone a Phase I and II Environmental Site Assessment (ESA), as well as Geotechnical Investigation.

A Phase I ESA conducted in October 2022 identified the 10 soil stockpiles, petroleum storage associated with two aboveground storage tanks (ASTs), storage of auto batteries on the ground, as well as historical conditions such as a former polychlorinated biphenyl (PCB)-containing transformer explosion, use of the property as an unpermitted construction debris site for several decades, the excavation of topsoil/aggregate from the manmade lake, and placement of fill into the pond.

Phase II ESA activities and geotechnical investigations were conducted in 2022 and 2023 and included geophysical scanning of the land portions of the property, bathymetry of the manmade lake, collection of stockpile and surface soil samples, geotechnical and environmental borings, sediment samples including grid sampling, deep boring sampling, and targeted sampling, groundwater sampling, and surface water sampling (Geosyntec 2023). Below is a summary of data results based on site locations which include Northern Area, Northeast Area, Embankment Area, Operations Area, and the Pond (Geosyntec 2023).

- In the *Northern Area*, which includes the entire area north of the onsite pond, 16 soil borings were advanced. The majority of the borings show no impacts from previous land uses. Lead was reported at slightly elevated concentrations in two samples, no other constituents of concern were reported.
- In the *Northeast Area* where buried and exposed rubble had been observed along the bank of the pond, six soil borings have previously been advanced. TPH-d, naphthalene and lead were reported at elevated concentrations in select soil samples and borings.
- In the *Embankment Area*, south of the pond between the site and the American River, 27 borings were advanced on the Embankment Area and eastern bank and 7 samples were collected from surface stockpiles. Constituents of concern were not reported at concentrations above screening levels in samples collected from the stockpiles. Naphthalene, TPH-d, chromium, and lead were reported at concentrations above screening levels in a few of the 27 borings. Unfiltered groundwater samples were also collected in this area. Arsenic, barium, and nickel were reported at concentrations above the MCLs in one sample, naphthalene was reported in two of the groundwater samples, and TPH-d was reported in the four groundwater samples.
- In the *Operations Area* located on the western bank and consisting of consists of an off-site residence with three and a half shipping containers, vehicles, equipment and materials storage, half a building used as a maintenance shop, ASTs, the domestic groundwater supply well, six borings were advanced in this area. Five of the 6 borings were not advanced deeper than 2 feet bgs, with one boring advanced to 15 feet bgs. TPH-d, TPH-mo, and lead were reported at elevated concentrations near the former ASTs. Lead, mercury, and zinc were reported at elevated concentrations in the 15-foot sample. Arsenic was reported in an unfiltered water sample collected from the on-site well.

- In the *Pond Area*, from the results of bathymetric surveys it does not appear that the elevation of the pond bottom has significantly changed. Sediment and surface water samples have been collected from the pond. Constituents of concern have generally not been reported at elevated concentrations in surface water or sediment, with the exception of some soluble metals using modified elutriate testing. Based on results of a modified elutriate test (MET), chromium exceeds CTRs in two of 12 samples, and mercury exceeds levels in three of 12 samples. Methylmercury was reported in surface water samples.

SAFCA is currently conducting additional Phase II ESA activities to scope a Corrective Action Plan (CAP) for the site. The CAP will determine actions that must be taken to remove the potential for surface or groundwater impairments or risk to future sensitive receptors. Additional site investigations include soil borings, test pits, surface samples, and groundwater samples in locations that have showed elevated concentrations of constituents of concern. SAFCA will be required to achieve closure of the listing prior to use of the site for habitat restoration.

4.4.8.2 Environmental Effects

4.4.8.2.1 No Action Alternative

Construction activities would involve use of hazardous materials such as fuels, oils and lubricants, and cleaners common to construction projects. Contractors will be required to use, store, and transport these materials in compliance with Federal, State, and local regulations during project construction. With the implementation of mitigation measures discussed in the ARCF GRR Final EIS/EIR Section 3.17.6, effects from hazardous materials due to equipment operation will be less than significant.

The project is being constructed according to the original footprint described in the ARCF GRR Final EIS/EIR and does not include the portions of Magpie Creek between Vinci Avenue and Dry Creek Road or the new levee east of Raley Boulevard. On the Lower American River, the refined erosion protection site locations and tree scour work on Contract 3B, and the berm and associated bike trail reroute on Contract 4A will not be constructed. The SRMS and ARMS would not be constructed. Without the additional improvements to the flood protection infrastructure, the project area will still be vulnerable to flooding and the potential for release of hazardous materials caused by flooding would exist. This would include hazardous and toxic waste. The potential for the spread of hazardous wastes from both new and existing sites would be a significant effect under the No Action Alternative and no mitigation would be possible.

Under the CEQA No Project Alternative, the remaining components of the Proposed Action from the ARCF GRR Final EIS/EIR would not be constructed, as well as the Proposed Action from this SEIS/SEIR. There would be no potential releases of hazardous materials as a result of construction activities and the study area would continue to be at risk of flooding due to levee failure or overtopping. The potential for adverse effects to hazardous materials sites will exist if a flood were to occur, with the risk of release of hazardous materials into the surrounding environment. The ARCF GRR Final EIS/EIR found that effects of the No Project / No Action Alternative would be significant.

4.4.8.2.2 Proposed Action

Table 4.3.8-1. Summary of Hazards and Hazardous Materials Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.8-b	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities.	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-d	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.	Less than Significant with Mitigation Incorporated	No Impact
3.8-f	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated.

Table 4.3.8-2. Hazards and Hazardous Materials Effects by Project Component

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
3.8-a	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River 4B, Sacramento River Erosion Contract 3, MCP, ARMS, SRMS, Piezometer Network	None	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.8-b	MCP, ARMS	GEO-1, HAZ-1	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Contract 3, Piezometer Network	GEO-1, HAZ-1	Less than Significant with Mitigation	Short-term and Negligible Effects that are Less than Significant with Mitigation Incorporated
3.8-b	SRMS	GEO-1, HAZ-1	Less than Significant with Mitigation Incorporated	Short-term and Minor Effects that are Less than Significant with Mitigation Incorporated
3.8-d	MCP	None	Less than Significant	No Impact

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
3.8-d	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Contract 3, SRMS	None	No Impact	No Impact
3.8-d	ARMS	HAZ-1	Less than Significant with Mitigation	No Impact
3.8-f	MCP	TRANS-1	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated
3.8-f	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Contract 3, SRMS, ARMS	TRANS-1, HAZ-2	Less than Significant with Mitigation Incorporated	Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated.
3.8-f	Piezometer Network	N/A	No Impact	No Impact

A more detailed description of the impacts of the Proposed Action to hazards and hazardous materials and details of Mitigation Measures GEO-1, HAZ-1, HAZ-2 and TRANS-1 is available in Appendix B Section 3.8 “Hazardous and Hazardous Material”.

The construction of the Proposed Action would require the transport, storage, and use of fuels, oils, and lubricants for equipment maintenance and operation. These materials are not classified as acutely hazardous, and the project would not require transport or use of large quantities of these materials beyond what would be required to operate construction equipment. This would follow Federal, State, and local regulations and effects from using these materials would be less than significant with mitigation.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3

The American and Sacramento River sites are not known to be associated with sites containing hazardous materials, and release of hazardous materials into the environment from these locations is unlikely. With implementation of the mitigation measures discussed below, effects from hazardous materials along the American and Sacramento Rivers would be less than significant. Construction of these project components, including material hauling and closure of the Watt Avenue boat access, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measures TRANS-1 (previously adopted) and HAZ-2 (new mitigation measure), which would require coordination with emergency responders on site closures and traffic, including the Watt Avenue access.

Magpie Creek Project

Soil and water testing was conducted as part of Phase II ESAs in the floodplain parcels and between Raley Boulevard and Vinci Avenue. The samples were collected in the area where earthwork is required on either side of Raley Boulevard and cover the footprint for the creek

widening and realignment. The results did not find hazardous materials at concentrations, which would require disposal of contaminated materials from the site.

The testing along the portion of Magpie Creek between Raley Boulevard and Vinci Avenue involved collection of soil samples from the surface to 12 feet in depth. Contaminants were not detected above USEPA regional screening levels or California DTSC screening levels for industrial soil. Based on these results, it is unlikely that hazardous materials would be released into the environment from the new canal alignment and widening.

The new levee planned east of Raley Boulevard is located on land bordering the former McClellan Airforce Base. The MCP would involve placing of materials hauled onto the site and would not require excavation of existing materials from this area, therefore the risk of releasing hazardous materials into the environment from contaminated soil is low.

If contaminated soil or water are suspected, mitigation measures would be required to bring hazards due to release of hazardous materials to the less than significant level. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations.

Construction of the MCP, including material hauling and temporary closure of Raley Boulevard, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

Sacramento River Mitigation Site

No work is planned at decommissioned landfill located on the eastern side of Grand Island. There would be a low risk of releasing hazardous materials into the environment from this area by avoiding the landfill. Excavating soils to create channels could expose previously buried hazardous materials could release those materials into the adjacent waterways, leading to significant impacts. Implementation of previously adopted Mitigation Measure HAZ-1 would bring this impact to less than significant.

Construction of the SRMS, including material hauling, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing previously adopted Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

American River Mitigation Site

The ARMS was formerly used for gravel mining. Metals and petroleum hydrocarbons that have been identified in soil and groundwater samples at the site, however, SAFCA is responsible for the costs of cleanup and response to hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9675) prior to providing the site to USACE. Nevertheless, construction of the ARMS would involve excavation of soil which could expose previously buried hazardous materials, which could be a significant impact since the purpose of the work is to restore connectivity to the American River.

Implementing previously adopted Mitigation Measure HAZ-1 would reduce this impact to less than significant.

Construction of the ARMS, including material hauling, could affect emergency response or evacuation, but the temporary impact would be reduced to a less-than-significant level by implementing Mitigation Measure TRANS-1, which would require coordination with emergency responders on road closures and traffic.

Piezometer Network

Piezometer installation would include a drilling process resulting in the production of soil cuttings and purge water, which will be captured so that the water does not spill onto the site. However, there is the potential that contaminated soil or groundwater could be brought to the surface through the drilling process which could result in a significant impact. Implementation of previously adopted Mitigation Measure HAZ-1 would bring this impact to less than significant. Constructing the piezometer network would not include road closures or substantial hauling. There would be no impact on emergency response or evacuation routes.

4.4.8.2.3 Alternatives

A description of the impacts of the Alternatives on Hazardous Materials and Waste is available in Appendix B.

Alternatives 3a through 3d

Alternative 3a through 3d include an alternative design for improvements to the American River 4A Project Component. In Alternative 3a, a landside berm would be constructed instead of a waterside berm. In Alternative 3b the bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 4d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento River Contract 3, Magpie Creek, Sacramento River Mitigation, Piezometer Network, and American River Mitigation) would have the same effects as the Proposed Action. Hazards and hazardous materials effects from these alternatives would be the same as for the Proposed Action.

Alternative 4a (CEQA-Only)

Alternative 4a includes a design for the American River Mitigation area that retains a 30-acre portion of the existing man-made pond, while channels would be constructed on 54 acres of floodplain on the eastern portion of the site. The effects to hazards and hazardous materials would be similar to what was discussed in the Proposed Action, but this alternative does not incorporate avoidance of buried debris at the ARMS into the design. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

Alternative 4b (CEQA-Only)

Alternative 4b includes a design for the American River Mitigation area that retains a 20-acre portion of the existing man-made pond. Restored habitat would be constructed on the remainder of the Urrutia property, and the proposed habitat was designed to avoid or cap the known hazardous materials present on the property. The effects to hazards and hazardous materials would be similar to what was discussed in the Proposed Action. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

Alternatives 5a and 5c

Alternatives 5a and 5c include an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, Piezometer Network, and Sacramento River Mitigation) would have the same effects as the Proposed Action. Conservation Bank Credits and/or credits will be purchased or funds would be provided for the Sunset Pumps Project.

There would be no new construction or disturbance associated with Alternatives 5a or 5c, as existing mitigation banks or a project undergoing separate NEPA and CEQA review would be used. Consequently, there would be no impacts related to hazardous materials, which would be reduced significance compared to the Proposed Action.

Alternative 5b

Alternative 5b includes an alternative strategy for the Sacramento River Mitigation project component, which included possible use of Watermark Farms to construct habitat mitigation for the Sacramento River. All other project components (American River 3B, American River 4A, Sacramento River, Magpie Creek, American River Mitigation, and the Piezometer Network) would have the same effects as the Proposed Action. Hazards impacts would be similar to the Proposed Action except that the Watermark Farms site would potentially impair emergency response or evacuation due to construction in proximity to South River Road, including potential lane or road closures during construction and realignment of the road.

4.5 Ecological and Biological Resources

The following biological resources analysis is presented by contract due to the differing habitat and resource types within each construction footprint. For a more detailed analysis of biological resources, refer to Appendix B.

4.5.1 Vegetation and Wildlife

Below is a summary of the Vegetation and Wildlife analysis. Please refer to Appendix B, Section 4.1 for the detailed analysis and Appendix D for existing habitat maps.

4.5.1.1 Existing Conditions

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B

The American River Parkway contains many vegetation types including riparian forest, oak woodland, open water, ruderal herbaceous, wetlands, and limited agriculture. Along the river channel vegetation is primarily considered SRA habitat. Trees adjacent to the channel are mainly valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), and white alder (*Alnus rhombifolia*), with a thick understory of vines, berry bushes, and willows. The American River is bordered by commercial and residential neighborhoods on both the north and south sides, along with various open space areas. Although the constructed levee system and surrounding infrastructure have been modified, most of the area's native vegetation types and habitats, remnant stands of native vegetation are present. The American River Parkway Plan details how the vegetation in the Parkway should be protected, enhanced, and expanded, where appropriate.

American River Mitigation Site

The proposed ARMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is located on the right bank of the LAR, approximately 1 mile upstream from the Sacramento and LAR confluence. The site is a former sand and gravel mine; thus, the most prominent feature of the ARMS is an approximately 58-acre man-made pond located approximately 400 feet from the river's edge. The man-made pond is perennially filled with water due to groundwater connection with the LAR. The land surrounding the pond is characterized mainly by riparian forest/scrub, with some ruderal herbaceous/grassland vegetation.

Sacramento River Erosion Contract 3

The Sacramento River Erosion Contract 3 area consists primarily of riparian and SRA habitat on the left (east) bank of the Sacramento River. It is characterized by mature, well-established trees such as Fremont cottonwood and valley oak with a riparian shrub layer of smaller trees and shrubs, such as sandbar willow (*Salix exigua*) and Himalayan blackberry (*Rubus armeniacus*). There are intermittent locations along the water line with no trees due to rock revetment. The levees on the Sacramento River are immediately adjacent to the river channel with a few short stretches that have small benches. Due to the urban development adjacent to the levees in this area, wildlife is limited to small mammals and various avian species. Domestic animals from residents are also often seen along the levees in this area of the project.

Sacramento River Mitigation Site

The proposed SRMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is as an active Dredged Material Placement Site (DPMS) managed by USACE located in the Sacramento-San Joaquin Delta at the confluence of Cache and Steamboat Sloughs. The SRMS is composed of a large flat basin with herbaceous cover in the northern half being almost completely dominated by perennial pepperweed (*Lepidium latifolium*). Stands of various riparian trees and shrubs, such as sandbar willow, red willow (*Salix laevigata*), coyote brush (*Baccharis pilularis*), Fremont cottonwood, black locust (*Robinia pseudoacacia*), blue elderberry (*Sambucus nigra* ssp. *cerulea*), and northern California black walnut (*Juglans hindsii*) are also present, particularly in the eastern portion of the SRMS and around the levee perimeter. Cattle grazing is evident throughout the site; however, the SRMS has predominantly remained undisturbed for over 20 years (Coast Ridge Ecology 2021).

Magpie Creek Project

The MCP work area is located in the central portion of the Sacramento Valley on the valley floor in the floodplain of Magpie Creek. The project area consists of vacant land, a portion of which was formerly in rice production. The project area has historically been disked and mowed and there is evidence of off-road vehicle use and illegal dumping. Land uses in the surrounding area are primarily light industrial, with some areas of rural residences. The flora of the project area is typical of “old field” sites in the Sacramento Valley. These sites have been historically disturbed by agriculture or other activities, and most of the vegetation cover consists of nonnative species. Vegetation in the MCP is composed primarily of grasses and forbs, with emergent wetland vegetation and small riparian trees along the stream banks. A few Fremont cottonwoods and Goodding’s black willow trees (*Salix gooddingii*) are present in the work area, but nearly 60% of the plant taxa documented during field surveys in 2018 were nonnative (ICF 2018).

Table 4.4.1-1. Existing Habitats and Land Cover Types (acres)

	American River Erosion Contract 3B and 4B	American River Erosion Contract 4A	ARMS	Sacramento River Erosion Contract 3	SRMS	MCP
Vernal Pools	-	-	-	-	-	0.22
Riparian Forest/Scrub	51.32	65.23	14.53	5.04	46.37	-
Oak Woodland	-	-	-	-	45.0	2.60
Rural Herbaceous/Grassland	71.18	99.51	44.9	1.31	2.80	37.43
Wetlands	-	18.65	2.5	0.00	47.34	2.40
Riverine/ Open Water	12.07	4.02	55.4	20.70	-	-
Agricultural	-	-	-	-	7.67	13.02
TOTAL	134.57	187.71	117.33	27.05	149.18	55.67

AR C3B – Riparian Forest/Scrub composed of Native and Nonnative scrub and woodland. LAR C4A – Riparian Forest/Scrub composed of Native and nonnative scrub and woodland. ARMS - Riparian Forest/Scrub and Oak Woodland is composed of Native and nonnative scrub and woodland. SRE C3 – Riparian Forest/Scrub is composed of Fremont cottonwood forest, sandbar willow thicket, and valley oak woodland. SRMS – Riparian Forest/Scrub is composed of Hardwood Woodland and Scrub. Totals are Estimates.

4.5.1.1.1 Non-native Invasive Species

Section 3.6, “Vegetation & Wildlife,” of the ARCF GRR Final EIS/EIR describes the invasive non-native plant species occurring in the project site. Areas dominated by non-native vegetation include abandoned, fallow, and active agricultural fields; borrow and staging areas; historic mine tailings; levee slopes; and areas subject to fire, frequent flood inundation, or scour. Non-native weeds dominate some areas, especially areas that have been previously disturbed like levee slopes and previous construction sites. Invasive plants have also naturalized in nearby riparian, woodland, grassland, and agricultural plant communities.

4.5.1.1.2 Sensitive Natural Habitats

Sensitive natural plant communities are vegetation cover types that are especially diverse, regionally uncommon, or of special concern to local, state, and federal agencies. Riparian, Waters of the U.S. (riverine, wetlands and vernal pools), and mixed-oak communities qualify as sensitive natural communities, while the riparian herbaceous community generally does not (CDFW 2022).

4.5.1.2 Environmental Effects

4.5.1.2.1 No Action Alternative

The No Action Alternative is the buildout of the authorized project, the Recommended Plan from the ARCF GRR FEIS/EIR (see Section 3.4 for detailed description). The SRMS and ARMS mitigation sites would not be built, and site conditions would remain as they are now. ARMS will remain a man-made pond in private ownership. In addition, the SRMS will remain an active Dredged Material Placement Site managed by USACE. However, USACE will still be required to mitigate for ARCF 2016 Project habitat impacts by other means, such as purchasing mitigation bank credits or construction mitigations sites elsewhere.

Valley Foothill Riparian Habitat

Most valley foothill riparian habitat in the study area (hereafter referred to as “riparian habitat”) Approximately 65 acres of riparian habitat would be removed throughout the lower American River, 71 acres throughout the Sacramento River, and zero acres around Magpie Creek. The removal of riparian habitat will be mitigated in accordance with the CAR (or in accordance with the Section 7 ESA Biological Opinions if the area is also considered VELB habitat) by planting new riparian habitat onsite or at USFWS approved mitigation sites.

Section 3.3.4 from the ARCF GRR Final EIS/EIR states that the launchable rock trench measure would allow for the protection of the existing SRA habitat by constructing erosion protection measures against the waterside levee toe. This measure will require the removal of upland riparian scrub habitat and grasses close to the levee to construct the trench. However, this measure will also incorporate mitigative features through the installation of plantings on the surface of the trench. Once the vegetative features reached full growth, the rock trenches will provide a natural appearance to the site with the affected habitat values fully restored.

Shaded Riverine Aquatic

The analysis in the ARCF GRR Final EIS/EIR determined that constructing new bank protection features would involve launchable rock trenches created by removing grasses, shrubby vegetation, riparian woodland, and instream woody material, resulting in the loss of 80,825 linear feet of SRA habitat, a key component of salmonid habitat. SRA is defined as the unique near shore area, where the water meets the land, it includes over hanging and aquatic vegetation, substrate, food availability, shelter and temperate. Therefore, SRA is no longer broken down into a separate habitat type, it is incorporated into the Riparian Habitat and Riverine habitat types. The impacts on SRA habitat are addressed in the ESA Section 7 Biological Opinions.

Wetland

The analysis in the ARCF GRR Final EIS/EIR determined that construction of Alternative 2 would impact 0.40 acre of wetland habitat. The impacted wetlands will be mitigated for in accordance with the CAR and CWA either onsite, offsite habitat creation or through the purchase of service approved mitigation bank credits.

Oak Woodland

The analysis in the ARCF GRR Final EIS/EIR determined that construction of Alternative 2 would impact 2 acres of non-riparian oak woodland. The impacted oak woodland would be mitigated in accordance with the CAR either onsite, through offsite habitat creation, or through the purchase of service approved mitigation bank credits.

Ruderal Herbaceous

The analysis in the ARCF GRR Final EIS/EIR determined that construction of Alternative 2 would impact approximately 135 acres of ruderal herbaceous habitats w. Ruderal Herbaceous was defined as levees, patrol roads and open lands with no trees. The disturbed areas would be returned to pre-project conditions to the maximum extent feasible. As a result, impacts to these areas would be less than significant with mitigation.

4.5.1.2.2 Proposed Action

A more detailed description of the impacts of the Proposed Action to vegetation and wildlife and details of Mitigation Measures VEG-1, VEG-2, BIRD-1, VIS-2, and WATER-1 are available in Appendix B Section 4.1 “Vegetation and Wildlife”.

Proposed Action

In general, construction of the Proposed Action would result in the loss of riparian habitat (Please see Table 4.4.1-4 for acreage). This loss of habitat would cause a significant, temporary impact. With implementation of Mitigation Measures VEG-1, VEG-2, and BIRD-1, the impact to riparian habitat would be reduced to a less-than-significant level. In addition, all construction activities for the Proposed Action could interfere with local movement of native resident or migratory wildlife species. Equipment and personnel movement and vegetation removal during construction could interfere with the movement of terrestrial wildlife species; however, these activities are not expected to result in substantial effects on the movement of these species because they are mobile and can move away from construction activities to unaffected areas.

In addition, noise from construction of the Proposed Action could temporarily alter the foraging patterns of resident wildlife species but is not anticipated to substantially interfere because these species could move to nearby unaffected habitat. Night work can disrupt wildlife and has been shown to increase juvenile fish predation in rivers. No night work would be conducted within 1000 feet of the American or Sacramento River. Implementing Mitigation Measure VIS-2: “Minimize Disturbance to Nocturnal Wildlife” would reduce this effect to less-than-significant.

The location and use of staging areas, haul routes, borrow site, and spoils disposal are described in Chapter 2. ‘Description of Project Alternatives.’ Staging areas would be primarily open land characterized by ruderal herbaceous habitat, landscaping, or developed land; some with sparse trees or bounded by woodland. Tree removal and trimming, minor grading, paving, and adding aggregate base could occur at staging areas and along haul routes. Staging areas and haul routes would be restored to pre-project conditions. This may include reseeding with native grasses and forbs, planting with native vegetation, or working with recreational agencies to determine which trees would be removed and replanted. Some access ramps will be retained to allow access for the maintaining agency.

Implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to Section 12.56.080 (F) of the City of Sacramento Municipal Code. Therefore, there would be no conflict with the City of Sacramento Tree preservation policy or ordinance. The American River Parkway Plan states, in Policy 4.12, that “Vegetation in the Parkway should be appropriately managed to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River and in a manner that preserves the environmental, aesthetic, and recreational quality of the Parkway.” The Sacramento County Tree Preservation Ordinance requires “A Tree Pruning or Tree Removal Permit...to prune or remove any public tree and certain private trees.” Project Partners would include Sacramento County tree removal work to ensure compliance with county ordinance.

All contract locations would require ongoing O&M. Routine O&M activities by the NFS or LMA would consist of inspections, mowing or herbicide, burrowing rodent control, slope repair, patrol road reconditioning, and ground water level monitoring. A vegetation management plan covering short term, long term and adaptive management will be developed in coordination with USFWS and NMFS to ensure that native riparian plantings installed within the planting benches are protected, managed, monitored, and maintained following installation and ensure that they are on an ecologically sustainable trajectory. Invasive plant species incursions would be controlled as early as possible to prevent wide- scale establishment and minimize the use of control efforts such as pesticide usage.

Table 4.4.1-2. Summary of Vegetation and Wildlife Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	Less than Significant with Mitigation Incorporated.	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated.
4.1-b	Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community	Less than Significant with Mitigation Incorporated.	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	Less than Significant with Mitigation Incorporated	Negligible Effects that are Less than Significant with Mitigation Incorporated
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No impact	No Impact

Table 4.4.1-3. Vegetation and Wildlife Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
4.1-a, 4.1-b	American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, Sacramento River Erosion Contract 3, MCP, Piezometer Network	BIRD-1, VIS-2	Less than Significant with Mitigation Incorporated.	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated.
4.1-c	American River Erosion Contract 4A	VEG-1	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-c	American River Erosion Contract 3B North and South and American River Erosion Contract 4B, MCP	VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Negligible with Mitigation Incorporated.
4.1-c	American River Erosion Contract 4A, Sacramento River Erosion Contract 3	VEG-1, VEG-2	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.
4.1-c	SRMS, ARMS	N/A	Short-term Less than Significant, Long-term No effect	Short-term Moderate effects that are Less than Significant; Long-term No effect
4.1-c	Piezometer Network	N/A	Less than Significant	Short-term Less than Significant, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when trimmed vegetation has regrown. Negligible long-term impact
4.1-d	American River Erosion Contract 3B North and South, and 4B, Sacramento River Erosion Contract 3, MCP	WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated
4.1-d	American River Erosion Contract 4A	WATERS-1	Less than Significant with Mitigation	Less than Significant with Mitigation
4.1-d	SRMS, ARMS	WATERS-1	Less than Significant with Mitigation	Short-term Moderate effects that are Less than Significant with Mitigation Incorporated; Long-term negligible effects
4.1-d	MCP	WATERS-1	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; Negligible Long-term effects that are Less than Significant with Mitigation Incorporated
4.1-d	Piezometer Network	N/A	No Impact	No Effect

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
4.1-e	American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Piezometer Network	VEG-2	Less than Significant with Mitigation Incorporated	Negligible Effects that are Less than Significant with Mitigation Incorporated.
4.1-e	Sacramento River Erosion Contract 3, MCP, SRMS	N/A	No Impact	No Impact
4.1-f	American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, Piezometer Network	N/A	No Impact	No Impact

American River Erosion Contract 3B North and South, and 4B

The American River Parkway contains many vegetation types including riparian, oak woodland, open water, ruderal herbaceous, wetlands, and limited agriculture. Along the river channel, vegetation is primarily considered SRA habitat. The Proposed Action will result in substantial tree removal to construct levee improvements. To limit the number of trees removed, each tree will be inspected and kept in place when feasible. To replace a portion of the vegetation lost due to the installation of erosion protection, the design includes soil-filled planting benches incorporated into the rock revetment in areas where the slope and space allows riparian vegetation to reestablish. Bank protection generally consists of soil filled revetment on the slopes to allow for revegetation on slopes that are outside the vegetation free zone. In general, the launchable toe with planting bench would be used in place of the berms for bank protection described in the 2016 ARCF GRR FEIS/EIR. There would be no impact to state or federally protected wetlands.

American River Erosion Contracts 1, 2, and 3A have already impacted 33.14 acres of riparian habitat; thus, the total impact for American River Erosion contracts of 73 acres is above the 65 acres of impact that was estimated in the ARCF GRR Final EIS/EIR. This results in a significant, unavoidable, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when compensatory plantings have fully matured, but a negligible long-term impact with mitigation incorporated (described in detail in Appendix B 4.1 “Vegetation and Wildlife”).

American River Erosion Contract 4A

The berm design for American River Erosion Contract 4A requires the site to be regraded, which will result in a site that would not be favorable for onsite plantings of woody vegetation. This would result in a significant, unavoidable, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when compensatory plantings have fully matured. Less than significant long-term impact with mitigation incorporated (described in detail in Appendix B 4.1 “Vegetation and Wildlife”).

The construction of the berm would impact a wetland (estimated acres shown in Table 4.4.1-4). Appropriate compensation would occur through the purchase of credits at an USFWS approved mitigation bank. With the implementation of this mitigation, effects to wetlands would be less than significant.

Sacramento River Erosion Contract 3

The Proposed Action would increase impacts to riparian habitat when compared to the No Action Alternative (Alternative 2 of the FEIS). Page 124 of the ARCF GRR Final EIS/EIR states that approximately 930 trees on the lower half of the levee would be conserved by placing rock around them. But design refinements for this area would require all trees to be removed within the rock placement footprint. Designs would include planting benches similar to those described for the American River, but due to the lack of a waterside bench in most places along the Sacramento River, there would not be enough space in most locations. There would be no woody vegetation or trees planted in the vegetation free zone on the water side of the levee, which is approximately 15 feet from the levee toe. There would be no impact to state or federally protected wetlands. This would result in a significant, unavoidable, permanent impact from the

loss of vegetation and wildlife habitat within the erosion rock placement footprint. Long term effects are less than significant with mitigation incorporated.

Magpie Creek Project

The Design Refinements would impact 2.6 more acres of riparian habitat than stated in the authorized Alternative 2 in the ARCF GRR Final EIS/EIR. In the location of the canal realignment, vegetation has grown due to the lack of required maintenance. The canal would be cleared, resulting in a permanent long-term loss of vegetation. This loss would result in negligible long-term impact through mitigation with compensatory plantings offsite. Installing the culverts and associated staging area at Rio Linda Boulevard would impact the southeast corner of a 5.54-acre seasonal wetland but would not affect the hydrology of the remaining wetland area. In addition, there is a 2.4-acre wetland east of Raley Boulevard that would be affected by the realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.40 acres of this wetland. However, construction of the realignment would not significantly alter the area's topography relative to the remaining 2.4-acre wetland and impacts to local hydrology would be a significant, unavoidable, permanent impact that would be adequately reduced through the purchase of mitigation bank credits.

Sacramento River Mitigation Site

This site is located in the Sacramento-San Joaquin Delta and is comprised of riparian forest, riparian scrub-shrub, oak woodland, ruderal herbaceous/grassland, and wetlands. Habitat restoration at this location would focus on Shaded Riverine Aquatic (SRA) habitat to benefit, juvenile salmonid rearing, Valley Elderberry Longhorn Beetle (VELB), and yellow-billed cuckoo. The construction of this habitat would include breaching the existing levee, grading to create channels, bank protection stabilization and vegetation planting. The levee degrade and connection to adjacent sloughs and rivers would impact open water, wetland, riparian and ruderal habitats. Prior to the start of construction, the SRMS would undergo additional surveys to refine what mitigation would be created. Additional coordination with the USFWS and NMFS will occur at that time. USACE does not currently have estimates for the habitat acreage created onsite but will have the information available at the final document. USACE would mitigate for riparian and wetland impacts onsite. Any trees planted onsite would take many years to mature to provide the same value as those removed; therefore, this impact is significant in the short term, but no effect in the long term because these sites mitigate for project-wide impacts.

The estimated acres of wetlands expected to be impacted is shown in Table 4.4.1-4. The existing fringe wetlands around the SRMS would be impacted when the levee is degraded to create the flow through side channels, however the channels would be planted with similar vegetation and would provide similar habitat in greater amounts than what is being impacted. The open water on site would be impacted by the channels, however the land around the channels would be graded to accommodate different water elevations of both tidally influenced and seasonally influenced wetlands. The SRMS would result in a net benefit of wetland and riverine functions and services. With the implementation of this mitigation, which was previously adopted for the ARCF 2016 Project, effects on aquatic resources would be less than significant.

American River Mitigation Site

This site is comprised of freshwater emergent wetland, open water, riparian forest/scrub, and valley and foothill grassland. ARMS would adapt existing conditions to restore, enhance, and maximize habitat for three focal species: salmonids, YBCU, and VELB. ARMS would restore connection to the LAR, include a diverse planting palette, and incorporate habitat benches that would restore floodplain habitat for salmonids at various elevations. In addition, the site would continue to accommodate flood events and overflow from the LAR main channel and Steelhead Creek. ARMS would emphasize restoration to native floodplain wetland and riparian habitats, consideration of river dynamics, and adaptive management of the features as described in the Parkway Plan and NRMP (HDR 2023).

In the post-project condition, it is anticipated that there will be a net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023). This would convert existing upland and open water habitat on the land side of a natural levee to low-flow channels with a wetland fringe and connected floodplain. Approximate habitat acres are estimated at the 35% design level are: 16.2 ac of freshwater emergent, 0.0 acres pond, 55.4 acres riparian forest, and 28.2 acres of valley-foothill grasslands. These estimates will be refined by the final draft. The embankment degrade and connection to the American River would impact open water, riparian and ruderal habitats. USACE would mitigate for riparian and wetland impacts onsite. Any trees planted onsite would take many years to mature to provide the same value as those removed; therefore, this impact is significant in the short term, but no effect in the long-term because these sites mitigate for project-wide impacts.

Piezometer Network

Approximately 100 piezometers would be installed at various locations along each levee with piezometers on either the levee crown or near the landside levee toe. This is a fairly low impact activity because of the small size of the piezometers, 6 inches in diameter with an associated cement pad and housing box, and their proposed location on the levee crown or near the landside levee toe. Limited tree removal and vegetation clearing may be necessary to install the piezometer or access the drilling location, but there would be no impact to wetlands or other aquatic habitat. Vegetation trimming would result in a short-term less-than-significant impact and negligible long-term impact..

Table 4.4.1-4. Vegetation Impacts for ARCF GRR SEIS – Proposed Action

Location	Valley Foothill Riparian (acres)	Oak Woodland (acres)	Ruderal Herbaceous/Grassland (acres)	Wetland (acres)	Riverine/Open Water (acres)	Agricultural (acres)	Urban/Developed (acres)
American River Erosion Contract 3b	30.29	-	19.34	-	11.88	-	10.56 Ditch: 0.19
American River Erosion Contract 4A – Proposed Action	7.95	-	6.70	Forested Wetland: 0.60	-	-	3.70
American River Erosion Contract 4A – Alt 3a	0.41	-	-	Forested Wetland: -	-	-	0.54
American River Erosion Contract 4A – Alt 3b	5.88	-	6.87	Forested Wetland: 0.60	-	-	3.16
American River Erosion Contract 4A – Alt 3c	Parkway detour: 15.63 Street detour: 2.95	-	Parkway detour: 17.40 Street detour: 2.10	Forested Wetland: Parkway detour: 1.02 Street detour: 0.98	Parkway detour: 0.23 Street Detour: -	-	Parkway detour: 4.56 Street detour: 3.86
American River Erosion Contract 4A – Alt 3d	14.10	-	16.80	Forested Wetland: 0.47	0.23	-	3.86
American River Erosion Contract 4B – Tree Scour	1.58	-	0.26	-	-	-	0.14 Ditch: 0.19
Sacramento River Erosion Contract 3	4.68	-	0.23	-	20.70	-	-
MCP	-	2.60	10.67	0.41	-	0.35	6.35
ARMS	14.53	-	44.9	2.5	55.4	-	7.8
SRMS	-	-	-	-	-	-	-

4.5.1.2.3 Alternatives

Table 4.4.1-5 summarizes the effects of the action alternatives on vegetation and wildlife. Alternatives 3a, 3b, 3c, and 3d include slight modifications to American River Erosion Contract 4A, Alternative 4a and 4b include modifications to American River Mitigation, and Alternatives 5a, 5b, and 5c cover additional Sacramento River Mitigation options. If an Impact Number is not listed in the table below there is no change in impact for that alternative. For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.1, “Vegetation and Wildlife.”

Table 4.4.1-5. Effects of the Alternatives 3a, 3b, 3c, 3d, 4a, 4b, 5a, 5b, 5c on Vegetation and Wildlife

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-a	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	All project sites, including mitigation sites	All alternatives would have similar construction and operations impacts on wildlife movement, with the greatest impact being from potential nighttime construction at the erosion sites.	VIS-2	Less than significant with mitigation incorporated.	Short-term moderate effects that are less than significant with mitigation incorporated.
4.1-b	Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community	All project sites, including mitigation sites	All alternatives would have similar construction and operations impacts on plant and wildlife populations. Implementation could temporarily reduce local nesting bird populations due to mortality during project activities.	BIRD-1	Less than significant with mitigation incorporated.	Short-term moderate effects that are Less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm, reducing riparian impacts.	VEG-1, VEG-2,	Significant and unavoidable short-term, less than significant long-term with mitigation incorporated.	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternative 3b would use a different permanent bike trail reroute. The route would be slightly longer than the Proposed Action but would impact slightly less riparian habitat.	VEG-1, VEG-2,	Significant and unavoidable short-term; less than significant long-term with mitigation incorporated.	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated.

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	American River Erosion Contract 4A	Alternatives 3c and 3d would change the permanent bike trail route to go around the waterside berm or to a paved bike trail closer to the river along an existing off-road bike trail. Both of these alternatives would increase the amount of riparian vegetation required to be removed.	VEG-1, VEG-2,	Significant and unavoidable short-term; less than significant long-term with mitigation incorporated.	Significant and unavoidable short-term; long-term moderate effects that are less than significant with mitigation incorporated.
4.1-c	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	ARMS	Alternative 4a and 4b would retain 30-acre and 20-acre portions of the existing man-made pond, respectively, both reducing creation of riparian habitat compared to the Proposed Action.	VEG-1, VEG-2,	Less than significant short-term, no effect long-term.	N/A (CEQA only).
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm, avoiding impacts on aquatic habitats at this location.	N/A	No impact.	No impact.
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	American River Erosion Contract 4A	Alternatives 3b and 3d would use different permanent bike trail reroutes. The routes would be slightly longer than the Proposed Action but impacts on aquatic habitats would be the same.	WATERS-1	Less than significant with mitigation incorporated.	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated.

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	American River Erosion Contract 4A	Alternative 3c would reroute the bike trail around the waterside berm, resulting in substantially greater impacts on aquatic habitats than the Proposed Action.	WATERS-1	Less than significant with mitigation incorporated.	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated.
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	ARMS	Alternative 4a and 4b would retain 30-acre and 20-acre portions of the existing man-made pond, respectively, both reducing the amount of aquatic habitat conversion compared to the Proposed Action.	WATERS-1	Less than significant with mitigation incorporated.	N/A (CEQA only).
4.1-d	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Sacramento River Mitigation	Alternative 5b would use Watermark Farms instead of the Grand Island Site for Sacramento River Mitigation. Because the site is primarily agricultural and ruderal lands, impacts on aquatic habitats would be less than at SRMS.	N/A	Less than significant with mitigation incorporated.	Short-term, moderate effects that are less than significant with mitigation incorporated.
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	American River Erosion Contract 4A, ARMS	Alternatives 3a, 3b, 3c, 3d, 4a, and 4b would require varying extents of tree removal, but implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to local policies. These alternatives would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.1-e	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Sacramento River Mitigation – Watermark Farms	Alternative 5b would remove few if any trees and implementation is not anticipated to conflict with any Yolo County policies protecting biological resources.	N/A	No impact	No impact
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	American River Erosion Contract 4A, ARMS	Alternatives 3a, 3b, 3c, 3d, 4a, and 4b Would not impact any conservation plans.	N/a	No impact	No impact
4.1-f	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	Sacramento River Mitigation – Watermark Farms	Alternative 5b would generally support goals of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan because native habitats would be restored for the purpose of species conservation.	N/A	Less than significant	Less than significant
4.1-a 4.1-b 4.1-c 4.1-d 4.1-e 4.1-f	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Sacramento River Mitigation – Watermark Farms	Alternative 5a would purchase all remaining, required mitigation credits from USFWS Approved Conservation Banks; Alternative 5c would purchase Delta smelt credits and provide funding to the Sunset Pumps project to meet Sacramento River Mitigation requirements. Both alternatives would undergo independent NEPA/CEQA compliance.	Determined by independent NEPA/CEQA analysis	No impact.	No impact.

4.5.2 Aquatic Resources and Fisheries

4.5.2.1 Existing Conditions

4.5.2.1.1 Sacramento and American River

Native fish species present in the American River, Sacramento River, and Magpie Creek are listed in Table 16 of the 2016 ARCF GRR Final EIS/EIR (p. 132-133). Shaded riverine aquatic (SRA) habitat and its importance to fisheries is discussed as well, in addition to other habitat characteristics within the rivers (p. 132-134):

“Important attributes of the aquatic habitat within the American and Sacramento Rivers are aquatic vegetation and SRA habitat. Aquatic vegetation is represented by floating, submerged, and emergent vegetation. Aquatic vegetation serves as hiding cover and an invertebrate food production base for nearly all aquatic species. The percent of aquatic vegetation cover varies throughout the study area...

Throughout the program area watersheds, altered flow regimes, flood control, and bank protection efforts have reduced sediment transport, channel migration, and instream woody material (IWM) recruitment, and have isolated the channel from its floodplain. Historically the floodplain provided areas for riparian vegetation recruitment and for rearing of native and special-status fish species. Levees and armored banks prevent fish from accessing productive floodplain habitats and limits nutrient exchange between the river and flooded riparian areas... The Lower American River is also a designated Wild and Scenic River under both the State and Federal Wild and Scenic Rivers Acts. The anadromous fisheries resources along the Lower American River are one of the designated extraordinary values of the river under this Act.”

SRA throughout the areas of the Proposed Action in the Sacramento and American Rivers was quantified and listed in the 2016 ARCF GRR Final EIS/EIR (p. 134).

4.5.2.1.2 Magpie Creek Project

Because the MCP area was included generally in the “East Side Tributaries” group of project sites in the original 2016 ARCF GRR Final EIS/EIR, Magpie Creek’s specific suitability for special-status fish (specifically salmonids) was not described. The site is ill-suited for native fish due to managed flow regime (i.e., flood releases/pulses do not correspond with anadromous fish migration) and intense anthropogenic disturbance surrounding the MCP. In addition, the National Marine Fisheries Service (NMFS) consulted on the Sacramento Area Flood Control Agency’s (SAFCA) “Magpie Creek Diversion Channel Enhancement Project” (June 15, 2005). NMFS concluded the project was not likely to adversely affect Sacramento River winter-run Chinook (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook, or California Central Valley steelhead (*O. mykiss*) in Magpie Creek as the three species and their corresponding critical habitat were not present in the project area due to obstructions (which includes the MCP for this SEIS/SEIR; ICF 2018). In addition, NMFS concluded that Essential Fish Habitat (EFH) was not present in Magpie Creek and did not recommend any conservation measures for Chinook salmon or steelhead (ICF 2018).

4.5.2.2 Environmental Effects

4.5.2.2.1 No Action Alternative

Section 3.7.4 of the 2016 ARCF GRR Final EIS/EIR (USACE 2016, p. 137-141) presents the environmental effects of Alternative 2 (the No Action Alternative for this SEIS) on fisheries. In summary, these environmental effects related to fisheries at the Proposed Action sites (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, include those described in Table 4.4.2-1:

Table 4.4.2-1. Summarized Environmental Effects of the No Action Alternative on Fisheries and Fisheries-related Resources.

Site	Project Action	Environmental Effect on Fisheries	Level of Significance According to 2016 ARCF GRR Final EIS/EIR
American River, Sacramento River	Rock placement	Disturb native resident pelagic fish via increase in noise, water turbulence, and turbidity. Native fish using nearshore habitat for cover would be displaced and vulnerable to predation	Less than significant with mitigation incorporated
American River, Sacramento River	Rock Placement	Natural bank element of SRA habitat would be lost with placement of rock along the levee slope	Temporary impact, less than significant
American River, Sacramento River	General construction	Disturbance of soils may increase sedimentation, increased suspended sediments (short term), and increased turbidity (short term) of nearshore aquatic habitat	Less than significant
American River, Sacramento River, Magpie Creek Project	General Ground Disturbing Activities	Could potentially cause erosion/soil disturbance, leading to an increase in sedimentation and turbidity	Less than significant, due to creation of planting berms to provide shade and instream woody material elements of SRA habitat
American River, Sacramento River, Magpie Creek	General Ground Disturbing Activities	Water quality impacts on fish physiology, behavior, habitat, and invertebrate prey resources	Less than significant with BMPs incorporated
Magpie Creek	Cutoff wall and flood wall construction	Potential loss of Shaded Riverine Aquatic (SRA) habitat	Less than significant with mitigation incorporated

Source: USACE 2016, adapted by GEI 2023

4.5.2.2.2 Proposed Action

Table 4.4.2-2. Summary of Aquatic Resources and Fisheries Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and -b	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS; or Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.	Less than Significant with Mitigation	Short-term to Medium-term and Moderate effects and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

Table 4.4.2-3. Aquatic Resources and Fisheries Effects by Project Component

Impact Number	Project Component	Significance before Mitigation	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
4.2-a and -b	MCP, Piezometer Network	No Impact	n/a	No Impact	No Impact
4.2-a and -b	American River Erosion Contract 3B North and South, American River 4B	Significant	FISH-1, FISH-2, FISH-3, and GEO-1	Less than Significant with Mitigation	Short-term to Medium-term and Moderate effects that are Less than Significant with Mitigation Incorporated.
4.2-a and -b	American River Erosion Contract 4A	Less than Significant	Conditions of new NMFS BO	Less than Significant with Mitigation	Short-term and Long-term, Moderate Effects that are Less than Significant with Mitigation
4.2-a and -b	Sacramento River Erosion Contract 3,	Less than Significant	FISH-1, FISH-2, FISH-3, and GEO-1	Less than Significant with Mitigation	Short-term and Moderate and Long-Term and Minor Effects that are Less than Significant with Mitigation Incorporated
4.2-a and -b	ARMS	Significant	FISH-3, WATERS-1, WQ-1, and GEO-1	Less than Significant with Mitigation	Short-term and Moderate and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

A more detailed description of the impacts of the Proposed Action to aquatic resources and fisheries and details of Mitigation Measures FISH-1, FISH-2, FISH-3, GEO-1, and WQ-1 are available in Appendix B Section 4.2 “Aquatic Resources and Fisheries”.

American River Erosion Contract 3B North and South, and 4B

The placement of rock riprap below the OHWM at American River Erosion Contract 3B will occur during the standard in-water work period for anadromous fishes (as defined in FISH-3), when these fish are least likely to be present and less likely to be affected by construction. Project actions may adversely affect winter-run Chinook salmon, Central Valley (CV) steelhead, and CV spring- and fall-run Chinook salmon due to: (1) incidental take during construction; (2) fragmentation of existing natural bank habitats due to the placement of revetment and IWM; and (3) the potential loss of long-term fluvial functioning necessary for the development and renewal of SRA habitat along the bank.

Impacts to salmonid habitat are presented in in Table 4.4.2-4. This impact would be significant but would be reduced with implementation of mitigation measures. Implementing Mitigation Measures FISH-1, FISH-2, FISH-3, and FISH-4 would reduce the significant construction, SRA, and salmonid habitat impacts associated with the implementation of the Proposed Action to a less than significant level. A habitat model would be used to determine the extent of effects, work windows and construction BMPs would be imposed to reduce disturbance during construction, and compensatory mitigation would be implemented to replace lost habitat value. Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for fisheries impacts including those to salmonids and green sturgeon, shaded riverine aquatic and Delta smelt habitats. Fisheries impacts will be disclosed in the Final SEIS/SEIR.

American River Erosion Contract 4B would be construction completely above the OHWM. There will be no direct impact on candidate, sensitive, or special-status fish species or their habitats at these sites.

The No Action Alternative includes a different method of erosion protection, but with implementation at similar locations to the Proposed Action. The impacts of the design refinements would be similar to those identified in the No Action Alternative.

Table 4.4.2-4. Fisheries Habitat Impacts.

Project Component	Type of Habitat	Proposed Action Impact (acres)	Design Refinements Impact (acres)
American River Erosion Contract 3B	Salmonids & Green Sturgeon	24.0 acres	7.86 acres
American River Erosion Contract 3B	Shaded Riverine Aquatic	24.0 acres	7.86 acres
Sacramento River Erosion	Delta Smelt	12.4 acres	0.40 acres
Sacramento River Erosion	Salmonids & Green Sturgeon	28.7 acres	1.0 acres
Sacramento River Erosion	Shaded Riverine Aquatic	28.7 acres	1.0 acres

American River Erosion Contract 4A

Improvements at American River Erosion Contract 4A would be implemented above the OHWM in the American River floodplain. All impacts to fish and associated habitat occur upstream of the SR-160 bridge and outside of the critical habitat designation for CV spring-run Chinook and Green Sturgeon. Parts of the bike trail reroute may need to be raised which would alter the topography of the area. There is active coordination with NMFS on this issue and a more detailed analysis on the extent of impacts to fish stranding is going to be included in the new Biological Opinion. If it is determined in the new Biological Opinion that there will be significant fish stranding, the Biological Opinion will outline measures that would be incorporated to reduce impacts to a less than significant level.

Sacramento River Erosion Contract 3; American River Mitigation Site, and Sacramento River Mitigation Site

Effects would be similar to those described previously for American River Contract 3B, and the significant effect would be reduced to a less-than-significant level by implementing the same mitigation measures. In addition to the species affected by American River Contract 3B, these project components would also affect winter-run Chinook salmon, CV steelhead, CV spring- and fall-run Chinook salmon, and the Sacramento River Erosion and SRMS also affect southern distinct population segment (sDPS) of North American green sturgeon, and delta smelt.

4.5.2.2.3 Alternatives

Table 4.4.2-5 summarizes the effects of the action alternatives on aquatic resources and fisheries. Alternative 3b would not change effects analyses for aquatic resources and fisheries compared to the Proposed Action. Alternatives 3a, 3c, 4a, 4b, and 5b effects are summarized below. Alternatives 5a and 5c include purchase of mitigation credits or funding support for other projects for the SRMS project component and so would have no impact on fisheries for that project component. For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.2, “Aquatic Resources and Fisheries.”

Table 4.4.2-5. Effects of the Alternatives on Aquatic Resources and Fisheries

Impact Number	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Since work for Alternative 3a is on the landside of the levee, there would be no risk to fish habitat or of fish stranding.	N/A	No Impact	No Impact
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3c may require a temporary detour that would impact 0.2 acres below the OHWM. The temporary detour would not require raising the bike trail, so there would not be a risk for fish stranding.	FISH-1, FISH-2, FISH-3, GEO-1,	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation

Impact Number	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3d would impact 0.2 acres below the OHWM in order to build the bike trail reroute. The bike trail could need to be raised, which would increase the risk of fish stranding in the area.	FISH-1, FISH-2, FISH-3, GEO-1, Measures in the New NMFS Biological Opinion	Less than Significant with Mitigation	Short-term and Long-term Moderate Effects that are Less than Significant with Mitigation
4.2-a and -b	ARMS	Alternatives 4a and 4b would preserve a portion of the existing man-made pond. This change would not reduce the existing risk of stranding fish as water receded across the floodplain following high-water events. There would be no change in effects for other project components	FISH-1, FISH-2, FISH-3, FISH-4, VEG-1, VEG-2	Less than Significant after Mitigation	Less than Significant after Mitigation
4.2-a and -b	SRMS	Alternative 5b would result in long term increase in aquatic habitat and benefit to special-status and other native fish species through the creation of shallow water and SRA habitat similar to the Proposed Action.	VEG-1, VEG-2, FISH-1 FISH-2 FISH-3 GEO-1 WATERS-1 WQ-1	Short-term less than significant with mitigation incorporated; long-term beneficial	Short-term and moderate effects that are less than significant with mitigation incorporated; long-term and minor effects that are less than significant.

4.5.3 Special Status Species

Below is a summary of the Special Status Species analysis. Please refer to Appendix B, Section 4.1 for the detailed analysis. Only species determined to have potential to occur at a given site are discussed in the relevant effects analysis section.

4.5.3.1 Existing Conditions

Special-status species evaluated for potential to occur in the study area for the proposed project refinements were identified based on review of current USFWS species lists (USFWS 2023), resource databases and other information available from NMFS (NMFS 2021), California Natural Diversity Database (CNDDDB) occurrences (CDFW 2023), and the California Native Plant Society (CNPS) online inventory (CNPS 2023).

USACE has reinitiated consultation on the ARCF 2016 Project under ESA Section 7. In 2021, USFWS and NMFS issued an amended Biological Opinion (BO) for the ARCF 2016 Project (USFWS 2021, NMFS 2021). The ARCF 2016 Project was coordinated with USFWS under the Fish and Wildlife Coordination Act. Impacts to special status bird species would be covered under a permit from the Migratory Bird Permit Office. See Table 4.3-1 in Appendix B 4.3 for a full list of special status species along with their potential to occur in the project site.

The ARMS and SRMS are actively undergoing additional comprehensive surveys for sensitive biological resources. The results will be used to assess impacts to special status species in more detail and to inform site design before being utilized for ARCF mitigation.

Special-status Fish, Wildlife, and Plants

Special-status terrestrial species with potential to occur within the study area are listed in . Listed fish species with potential to occur within the study area are described in detail in Section 4.4.2, “Aquatic Resources and Fisheries.”

Table 4.4.3-1. Special-status Wildlife, Fish, and Plant Species with Potential to Occur Within the Study Area

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)
Mammal	American badger	<i>Taxidea taxus</i>	--/SSC/--
Mammal	Pallid bat	<i>Antrozous pallidus</i>	--/SSC/--
Mammal	Western red bat	<i>Lasiurus blossevillii</i>	--/SSC/--
Amphibian	California tiger salamander	<i>Ambystoma californiense</i>	T/T/--
Invertebrate	Crotch's bumble bee	<i>Bombus crotchii</i>	--/SSC/--
Invertebrate	Monarch butterfly	<i>Danaus plexippus plexippus</i> pop. 1	--/FC/--
Invertebrate	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T/--/--
Invertebrate	Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T/--/--
Invertebrate	Vernal pool tadpole shrimp	<i>Lepidurus packardi</i>	E/--/--
Reptile	Giant garter snake	<i>Thamnophis gigas</i>	T/T/--
Reptile	Northwestern pond turtle	<i>Actinemys marmorata</i>	PT/SSC/--
Bird	American peregrine falcon	<i>Falco peregrinus anatum</i>	--/FP/--
Bird	American white pelican	<i>Pelecanus erythrorhynchos</i>	--/SSC/--
Bird	Bald eagle	<i>Haliaeetus leucocephalus</i>	--/E, FP/--
Bird	Bank swallow	<i>Riparia riparia</i>	--/T/--
Bird	California black rail	<i>Laterallus jamaicensis coturniculus</i>	--/T, FP/--
Bird	California Ridgway's rail	<i>Rallus obsoletus obsoletus</i>	E/E, FP/--
Bird	Golden eagle	<i>Aquila chrysaetos</i>	--/FP/--
Bird	Grasshopper sparrow	<i>Ammodramus savannarum</i>	--/SSC/--
Bird	Least Bell's vireo	<i>Vireo bellii pusillus</i>	E/E/--
Bird	Northern harrier	<i>Circus cyaneus</i>	--/SSC/--
Bird	Purple martin	<i>Progne subis</i>	--/SSC/--
Bird	Song sparrow (Modesto population)	<i>Melospiza melodia</i> pop. 1	--/SSC/--
Bird	Swainson's hawk	<i>Buteo swainsoni</i>	--/T/--
Bird	Tricolored blackbird	<i>Agelaius tricolor</i>	--/T/--
Bird	Western burrowing owl	<i>Athene cunicularia</i> ssp. <i>hypugaea</i>	--/SSC/--
Bird	Western yellow-billed cuckoo	<i>Coccyzus americanus</i> ssp. <i>occidentalis</i>	T/E/--

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)
Bird	White-tailed kite	<i>Elanus leucurus</i>	--/FP/--
Bird	Yellow-breasted chat	<i>Icteria virens</i>	--/SSC/--
Bird	Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	--/SSC/--
Bird	Yellow warbler	<i>Setophaga petechia</i>	--/SSC/--
Fish	Sacramento River winter-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 7	E/E/--
Fish	Central Valley spring-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 11	T/T/--
Fish	Central Valley fall-/late fall-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 13	SC/SSC/--
Fish	Delta smelt	<i>Hypomesus transpacificus</i>	E/E/--
Fish	Hardhead	<i>Mylopharodon conocephalus</i>	--/SSC/--
Fish	Longfin smelt	<i>Spirinchus thaleichthys</i>	C/T/--
Fish	North American green sturgeon	<i>Acipenser medirostris</i>	T/--/--
Fish	Western river lamprey	<i>Lampetra ayresii</i>	--/SSC/--
Fish	Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	--/SSC/--
Fish	Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T/--/--
Plant	Big Scale Balsamroot	<i>Balsamorhiza macrolepis</i>	--/CRPR 1B.2
Plant	Boggs Lake hedge hyssop	<i>Gratiola heterosepala</i>	--/E/CRPR 1B.2
Plant	Bolander's waterhemlock	<i>Cicuta maculata</i> <i>var. bolanderi</i>	--/CRPR 2B.1
Plant	Delta mudwort	<i>Limosella australis</i>	--/CRPR 2B.1
Plant	Delta tule pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	--/CRPR 1B.2
Plant	Dwarf downingia	<i>Downingia pusilla</i>	--/CRPR 2.2
Plant	Ferris' milk-vetch	<i>Astragalus tener</i> var. <i>ferrisiae</i>	--/CRPR 1B.1
Plant	Legenere	<i>Legenere limosa</i>	--/CRPR 1B.1
Plant	Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	--/R/CRPR 1B.1
Plant	Saline clover	<i>Trifolium hydrophilum</i>	--/CRPR 1B.2
Plant	Sanford's arrowhead	<i>Sagittaria sanfordii</i>	--/CRPR 1B.2
Plant	San Joaquin spearscale	<i>Extriplex joaquinana</i>	--/CRPR 1B.2
Plant	Side-flowering skullcap	<i>Scutellaria lateriflora</i>	--/CRPR 2B.2
Plant	Stinkbells	<i>Fritillaria agrestis</i>	--/CRPR 4.2
Plant	Suisun Marsh aster	<i>Symphyotrichum lentum</i>	--/CRPR 1B.2
Plant	Valley brodiaea	<i>Brodiaea rosea</i>	--/CRPR 4.2
Plant	Watershield	<i>Brasenia schreberi</i>	--/CRPR 2B.3
Plant	Woolly rose-mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	--/CRPR 1B.2

NOTES:

Status Codes: Federal/State/Other

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PT = Proposed to be listed as threatened under the California Endangered Species Act.

C = candidate species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

SC = listed as species of concern

-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

C = Candidate for listing under the California Endangered Species Act receiving the same legal protection afforded to an endangered or threatened species.

FP = fully protected under the California Fish and Game Code.

R = state listed as rare

SSC = species of special concern in California.

-- = no listing.

Other

Special-status plants with potential to occur at one or more of the project sites. Plants are ranked according to the California Native Plant Society's California Rare Plant Rank (CRPR):

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere; Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2A = Plants presumed extirpated in California, but more common elsewhere; Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

.1—Seriously endangered in California

.2—Fairly endangered in California

.3—Not very endangered in California

4.5.3.2 Environmental Effects

4.5.3.2.1 No Action Alternative

No Action

The No Action Alternative is the buildout of the authorized project, the Recommended Plan from the ARCF GRR FEIS/EIR. The conclusion under the ARCF GRR FEIS/EIR was that construction of the project activities would result in less than significant effects to all species with the implementation of avoidance, minimization, and compensation measures. Detailed impacts to special status species from the No Action Alternative are described in the ARCF GRR FEIS/EIR in Section 3.8 “Special Status Species” beginning on page 144, along with the Record of Decision, and are summarized below.

The project will result in unavoidable permanent impacts to 0.25 acres of vernal pools; 3,292 stems (70 acres) of elderberry shrub habitat utilized by Valley Elderberry Longhorn Beetle; 14 acres to shallow water habitat typically utilized by Delta Smelt; 34 acres of aquatic spawning habitat for Delta Smelt; 20 acres of instream habitat typically utilized by the Green Sturgeon; 150 acres to riparian habitat typically utilized by the Western Yellow-billed Cuckoo, Swainson’s hawk, white-tailed kite, and purple martin; 2.5 acres to grassland utilized by burrowing owl; 15 acres to aquatic habitat typically utilized by the Giant Garter Snake; and 30 acres of upland habitat typically utilized by the Giant Garter Snake. The project will result in unavoidable temporary impacts to 82,325 linear feet of shaded riverine aquatic habitat and 75 acres of upland habitat typically utilized by the Giant Garter Snake during aestivation (or dormancy). It is important to note that the ARCF GRR FEIS/EIR did not describe impacts to all the species listed above in Table 4.4.3-1. The effects to these species under the No Action Alternative would be consistent with those described under the Proposed Action. Mitigation measures listed in section 3.8.6 of the ARCF GRR FEIS/EIR would be implemented to minimize the impacts as much as feasible, though there would still be significant unavoidable impacts to recreational resources. To mitigate for unavoidable impacts, USACE will purchase credits at an approved mitigation bank equivalent to restoring habitat to 0.5 acres of vernal pools, 42 acres of shallow water habitat, 32 acres of aquatic spawning habitat, 45 acres of aquatic habitat for Giant Garter Snake, and 90 acres of upland habitat for the Giant Garter Snake. At locations on- and off-site of the study area, USACE will restore 301.2 acres of riparian habitat, 70.89 acres of elderberry shrubs, 75 acres of upland habitat for the Giant Garter Snake, 20 acres of instream habitat for Green Sturgeon including fish passage, and replant 82,325 linear feet of shaded riverine aquatic habitat.

4.5.3.2.2 Proposed Action

Table 4.4.3-2: Summary of Special Status Species Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	Less than Significant with Mitigation Incorporated.	Short-term Significant, unavoidable; Long-term, minor effects that are Less than Significant with Mitigation Incorporated

Table 4.4.3-3. Special Status Species Effects by Project Component

Impact Number	Project Component	Mitigation Measure	Significance After Mitigation	NEPA Effects Determination
4.3-a	American River Erosion Contract 3B North and South, American River Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1,	Less than Significant with Mitigation Incorporated.	Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.
4.3-a	MCP	VEG-1, VEG-2, VIS-2, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1, SHRIMP-1	Less than Significant with Mitigation Incorporated.	Short-term and Moderate; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
4.3-a	SRMS	VEG-1, VEG-2, VIS-2 FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1	Less than Significant with Mitigation Incorporated	Short-term Significant and Unavoidable; and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

Table 4.4.3-4. Species Impacts for ARCF GRR SEIS – CEQA Impacts

Location	Cuckoo / Riparian (above OHW and Minus VELB *	Cuckoo / Riparian (below OHWM)*	VELB With Buffer*	VELB Canopy*	GGs*	Vernal Pools (acres)
<i>GRR Assumption</i>	150.00	3,292 stems	3,292 stems	15 Aquatic & 105 Uplands	0.25	0.25
American River Erosion Contract 3B North and South	-	9.91	22.14	1.51	-	-
American River Erosion Contract 4A – Proposed Action	1.80	-	2.49	0.07	-	-
American River Erosion Contract 4A - Alt 3a	0.06	-	0.15	-	-	-
American River Erosion Contract 4A - Alt 3b	2.78	-	3.11	0.09	-	-
American River Erosion Contract 4A - Alt 3c	Street Detour: 1.90 Parkway Detour: 1.79	Street Detour: - Parkway Detour: 0.22	Street Detour: 1.16 Parkway Detour: 13.52	Street Detour: 0.07 Parkway Detour: 1.27	-	-
American River Erosion Contract 4A - Alt 3d	0.98	0.22	12.91	1.25	-	-
American River Erosion Contract 4B	0.45	-	0.04	1.13	-	-
Sacramento River Erosion Contract 3	1.0	0.2	12.92	1.24	-	-
Magpie Creek Project	-	-	-	-	-	-

* Habitat Impacted (acres)

** Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for species impacts. Detailed impacts to habitat will be disclosed in the Final SEIS/SEIR.

A more detailed description of the impacts of the Proposed Action to special status species and details of Mitigation Measures VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, BEETLE-1, MONARCH-1, and SHRIMP-1 are available in Appendix B Section 4.3 “Special Status Species”.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, American River Mitigation Site

American Badger

American badger (*Taxidea taxus*) inhabits grasslands and riparian habitats. Potential impacts on American badger include mortality, injury, displacement, and harassment, along with permanent and temporary loss of habitat. During construction under the Proposed Action, badgers would be at risk of direct impacts such as vehicle strikes, along with impacts from loss of habitat, increased risks of predation loss, and disruption of behavioral patterns. This would be a significant impact. Implementation of Mitigation Measure BADGER-1 would reduce this impact to a less-than-significant level.

Pallid Bat and Western Red Bat

Construction activities could disturb riparian forest, which provides potential roosting habitat for pallid bat (*Antrozous pallidus*) and western red bats (*Lasiurus blossevillii*). The period of construction activities would overlap the bat maternity season (generally May 1 to August 31). Tree removal in riparian habitat could adversely affect breeding and non-breeding pallid bats by causing the loss of established roosts and potential roosting habitat. Project construction work around vehicle bridge crossing the American River could also disturb pallid bat if they were occupying any of the bridges. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BATS-1, the impact of construction on this species would be reduced to a less-than-significant level.

Crotch’s Bumble Bee

Direct impacts of project construction could include mortality of individuals or nests from activities such as vegetation removal and materials staging, or from construction equipment traffic. Vegetation removal could also result in a reduction of foraging habitat. With implementation of Mitigation Measure BEE-1 identified below for Crotch’s bumble bee, and Mitigation Measures VEG-1 and VEG-2 the impact of construction on this species would be reduced to a less-than-significant level.

Monarch Butterfly

The monarch butterfly (*Danaus plexippus plexippus*) is a candidate species under the Federal ESA. The California overwintering population can be found in Northern California year-round, wintering on coast and breeding inland, including in the Central Valley (Xerces Society 2018). There are no CNDDDB occurrences for this species in Sacramento County, though there are other observations of adults, pupae, and larvae in the area (iNaturalist 2023b, Western Monarch Milkweed Mapper 2023). Adults may feed on suitable nectar plants and isolated milkweed

(*Asclepias* spp.) have been observed, thus the potential to impact the monarch butterfly is moderate. Because the loss of habitat would only last for one season and with the implementation of Mitigation Measure MONARCH-1, the effect is expected to be reduced to a less-than-significant level and inclusion of pollinator species within mitigations areas would benefit the species in the long run.

Valley Elderberry Longhorn Beetle (VELB)

Construction would directly affect valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) habitat (Please see Table 4.4.3-4). These areas include the shrub and the associated riparian habitat. The impact of this loss of Federally listed species habitat would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1, which would include off-site VELB habitat.

There are no elderberry shrubs present within the Sacramento River Erosion Contract 3 and piezometer network project areas. All elderberry shrubs would be avoided during project implementation. Therefore, no mitigation is required.

Northwestern Pond Turtle

Northwestern pond turtle (*Actinemys marmorata*) inhabits rivers, pond, wetlands, and irrigation ditches for aquatic habitat and sandy or grassland areas for upland habitat. Construction equipment accessing areas occupied by northwestern pond turtle could strike turtles that are nesting, basking, or traversing upland habitat, resulting in mortality of these animals. Habitat for the turtle would expand at ARMS. With implementation of Mitigation Measures TURTLE-1 and WQ-1, the impact of construction on northwestern pond turtle would be reduced to a less-than-significant level.

Bald Eagle

Bald eagles may breed near rivers and open water and at least one nest has been observed within the ARMS project area. Per the Bald and Golden Eagle Protection Act, work within 660 feet of the bald eagle nest would only be permitted from August 1 to December 1 unless a permit from USFWS is acquired. Long-term effects on bald eagle could result riparian habitat removal required during project implementation. Although the removal of riparian trees would be offset through compensatory plantings, there would be a temporal loss of habitat until the newly planted trees mature enough to be suitable for bald eagle nesting. This would be a significant long-term impact on bald eagle nesting habitat. The compensatory mitigation proposed to address loss of riparian habitat would also compensate for the loss of bald eagle nesting habitat. Potential nesting habitat would be reduced temporarily because there would be a lag time between when trees would be removed or trimmed during Project construction and when the replacement trees would be mature enough to support raptor nesting. There would be a net increase of high-quality riparian habitat once the mitigation plantings become established. With implementation of the mitigation measures identified for impacts on riparian habitat (VEG-1 and VEG-2) and nesting birds (BIRD-1), the impact on bald eagle from construction-related activities would be reduced to a less-than-significant level.

Bank Swallow

Bank swallows (*Riparia riparia*) historically nested along the Lower American River, recorded as recently as 1986 (CDFW 2023), and continue to forage in the area, but are not known to nest in the Project Area due to the dense vegetation and riprap cover on the banks. If present in the vicinity of the project site, nesting bank swallow colonies could be directly affected if the proposed erosion protection measures were implemented during the species' nesting season (April 1 through August 31). This impact on bank swallow would be significant. With implementation of Mitigation Measure BIRD-1, including pre-construction surveys, training of construction crews, and avoidance buffers if nesting birds are located, the impact on bank swallow from construction activities would be reduced to a less-than-significant level.

Burrowing Owl

During their nesting period (February 1 through August 15), burrowing owls (*Athene cunicularia*) could use small-mammal burrows in grassland areas that are present in and adjacent to the levees along the American River. If present, ground disturbance (excavation and backfilling) could result in direct mortality or injury of burrowing owls within burrows and similar nesting features. Such features could be disturbed or destroyed during construction in staging areas. Implementation of pre-construction surveys to identify active burrows and placement of avoidance buffers to avoid active burrows, as described in Mitigation Measure BIRD-1, would reduce potential impacts from construction on burrowing owl to a less-than-significant level.

Purple Martin

Purple martins (*Progne subis*) inhabit riparian forest and woodland areas and nest in tree cavities or crevices of cliffs. This species is also known to use infrastructure such as bridge and overpasses (e.g., weep holes) or other manmade structures (e.g., lamp posts, traffic lights, birdhouses) for nesting. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could continue to fragment suitable habitat for this species and result in direct take of purple martins if any are nesting in the trees targeted for removal. This impact would be significant. With implementation of Mitigation Measure BIRD-1 and restoration of riparian habitat in the Parkway, the impact of construction on purple martin would be reduced to a less-than-significant level.

Swainson's Hawk

As described in Section 3.8.4 (page 168) of the ARCF GRR Final EIS/EIR, the Project Area possesses suitable roosting and nesting habitat for Swainson's hawk (*Buteo swainsoni*). Before the start of construction, pre-construction surveys would be conducted following the Swainson's Hawk Technical Advisory Committee Guidance. Should surveys indicate that nesting Swainson's hawk are present, the potential would exist for short-term, temporary impacts during construction from dust, noise, and vibration.

Although the removal of riparian trees would be mitigated through compensatory plantings, there would be a temporal loss of habitat until the newly planted trees could become established and mature. Long-term significant effects on Swainson's hawk nesting habitat could result from the loss of riparian habitat in the Project Area. However, there would be a net increase in quality riparian habitat present once the mitigation plantings become established. With implementation

of the mitigation measures identified for impacts on riparian habitat (VEG-1 and VEG-2) and nesting birds (BIRD-1), the impact on Swainson's hawk from construction-related activities would be reduced to a less-than-significant level.

Western Yellow-Billed Cuckoo and Least Bell's Vireo

As described in the Proposed Action effects discussion in Section 3.8.4 (page 167) of the ARCF GRR FINAL EIS/EIR, the Project Area is unlikely to support nesting western yellow-billed cuckoos (*Coccyzus americanus occidentalis*) because the riparian corridor is narrow, patchy, and frequented by park visitors. For similar reasons the Project Area is unlikely to support least Bell's vireo (*Vireo bellii pusillus*). Construction of American River Erosion Contract 3B North and South would result in the loss of riparian habitat (Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife"). This loss of habitat would be a significant impact. With implementation of Mitigation Measures VEG-1, VEG-2, and BIRD-1, the impact would be reduced to a less-than-significant level.

White-Tailed Kite

The Project Area contains numerous large riparian trees that provide suitable nesting conditions for white-tailed kite (*Elanus leucurus*). Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of active white-tailed kite nests. This would be a significant impact. Implementation of Mitigation Measures VEG-1 and VEG-2 would reduce the impact on riparian nesting habitat to a less-than-significant level. Implementation of Mitigation Measure BIRD-1 would reduce the impact on nesting white-tailed kites to a less-than-significant level.

Other Breeding and Migratory Birds

The man-made pond at the ARMS would be restored to floodplain and backwater channel, resulting for less artificially created open water habitat frequented by some aquatic birds like diving duck canvasbacks. While the man-made pond does benefit certain aquatic bird species, reconnecting the floodplain to the river and restoring natural floodplain processes would provide a mosaic of functionally diverse backwater and riparian habitats that would benefit multiple species (Anderson et al. 1996, Serra-Llobet et al. 2022) The man-made pond at the ARMS would be removed, restoring connection to the LAR. ARMS would emphasize restoration to native floodplain wetland and riparian habitats, consideration of river dynamics, and adaptive management of the features as described in the Parkway Plan and NRMP (HDR 2023). While the man-made pond does benefit diving ducks, reconnecting the floodplain to the river and restoring natural floodplain processes would provide a mosaic of functionally diverse backwater and riparian habitats that would benefit multiple species (Anderson et al. 1996, Serra-Llobet et al. 2022). The permanent marsh habitat created would provide habitat at different times of the year that an open water feature may not. This riparian would be important cover to waterfowl in mid-to late summer when local ducks are molting their flight feathers (California Department of Fish and Game 1995).

Many non-listed bird species that are otherwise protected by the MBTA and the California Fish and Game Code (CFGF) are expected to be present in the project site. These include Cooper's

hawk, great blue heron, great egret, canvasback, and other common passerine, raptor, and wading bird species. General disturbance, including exposure to noise, vibration, and dust, could adversely affect nesting birds by altering their nesting behaviors (e.g., prompting adults to abandon eggs or chicks in nests). Construction activities would occur during a period that overlaps with the nesting season for numerous bird species that are present in the project site. This would be a significant impact. With implementation of Mitigation Measure BIRD-1, the impact of construction on non-listed birds protected by the Migratory Bird Treaty Act or the California Fish and Game Code would be reduced to a less-than-significant level.

Special Status Plants

Sanford's arrowhead (*Sagittaria sanfordii*) and woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) occur in freshwater habitats. Populations of these species are known to occur in various locations throughout the American River. Sanford's arrowhead was observed within 200 feet of American River Erosion Contract 3B North and South, but not within the proposed construction limits, during special-status plant reconnaissance surveys conducted in the American River project areas during relevant blooming periods in 2022. These surveys did not cover the ARMS, thus, potential for these species to occur onsite cannot be dismissed. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, Project Partners would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known special status plants.

Special Status Fish

Listed fish species with potential to occur within the study area are described in Section 4.4.2, "Aquatic Resources and Fisheries."

Magpie Creek Project

Vernal Pool Fairy Shrimp & Tadpole Shrimp (See Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife")

In the study area, vernal pools occur near Magpie Creek. There are recorded occurrences of vernal pool fairy shrimp in the CNDDDB from 1995 (CDFW 2023) and 2018 (ICF 2018). Construction of the new channel and maintenance road would require filling a portion of a wetland (See Table 4.1-1 in Appendix B, Section 4.1 "Vegetation and Wildlife"). Construction of the new channel and maintenance road would require filling less than 0.05 of vernal pool and seasonal wetland. This could directly impact vernal pool fairy and tadpole shrimps. Implementing Mitigation Measure SHRIMP-1 would reduce this impact to less than significant.

Swainson's Hawk, White-Tailed Kite, Purple Martin, Other Breeding and Migratory Birds, Crotch Bumble Bee

The MCP work area is primarily composed of grasses and forbs, with emergent wetland vegetation and limited small riparian trees along the stream banks. In general, there is less suitable nesting habitat for many bird species than at the American River sites. However, the analysis from "American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Sacramento River Erosion Contract 3" is still applicable to the MCP.

Special Status Plants

A protocol level survey completed in June 2023 observed no special-status plant species (GEI 2023a). In addition, an April 2018 survey for the Magpie Creek Floodplain Conservation Project did not observe any special-status plant species (ICF 2018). Some proposed staging areas include seasonal wetlands that are potential habitat for several special-status plant species. These areas would receive protocol floristic surveys prior to use and follow mitigation measure PLANT-1.

Sacramento River Mitigation

The analysis for “American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, ARMS, Sacramento River Erosion Contract 3” is applicable to Sacramento River Mitigation. However, the following additional species are also analyzed due to SRMS location in the Sacramento-San Joaquin Delta.

Valley Elderberry Longhorn Beetle

There are over 40 elderberry shrubs in the proposed SRMS, and construction would directly affect VELB (*Desmocerus californicus dimorphus*) habitat (Table 4.1-1 in Appendix B, Section 4.1 “Vegetation and Wildlife”). These areas include the shrub and the riparian habitat within 25 meters (82 feet) of an elderberry shrub, which is considered VELB habitat. The impact of this loss of Federally listed species habitat would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1, which would include off-site VELB habitat.

Vernal Pool Fairy Shrimp & Tadpole Shrimp

There are no CNDDDB occurrences for these species in the area, and there are no known suitable vernal pools on the project site. Thus, there is no potential to impact vernal pool shrimp from the Proposed Action.

Tricolored blackbird

The tricolored blackbird is listed as a threatened species under CESA. Suitable breeding habitats within the Central Valley have been found to include emergent marsh areas with tules or cattail and upland habitats consisting of thistle, nettle, blackberry, wheat, and other shrubby upland substrates (Meese 2006). Foraging habitats in all seasons include annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (e.g., large tracts of alfalfa with continuous mowing schedules and recently tilled fields), cattle feedlots, and dairies. Tricolored blackbirds also occasionally forage in riparian scrub habitats and along marsh borders (Beedy et al. 2018). Though there are no CNDDDB occurrences within 5 miles of SRMS, if tricolored blackbirds do occur onsite, active nests could be destroyed or disturbed during restoration and maintenance activities, potentially resulting in nest failure. This could be a significant impact. Implementing Mitigation Measure BIRD-1 would reduce this impact to a less-than-significant level.

Giant Garter Snake

There are giant garter snake observation records north and south of the SRMS. The bulrush marsh along the western and southern shoreline provides some suitable aquatic habitat for the giant garter snake and refugia including downed logs. However, the giant garter snake prefers

slower moving water and "is not found in or around larger rivers due to the presence of predators" (USFWS 2023b). In addition, the SRMS is at the western edge of the snake's range where brackish waters from the Suisun Bay mixes with fresh water in the Delta. Based on these factors the giant garter snake is unlikely to occur at SRMS. Implementing Mitigation Measure GGS-1 (from the 2021 Sacramento Weir Widening EIS/EIR) would avoid encounters with GGS and reduce significant direct effects on giant garter snake to a less-than-significant level by minimizing temporary impacts. The long-term impact would be beneficial because protection of the site and re-establishing emergent vegetation and refugia would have long-term ecological benefits to many species, including the giant garter snake.

Song sparrow ("Modesto" population)

The "Modesto" population of song sparrow (*Melospiza melodia*) resides in the northcentral portion of the Central Valley, with the highest densities in the Butte Sink area of the Sacramento Valley and in the Sacramento–San Joaquin River Delta. SRMS contains suitable nesting habitat, thus potential for occurrence is high. With implementation of Mitigation Measure BIRD-1, the impact of construction on non-listed birds protected by the Migratory Bird Treaty Act or the California Fish and Game Code would be reduced to a less-than-significant level.

Special Status Plant Species

Suisun marsh aster (*Symphotrichum lentum*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), and Mason's lilaeopsis (*Lilaeopsis masonii*) have known occurrences within the project site. There is suitable habitat for Delta mudwort (*Limosella australis*) and San Joaquin spearscale (*Extriplex joaquinana*). Protocol level surveys are scheduled for summer 2023. If special status plants are present, they could be crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. The final design would avoid special status plant species to the greatest extent possible. However, ground disturbance for mitigation site construction may necessitate removal of these plants to support the highest quality habitat design. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level, because as part of the final construction design, Project Partners would adjust construction access routes and the footprint of erosion protection activities to ensure the avoidance of known special status plants. If special-status plant species cannot be avoided during construction, USACE and CVFPB would coordinate with the resource agencies to determine additional appropriate mitigation measures.

Special Status Fish

Listed fish species with potential to occur within the study area are described in Section 4.2, "Aquatic Resources and Fisheries."

4.5.3.2.1 Alternatives

Table 4.4.3-5 summarizes the effects of the action alternatives on vegetation and wildlife. Alternative 3 includes slight modifications to American River Erosion Contract 4A, Alternative 4 includes modifications to ARMS (CEQA Only), and Alternative 5 covers additional Sacramento River Mitigation options. The alternatives do not result in a change in impacts to 4.3-b "Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan," which is

identical to Impact Number 4.1-d described in Section 4.4.1 “Vegetation and Wildlife.” For additional details, please refer to the comprehensive discussion in Appendix B, Section 4.3, “Special Status Species.”

Table 4.4.3-5. Effects of the Alternatives 3a, 3b, 3c, 3d, 4a, 4b, 5a, 5b, 5c on Special Status Species

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3a would implement a landside berm instead of a waterside berm with similar impacts.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant and Unavoidable short-term, Long-term and Minor effects that are Less than Significant with mitigation
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3b would use a different permanent bike trail reroute. The route would be slightly longer than the Proposed Action.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant and unavoidable short-term, Long-term and Minor effects that are Less than Significant with mitigation
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3c would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm with similar impacts.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant short-term, long-term minor effects that are Less than Significant with mitigation
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	American River Erosion Contract 4A	Alternative 3d would change the permanent bike trail route to a paved bike trail closer to the river along an existing off-road bike trail, resulting in a negligible increase in vegetation clearing.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant short-term; Long-term and Minor effects that are Less than Significant with mitigation

Impact Number	Impact Title	Location	Discussion	Mitigation Measure	CEQA Conclusion	NEPA Conclusion
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	American River Mitigation	Alternatives 4a and 4b constructs a berm to retain a portion of the existing man-made pond, reducing impact on open water habitat, but also reducing the creation of riparian habitat. The remnant pond would retain habitat used seasonally by several species, including canvasback ducks diving ducks.	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Less than significant with mitigation incorporated	CEQA Determination Only
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5a would purchase all remaining, required mitigation credits from USFWS Approved Conservation Banks.	N/A	No Impact	No Impact
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5b would construct Sacramento River Mitigation at Watermark Farms	VEG-1, VEG-2, VIS-2, FISH-1, FISH-2, FISH-4, PLANT-1, VELB-1, BUOW-1, BIRD-1, BAT-1, TURTLE-1, BADGER-1, BEE-1, MONARCH-1	Significant short-term; beneficial long-term Significant short-term; less than significant long-term	Short term significant and unavoidable; long-term
4.3-a	Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.	Sacramento River Mitigation	Alternative 5c would purchase Delta smelt credits and provide funding to the Sunset Pumps project to meet Sacramento River Mitigation requirements	N/A	No Impact	No Impact

4.6 Cultural Resources

4.6.1 Cultural and Tribal Resources

Below is a summary of the Cultural and Tribal Resources analysis. Please refer to Appendix B, Section 5.1 for the detailed analysis.

4.6.1.1 Existing Conditions

“Cultural resources” include prehistoric and historic-era archaeological sites; architectural properties such as buildings, bridges, dams, and related infrastructure; and resources of importance to Native Americans, such as traditional cultural properties, sacred sites, and Tribal cultural resources.

In brief, the existing conditions/affected environment for cultural resources comprise the area of potential effects (APE) within which significant prehistoric, ethnographic, and/or historic-era resources could be affected by ARCF 2016 Project elements. The cultural setting within the APE consists of prehistoric and ethnographic contexts, including land use in the distant and more recent past by Native American populations, and historic-era contexts related to the activities of Euro-American explorers, missionaries, miners, farmers, and ranchers, and their interactions with indigenous people.

The cultural resources APE was determined by USACE, the lead Federal agency, and is described in the 2016 ARCF GRR Final FEIS/FEIR and the Section 106 programmatic agreement (PA) with the California State Historic Preservation Officer (SHPO), which was executed on September 10, 2015. The PA was included with the 2016 ARCF GRR Final FEIS/FEIR as Appendix C. By definition (36 C.F.R. § 800.16[d]), the APE comprises “the geographic areas or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.” “Historic properties” are cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Under CEQA, “historical resources” are resources listed in, or determined to be eligible for listing in the California Register of Historical Resources (CRHR). However, the fact that a resource resources not listed in, or determined to be eligible for listing in the CRHR, and not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in PRC 5024.1(g) shall not preclude a lead agency from determining that the resource may be an historical resource s defined in Public Resources Code sections 5020.1(j) or 5024.1. (Public Resource Code [PRC] 21084.1and State CEQA Guidelines Section 15064.5) “Tribal cultural resources” are defined in Section 21074 of the California Public Resources Code as: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or (2) resources that the lead [CEQA] agency determines, in its discretion, are Tribal cultural resources.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and Magpie Creek Project

The American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and MCP are within the geographic extent of the APE delineated in the 2016 ARCF GRR Final FEIS/FEIR (see Section 3.9.1: Figure 14). Therefore, the Cultural and Tribal Resources environmental and regulatory frameworks described in Section 3.9 of the 2016 ARCF GRR Final FEIS/FEIR are generally applicable to the analysis in this SEIS/SEIR for the American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, and MCP components and will not be repeated in detail here.

American River Mitigation Site

The proposed ARMS was not analyzed in the 2016 ARCF GRR FEIS/EIR. It is located on the right bank of the LAR, approximately 1 mile upstream from the Sacramento and LAR confluence. The site is a former sand and gravel mine, thus the most prominent feature of the ARMS is an approximately 55-acre man-made pond located approximately 400 feet from the river's edge. The man-made pond is filled with water due to groundwater connection with the LAR. There are known cultural resources located in the vicinity of the pond. ARMS also is within the APE, as delineated in the 2016 ARCF GRR Final FEIS/FEIR, although the mitigation work proposed for this area was not described in that document. However, the prehistoric, ethnographic and historic settings for ARMS are similar to those described within the 2016 ARCF GRR Final FEIS/FEIR and there are no notable differences. Therefore, the Cultural and Tribal Resources environmental and regulatory frameworks described in Section 3.9 of the 2016 ARCF GRR Final FEIS/FEIR are generally applicable and will not be repeated here.

Sacramento River Mitigation Site

The SRMS was not included in the 2016 ARCF GRR FEIS/FEIR and is outside of the previously established ARCF APE. It is as an active Dredged Material Placement Site (DPMS) managed by USACE located in the Sacramento-San Joaquin Delta at the confluence of Cache and Steamboat Sloughs. The site is composed of a large flat basin with riparian and herbaceous cover. While the prehistoric, ethnographic, and historic settings for Grand Island are somewhat similar to those described in the 2016 ARCF GRR FEIS/FEIR, there are some notable differences based on its location much further south of the previously described project elements, in the Sacramento-San Joaquin River Delta. The early prehistoric context for the Sacramento-San Joaquin Delta largely follows cultural sequences developed for the Central California region, as described in the 2016 ARCF GRR Final EIS/EIR. The SRMS is located at what was recorded ethnographically as the interface of Bay Miwok and Plains Miwok territories (Levy 1978: Figure 1). At the time of Euro-American arrival, Miwok people relied upon annual cycles of hunting, gathering, and fishing for food, personal goods, and trade items. "Tribelets" were the predominant political unit among the Miwok, each having distinct boundaries that were generally recognized and respected by neighboring groups (Ross 2018). Ethnographic maps indicate that, in the early- to mid-1800s, two Plains Miwok tribelets – Anizumne and Quenemsia – were situated on or in very close proximity to SRMS (Levy 1978: Figure 1). The establishment of two nearby Franciscan missions, San Francisco de Asís (1776) and Mission San José (1797), and the subsequent missionization of the local Native American population permanently altered and disrupted the Miwok lifeways (Ross 2018:11). Missionization led to the forced removal of Miwok communities from their traditional lands and the prohibition of their cultural practices.

4.6.1.2 Environmental Effects

4.6.1.2.1 No Action Alternative

Under the No Action NEPA alternative only the components described in the 2016 ARCF GRR FEIS/EIR and previously prepared supplemental NEPA documents will be built. Mitigation sites, such as the ARMS and SRMS would not be built, and site conditions would remain as they are now. The ARMS and the SRMS would not be constructed, and site conditions in those locations would remain as they are now. The MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and 4B, and Sacramento River Erosion Contract 3 design would not occur and, in general, effects to cultural resources will be as previously disclosed in those locations. Additionally, impacts to the known cultural resources' sites at ARMS, and any potential sites at SRMS, will not occur, meaning there would be no impacts to Cultural and Tribal Resources in those locations under the No Action alternative. All impacts to Cultural Resources will be mitigated as discussed in the 2016 ARCF GRR FEIS/EIR pursuant to the PA, through monitoring of vegetation removal and construction activities, and treating any adverse effects resulting from post-review discoveries pursuant to the PA.

4.6.1.2.2 Proposed Action

Table 4.5.1-1. Summary of Cultural Resources Effects

Impact Number	Impact Title	CEQA Significance Conclusion	NEPA Effects Determination
5.1-N	Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property	N/A	Less than Significant with Mitigation Incorporated
5.1-a	Cause a substantial adverse change in the significance of a historical resources pursuant to § 15064.5	Less than Significant	N/A
5.1-b	Cause a substantial adverse change in the significance of an archaeological resources pursuant to § 15064.5	Significant and Unavoidable	N/A
5.1-c	Disturb any human remains, including those interred outside of dedicated cemeteries.	Less than Significant with Mitigation Incorporated	N/A
5.1-d	Cause a substantial adverse change in the significance of a Tribal cultural resource.	Significant and Unavoidable	N/A

Table 4.5.1-2. Cultural Resources Effects by Project Component

Impact Number	Project Component	Mitigation Measure	CEQA Significance	NEPA Effects Determination
5.1-N	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS	Implement Programmatic Agreement	N/A	Less than Significant with Mitigation Incorporated
5.1-N	SRMS, Piezometer Network	None	N/A	Less than Significant
5.1-a	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, ARMS, SRMS	None	No Impact	N/A
5.1-a	Sacramento River Erosion Contract 3, Piezometer Network	None	Less than Significant	N/A
5.1-b	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Piezometer Network	CR-1, CR-2, CR-3, CR-4, CR-5	Less than Significant with Mitigation Incorporated	N/A
5.1-b	ARMS	CR-1, CR-2, CR-3, CR-4, CR-5	Significant and Unavoidable	N/A
5.1-c	MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network	CR-6	Less than Significant with Mitigation Incorporated	N/A
5.1-d	MCP, American River Erosion Contract 3B north and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, SRMS, Piezometer Network	CR-1, CR-2, CR-3, CR-4, CR-5	Less than Significant with Mitigation Incorporated	N/A
5.1-d	ARMS	CR-1, CR-2, CR-3, CR-4, CR-5, CR-6	Significant and Unavoidable	N/A

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network

The Proposed Action Alternative involves design refinements and new project elements for the MCP American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network. The ground disturbing construction activities associated with all these project elements have the potential to cause significant impacts to cultural resources. For NEPA purposes, any adverse effects/significant impacts to cultural resources would be mitigated through implementation of the stipulations in the PA, which include adhering to requirements specified in the PA's associated Historic Properties Management Plan (HPMP) and any tiering Historic Properties Treatment Plan (HPTP). For CEQA purposes, significant cultural resource impacts would be reduced by implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6. For the ARMS project component, impacts would remain significant and unavoidable, but impacts would be reduced to a less-than-significant level for all other project components.

Sacramento River Mitigation Site

The 2016 ARCF GRR FEIS/EIR did not analyze the potential impacts of including a SRMS. Under the Proposed Action, the creation of this mitigation area would require ground disturbance within areas that have the potential for buried or obscured cultural resources. Therefore, it is possible that the act of excavation for proposed project elements could cause significant impacts to cultural resources. Based on the known cultural context for the SRMS APE, this could include impacts to prehistoric and historic-era archaeological resources. The SRMS does not fall within the existing APE covered under the PA. Therefore, USACE would consult with the SHPO, Tribes, and other consulting parties to include the SRMS in the APE and assess the potential effects of the proposed action on historic properties, pursuant to the stipulations of the PA. As with other components and phases of the ARCF, any significant impacts would be mitigated to less than significant for NEPA purposes through the implementation of the stipulations of the PA and its tiering management and treatment plans. For CEQA purposes, significant cultural resource impacts would be reduced to a less-than-significant level by implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6.

4.6.1.2.3 Alternatives

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A Project Component. All alternatives would be constrained within the construction buffer limits identified in the APE. None of these alternatives would increase effects to Cultural and Tribal Resources when compared to the Proposed Action.

Alternative 4a (CEQA-Only)

Alternative 4a would change the ARMS by retaining the western portion of the existing man-made pond. Alternative 4a would potentially reduce or avoid effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource

would be reduced compared to the ARMS, but would potentially affect other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) similarly to the potential impacts of the ARMS. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4a would have significant and unavoidable effects on cultural resources but reduced compared to the ARMS for the Proposed Action due to the potential to reduce or avoid effects on one known site.

Alternative 4b (CEQA-Only)

Alternative 4b would change the ARMS by retaining the southern portion of the existing pond. Alternative 4a would have similar effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource would be similar to the ARMS, but this alternative would have potentially increased effects on other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) compared to the ARMS because additional areas on the northern portion of the site would be disturbed. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4b would have significant and unavoidable effects on cultural resources, but potentially greater than the effects of the ARMS for the Proposed Action due to the potential for greater effects on two known sites.

Alternative 5a

Alternative 5a would eliminate the need to construct the SRMS, and would include purchasing the remaining, required mitigation credits from Service approved conservation banks. Purchasing credits would have no effect on Cultural and Tribal Resources.

Alternative 5b

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms that would restore 227 acres of riverine and floodplain habitat. This alternative is conceptual only but could involve breaching the existing levee and creating a new setback levee and secondary channel. The ground disturbance required to breach the existing levee, build a setback levee, and construct a secondary channel could result in significant impacts to historic properties and other Cultural and Tribal Resources, assuming their presence in this area.

Alternative 5c

Alternative 5c includes a combination of purchasing Delta Smelt conservation bank credits, providing funding for the Sunset Pumps rock weir removal project, and assisting in funding the riparian mitigation requirements for the Sunset Pumps project. There would be no effect on Cultural and Tribal Resources by purchasing credits. The effects of the Sunset Pumps project would be covered under NEPA and CEQA documentation written by Project Proponents, including DWR, USFWS, and BOR.

Chapter 5. 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 CFR § 1508.1(g)(3)). The CEQA Guidelines define cumulative effects as “two or more individual effects which, when considered together, compound or increase other environmental impacts” (CCR Section 15355).

“Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects (State CEQA Guidelines Section 15064(h)(1)). If an incremental effect is not cumulatively considerable, then the lead agency does not need to consider that effect significant and must briefly describe the reason why (State CEQA Guidelines Section 15130(a)).

The cumulative effects of the overall ARCF 2016 Project were analyzed in the ARCF GRR Final EIS/EIR (USACE 2016). The cumulative analysis in the ARCF GRR Final EIS/EIR is incorporated by reference. Because the temporal scope of the analysis has changed substantially since the ARCF GRR Final EIS/EIR, for the purposes of this SEIS/SEIR, the temporal scope of the cumulative effects analysis considers past projects that would continue to affect the project area in 2025 through 2028, and projects expected to be under construction in 2025 through 2028.

5.0 Methodology and Geographic Scope of Analysis

5.0.0 Projects Contributing to Potential Cumulative Effects

This section briefly describes other similar or related projects, focusing on development, flood-risk reduction, and habitat restoration projects that have similar effects and affect similar resources, as would the project components, including American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP Seepage and Stability Improvements, ARMS, and SRMS. Although the ARCF 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 different means, 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.

The following major past, present, and probable future projects that have related effects 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 project to properly evaluate the cumulative effects of this action and these other similar projects on the environment.

5.0.0.0 Lower American River Common Features Project

Based on congressional authorizations in Water Resource Development Act (WRDA) 1996 and WRDA 1999, USACE, CVFPB, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 1996, this involved constructing 26 miles of slurry walls on the Lower American River. The WRDA 1999 authorization included a variety of additional levee improvements to ensure that the levees could pass an emergency release of 160,000 cubic feet per second (cfs), such as levee raises and levee widening improvements. The WRDA 1996 and 1999 projects were mostly completed in 2014. One project component of WRDA 1999, referred to as the Triangle Project, is scheduled to begin construction in late 2023. The Triangle Project involves construction of a seepage berm on the levee between Del Paso Blvd and the Union Pacific Railroad Tracks (UPRR) and would require the removal of elderberry shrubs and have localized traffic and circulation impacts when material and equipment are imported.

5.0.0.1 American River Common Features 2016 Project

The ARCF 2016 Project is scheduled for construction from 2019 through 2028. The project involves 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 intends to widen the Sacramento Weir. The project will also involve construction of several mitigation sites in the area.

In addition to the improvements that are part of this SEIS/SEIR, the 2016 ARCF GRR FEIS/EIR includes:

- Construction of a seepage and stability berm along Front Street (completed in 2019)
- Seepage and stability improvements to the Sacramento River east levee between downtown Sacramento and Freeport (constructed and planned for 2020-2023)
- Erosion protection on the American River (planned for 2022-2026)

- Additional erosion protection improvements on the Sacramento River (planned between 2021 and 2026)
- Improvements to the “East Side Tributaries, including the MCDC, 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 2025-2026)
- Widening the Sacramento Weir and Bypass, located along the north edge of the City of West Sacramento in Yolo County (planned for 2021 to 2024)

5.0.0.2 American River Watershed Common Features Natomas Basin Project

In 2007, the Natomas Levee Improvement Project was authorized as an early-implementation project initiated by SAFCA 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 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 of 2014 (Public Law 113-121). Construction on Reach I and Reach D began in 2018; Reach H began in 2019. Construction on Reach D will include work on the highway 99 window in 2024, and construction on Reaches H and I is expected to continue in 2023 and 2024 with pumping plant improvements and landside improvements. Construction in Reach B began in 2021 and is scheduled to be completed in 2023, with replacement of pumping plants continuing in 2024. Reach A is under construction, scheduled for completion in 2024 with Reaches E, F, and G scheduled for construction in 2023 through 2025. This action includes impacts to water quality, special status species, transportation, air quality, environmental justice communities, and vegetation similar in size and scope to the ARCF 2016 Project.

5.0.0.3 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 2016).

5.0.0.4 Sacramento River Bank Protection Project

The mission of the Sacramento River Bank Protection Project (SRBPP) is to repair bank erosion and minimize the risk of flooding along the Sacramento River by evaluating riverside levees and rehabilitating sections of the levees, if necessary. Section 203 of the Flood Control Act of 1960 was the original authority for SRBPP, giving USACE authorization to implement rehabilitation of 430,000 linear feet of levee. Authority to rehabilitate an additional 405,000 linear feet of levee was added by the 1974 WRDA. In 2007, the WRDA, Pub. L. 110-114, § 3031, 121 Stat. 1113 (2007) (WRDA 2007) added 80,000 linear feet to SRBPP as a supplement to the 1974 legislation.

5.0.0.5 West Sacramento General Reevaluation Report

The West Sacramento Project General Reevaluation Report (WSPGRR) determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the WSPGRR is to bring the 50-miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address: (1) seepage, (2) stability, (3) overtopping, and (4) erosion concerns along the West Sacramento levee system. Potential 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 WSPGRR was authorized in WRDA 2016, and in the Fiscal Year 2019 work plan received initial funding to begin preconstruction design. However, under the West Sacramento Area Flood Control Agency Early Implementation Program, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along the Sacramento River in the northern portion of the city near the neighborhood of Bryte, and the south levee of the Sacramento Bypass. One levee segment, the Southport setback levee, was constructed as part of the local effort, which includes all the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin.

A Final Environmental Assessment/Initial Study (EA/IS) for the West Sacramento Project, Yolo Bypass East Levee was completed in 2022 by USACE, Sacramento District and the West Sacramento Area Flood Control Agency. Construction for Yolo Bypass East Levee South-began in the summer of 2023 and will be completed in April 2024.

5.0.0.6 I Street Bridge Replacement Project

The I Street Bridge Replacement Project will include the construction of a new bridge upstream of the existing I Street Bridge. The bridge will provide a new vehicle, bicycle, and pedestrian connection across the Sacramento River between the Sacramento Railyards and the West Sacramento Washington Neighborhood. The existing I Street Bridge's lower deck will continue to serve as a railroad crossing, and the upper deck is planned for use by pedestrians and bicyclists. The approach viaducts to the existing I Street Bridge will be demolished. Construction of the I Street Bridge replacement project is planned between 2024 and 2027.

5.0.0.7 Central Valley Flood Protection Plan of 2022

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 project) Improvement areas. The CVFMP Program addresses State flood management planning activities in the Central Valley. The 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 prepared and CVFPB adopted updates to the CVFPP in 2017 and 2022. The 2017 update focused on Sacramento and San Joaquin Watershed Basin-Wide Feasibility Studies (BWFS), Regional Flood Management Planning, and the Central Valley Flood System Conservation Strategy. The 2022 update focused on climate resilience, performance tracking, and alignment with other State efforts, recommending priority actions to address flood risk. 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 project, it is important to consider the long-term aspects of the CVFPP in conjunction with this action and the next update would be in 2027.

The Sacramento Basin-Wide Feasibility Studies (BWFS) indicates that the following improvements to the Yolo Bypass flood control system could be made and therefore are considered as future projects: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below), widening the Fremont Weir and the Sacramento Weir, widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin, constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass, widening the Upper Yolo Bypass by constructing setback levees north of Willow Slough and north of Putah Creek on the west side of the Bypass, adding a tie-in to the Stockton Deep Water Ship Channel and channel closure gates, and constructing a floodwall on the west side of the Sacramento River at Rio Vista. Additional actions contemplated under the Sacramento BWFS include the following: extending the life of the Cache Creek Settling Basin by expanding it to the north, degrading the step levees at the north end of Liberty Island, widening the Lower Yolo Bypass by constructing a setback levee on the west side of the Bypass near the north end of Little Egbert Tract, degrading the existing levees along the Stockton Deep Water Ship Channel along the west side of Prospect Island, degrading the existing levees on the northern and southern ends of Little Egbert Tract, removing the Yolo Shortline Railroad tracks and crossing over the Yolo Bypass near the Interstate 80 overcrossing, and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass.

5.0.0.8 Yolo Bypass Cache Slough Partnership Master Plan

The Yolo Bypass Cache Slough (YBCS) Partnership (a group of 15 agencies) is proposing to implement a program to coordinate numerous related projects in the Yolo Bypass over the next 25 years to provide essential flood conveyance capacity in the Yolo Bypass while improving its resiliency, reliability, and adaptability to climate change; enhancing aquatic and terrestrial

species habitats; and preserving agricultural land and economic values. Projects that are being considered for implementation under the YBCS Partnership Master Plan include: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below); widening the Fremont Weir and the Sacramento Weir; widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin; constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass; habitat restoration projects throughout the Yolo Bypass, changes to the Cache Creek Settling Basin; degrading the step levees at the north end of Liberty Island; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass.

5.0.0.9 Lower Elkhorn Basin Levee Setback Project

The Lower Elkhorn Basin Levee Setback (LEBLS) 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 LEBLS 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 LEBLS project includes 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, and public recreation. Construction of the LEBLS project is planned to be completed in 2024. Construction effects of the LEBLS project have the potential to contribute to cumulative impacts with the proposed project and other ARCF 2016 Projects not included in this SEIS/SEIR, particularly the Sacramento Weir Widening, including impacts to giant garter snake habitat, elderberries, trees, seasonal wetlands and fishery resources.

In conjunction with the Yolo Bypass improvement system associated with the Sacramento Weir Widening Project and LEBLS, a pre-existing, outdated landfill of approximately 13-acres was permanently remediated. The Bryte Landfill Remediation was implemented by SAFCA to remove the landfill site from the existing floodway in the existing north levee of the Sacramento Bypass near its confluence with the Yolo Bypass east levee. Remediation would prevent the dispersal of potentially toxic materials during a flood event. Construction was planned for completion in the summer of 2023.

5.0.0.10 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project (JFP) between USACE, the Bureau of Reclamation and their non-federal partners, addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated with 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.

5.0.0.11 Folsom Dam Water Control Manual Update

USACE is updating the Folsom Dam Water Control Manual (WCM) 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 manual was updated in 2018 following the completion of the JFP but is being revised a second time in consideration of flood operation changes that will be made as a result of Folsom Dam Raise. Changes to the WCM do not apply to normal operations; however, flood operations will be evaluated to determine if there are downstream effects to the Lower American River fishery and riparian habitat as a result of the changes.

5.0.0.12 Folsom Dam Raise

Construction of the Folsom Dam Raise project followed completion of the JFP and the WCM update. The Dam Raise project includes refinements to the Main Dam tainter gates and 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 three ecosystem restoration projects (one of which being modification of the temperature control shutters at Folsom Dam). Similar to the ARCF 2016 Project, the Folsom Dam Raise Project was fully funded by the Bipartisan Budget Act of 2018. Construction to raise Dike 8 was completed in 2020. Construction of the Main Dam, Right- and Left- Wing Dams, Dikes 1-6, and Mormon Island Auxiliary Dam will begin in 2023. The design for Dike 7 is complete and construction is anticipated in 2024. Raises on these facilities is planned to continue into 2028. Construction and construction traffic effects of the Folsom Dam Raise project have the potential to contribute to cumulative impacts with the proposed project.

5.0.0.13 U.S. Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project

Caltrans District 3 is working on constructing High Occupancy Vehicle lanes and rehabilitating pavement on US 50 from I-5 to Watt Ave. This project will include activities such as adding a carpool lane to each direction of U.S. 50, replacing pavement, constructing retaining walls, improving ramps, widening bridges, raising bridges, replacing signs, and replacing lighting (Caltrans 2022). This work has required lane closures, lane shifts and speed limit reductions on U.S. 50 (Caltrans 2022). Work will require pile driving and other loud construction activities (Caltrans 2022). Construction for this work is scheduled to be finished by the end of 2024 or early 2025 (Caltrans 2022). Caltrans work on Highway 50 may exacerbate traffic effects for hauling materials generated by the multiple Civil Works activities going on in the region at the same time.

5.0.0.14 Lower American River Anadromous Fish Habitat Restoration Project

The City of Sacramento and the U.S. Bureau of Reclamation (BOR) proposes to replenish spawning gravel, to create/enhance side channel, floodplain habitat and in-stream habitat structures between RM 13 and 23 of the LAR (City of Sacramento and BOR 2019). This would

involve a maximum 30,000 tons of gravel placed in the LAR yearly, not to exceed a total of 450,000 tons over the 16-year duration of the project (City of Sacramento and BOR 2019). This project would result in an enhancement of the substrate for the anadromous fishery (steelhead and fall-run/late fall-run Chinook salmon).

5.0.0.15 City of Sacramento Water Treatment Plants Resiliency and Improvements Project

The City of Sacramento is proposing to replace aging infrastructure at the E.A. Fairbairn Water Treatment Plant, which is between Sacramento State University and Howe Avenue on the south bank of the American River. This project consists of rehabilitating aging infrastructure, integrating ozone generation and contact, and conversion from chlorine gas treatment to sodium hypochlorite at both the E.A. Fairbairn Water Treatment Plant and the Sacramento River Water Treatment Plant (City of Sacramento 2022).

5.0.0.16 Interstate 80 Corridor Improvement Project

The California Department of Transportation proposes to construct improvements consisting of managed lanes, pedestrian/bicycle facilities, and Intelligent Transportation System (ITS) elements along Interstate 80 (I-80) and United States Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 on US-50 in Sacramento County.

The project proposes to add auxiliary lanes at eastbound I-80 between Old Davis Rd and Richards Blvd and WB I-80 between Jefferson Blvd and Harbor Blvd, widen the roadway to the median or to the outside, cold planning, reconstruction of roadway structural sections, construction of Clear Recovery Zone, extension or replacement of existing cross culverts, installation of ITS components and overhead signs, restriping, potential construction of soundwalls, modification of roadside ditches, bicycle and pedestrian facility improvements, and installation of a new park and ride facility. This would enhance multi-modal infrastructure and recreational opportunities in the region.

5.0.0.17 Mayhew Drainage Channel Closure Structure Gate Hoist Improvement Project

The project proposes to install a catwalk structure with mechanisms for safely lifting and securing the closure structure steel flap gates across the Mayhew Drainage Channel. The Mayhew Drainage Channel drains an area south of the American River and west of Bradshaw Road known as Mayhew Slough. Near the connection of the channel with the American River, there is a control structure with steel flap gates, which function to prevent backflow from the river up the channel during high water elevation in the American River.

The Mayhew Drainage Channel Closure Structure Gate Hoist Improvement Project proposes to install a catwalk structure with mechanisms for safely lifting and securing the closure structure steel flap gates across the Mayhew Drainage Channel to permit maintenance of the structure and removal of debris from behind the gates without the risk of accidental closure. The catwalk structure will be anchored on the walls of the drainage channel so that there would be no ground disturbance while constructing the catwalk. A concrete pad will be built to the east of the channel

that will be used as a staging area for the project. The lifting mechanism would be housed on a trolley that would be moved along the catwalk, which would then lift the steel flap gate. With the gate open, maintenance workers and equipment can access the channel area behind the gate. Construction is planned for {Add season and year} occurring over approximately 3 months. As planned, construction would occur during the day with no nighttime activities.

5.0.0.18 Interstate 5 Richards Boulevard Interchange Project

The City of Sacramento proposes the I-5 Richards Boulevard Interchange Improvements Project to alleviate traffic congestion at I-5 and Richards Boulevard Interchange during peak commute hours. Congestion is expected to worsen as future development occurs in the area unless improvements are made to the transportation system. The project will address long-term solutions including improvements relating to congestion and accommodations for future traffic volume as the region continues to grow. The interchange will be designed to accommodate a 20-year traffic forecast from the year it is completed.

The proposed project includes four alternatives and bicycle and pedestrian connections. Three of the alternatives are variations of a type of interchange referred to as a diverging diamond interchange (DDI). The DDI is an alternative to conventional interchange forms because it is designed with directional crossovers between signals. This eliminates the need for left turning vehicles to cross the paths of approaching through vehicles. Project construction is expected to be completed in 2023.

5.0.0.19 North 16th Street Improvements

The City of Sacramento is developing concepts to revitalize the 16th Street and North 16th Street corridor between H Street and Richards Boulevard through streetscape improvements.

The River District Specific Plan, adopted in 2011, envisioned North 16th Street as an area for eclectic and lively arts, entertainment and commercial use that will attract visitors and shoppers. This project will contribute to the goals of the plan through the implementation of improvements to make the corridor attractive and inviting to businesses, customers, and pedestrians. Proposed improvements will include new curb, gutter and sidewalk, landscaping, signage and lighting, along with re-stripping the travel lanes to accommodate on-street parking.

This project will create a corridor that is friendly and inviting for pedestrians, and attractive for new and existing businesses and visitors through sidewalk improvements, landscaping, lighting, public art, and the addition of parking. Due to funding constraints, this project has been put on hold and construction has not been scheduled. However, it may be funded towards the end of the construction window for the Proposed Action.

5.0.0.20 Capitol Conservation Bank

Yolo County Planning and Public Works completed the Capitol Conservation Bank project in 2014. The is a Use Permit, a Flood Hazard Development Permit, and a Williamson Act Successor Agreement, to construct the first and second phases of a 320--acre wildlife conservation bank for the giant garter snake, an endangered species. The property is located at

the north end of County Road (CR) 107 and east of CR 152 within Yolo Bypass area, approximately 10 miles southeast of the City of Davis.

5.0.0.21 Decker Island Tidal Habitat Restoration Project

The DWR Fish Restoration Program (FRP) acquired approximately 140 acres on Decker Island in 2015 for tidal wetland restoration. Decker Island is bordered on the west by the Sacramento River and on the east and south by Horseshoe Bend. The goal of the project is to restore unrestricted tidal connectivity to the interior of Decker Island to create a tidal wetland and associated high marsh, and riparian habitats on the site to benefit native fish species. To achieve this goal, the project will involve breaching the perimeter levee to restore tidal hydrology to the site. The project consists of restoration planning, modeling, design, permitting, construction, and monitoring.

5.0.0.22 Rio Vista Estuarine Research Station

DWR and USFWS propose to construct the Delta Research Station (DRS). The DRS would consolidate ongoing Interagency Ecological Program (IEP) research and monitoring activities throughout the San Francisco Bay-Sacramento-San Joaquin River Delta (Bay-Delta) and provide facilities for study and production of endangered Delta fishes. The two main facilities that would make up the DRS are the Estuarine Research Station (ERS) and the Fish Technology Center (FTC).

The purpose of the DRS is to enhance interagency coordination and collaboration by developing a shared research facility. The ERS would consolidate existing IEP program currently located throughout the Delta, and the FTC would house a new program to develop and apply captive propagation technologies in support of population restoration. Currently, federal and state agency staff working on similar Bay-Delta issues are distributed among different locations that are often remote from the Bay-Delta. Construction and operation of the DRS would reduce travel times and costs and improve research and monitoring activity efficiency.

5.0.0.23 Dutch Slough Tidal Marsh Restoration Project

The Dutch Slough Tidal Marsh Restoration Project is one of the first major tidal wetland restoration sites in the Sacramento-San Joaquin Delta to be implemented by DWR. The project is also part of California EcoRestore, an initiative to coordinate and advance at least 30,000 acres of critical habitat restoration in the Delta by 2020.

The project has three main goals: 1) Benefit native species by re-establishing a natural ecological network, especially for Delta species currently in decline; 2) Contribute to scientific understanding of ecological restoration in the Delta; 3) Provide shoreline access, education, and recreational opportunities.

The Dutch Slough Project is located on the west Delta, within Oakley, a city with a population over 40,000 in Contra Costa County. It contains three parcels located on the western edge of the Delta. Before construction, Dutch Slough originally sat along a high-grade slope, with site elevations ranging from six feet above sea level to six feet below sea level. In May 2018, DWR began smoothing the grade of that slope by excavating soil from higher elevations and moving it

to lower elevations. The grading and channel excavation and initial revegetation efforts are complete now. DWR, along with River Partners, planted about 25,000 tule plugs and 50,000 shrubs and trees. Following approximately 1.5 years of plant growth, a levee breach will allow water from the Delta channels to flow in and out with the daily tides. Ultimately, the project will reestablish a tidal marsh, creating a rich habitat for fish and wildlife.

5.0.0.24 Lambert Road Flood Flight

Sacramento County submitted a Notice of Preparation of a Draft EIR for the Lambert Road Flood Flight Project in July 2018. The proposed project involves deploying a 1,500 linear foot "flood fight barrier", during a flood, within the Lambert Road right-of-way as it crosses Snodgrass Slough to reduce flood flows from overtopping the roadway into the Point Pleasant community. The barrier will be placed on the bridge, extending into both the east and west approaches and will consist of K-rail and/or other flood resistant material. The anticipated barrier may range from 24 to 32 inches in height.

5.0.0.25 Lindsey Slough Freshwater Tidal Marsh Enhancement Project

The Lindsey Slough Freshwater Tidal Marsh Enhancement Project is located within the Delta region in Solano County, California. The Calhoun Cut Ecological Reserve is located on the northwest edge of the Delta, west of the confluence of Lindsey Slough, Barker Slough, and Calhoun Cut. The Solano Land Trust and CDFW, owner of the property, developed a restoration plan for the Reserve to enhance aquatic, wetland, and riparian habitats.

The goal of the Project is to benefit native floral and faunal species and improve water quality. This would be accomplished by restoring a connected freshwater tidal marsh riparian community, along with other significant wetland habitat, in the vicinity of Calhoun Cut, without adversely impacting surrounding land and water uses. The restoration of the tidal channel system to Lindsey Slough consists of removing several existing features that restrict flow through the slough and excavating starter channels to initiate evolution of the slough channel.

5.0.0.26 Lisbon Weir Fish Passage Enhancement

The Lisbon Weir Modification Project is located in the Tule Canal/Toe Drain at the Lisbon Weir structure in the Yolo Bypass, adjacent to the Yolo Bypass Wildlife Area owned by CDFW in Yolo County. The Lisbon Weir is maintained and operated by Los Rios Farms consistent with the terms of the 1991 Mace Ranch Agreement. There is currently no state or federal project description developed for modifications to the Lisbon Weir, although conceptual designs have been proposed by engineers at the California Department of Water Resources that include raising the existing flap gate structure, constructing a high and low rock ramp, and creating a new flap gate structure.

5.0.0.27 Lower Putah Creek Realignment Project

The Lower Putah Creek Realignment Project, proposed by Yolo Basin Foundation, DWR, and BOR, will restore ecological functions and enhance fish passage in Lower Putah Creek, from the Putah Diversion Dam through the Yolo Bypass Wildlife area (YBWA). For the purposes of project planning, Lower Putah Creek has been divided into two reaches: the Upper Reach, from

the Putah Diversion Dam to the western boundary of the YBWA; and the YBWA reach, from the western boundary of the YBWA to the Toe Drain.

This project description focuses on the YBWA Reach, which lies entirely within the Yolo Bypass (the Upper Reach lies outside the bypass, except for an approximately 2.5-mile reach between the western Yolo Bypass Levee and the YBWA boundary). The 2009 National Marine Fisheries Service Biological Opinion on the coordinated Long-Term Operations of the Central Valley Project and State Water, Reasonable and Prudent Alternative (RPA) Action I.6.3 focused on the Lower Putah Creek YBWA reach. On the YBWA reach, the project would create a new, realigned channel from the existing Putah Creek channel at the western YBWA boundary that would cross the YBWA, connect to tidal channels previously restored by CDFW at the southeast end of the YBWA, and enter the Toe Drain downstream of Lisbon Weir. The channel design would provide fish passage for salmonids, increase area of wetland habitat subject to tidal influence in the CDFW restored tidal area, and increase the area of floodplain rearing habitat for species of management concern (specifically salmonids).

This project is located in the Yolo Bypass along the existing Lower Putah Creek channel, including the Los Rios Check Dam, and the realigned creek will go through the recently restored tidal marsh habitat on the California Department of Fish and Wildlife's Yolo Bypass Wildlife Area in Yolo County (site map attached). The Los Rios Check Dam is owned by CDFW and operated by Los Rios Farms. The new infrastructure would be owned and operated consistent with the current agreement.

5.0.0.28 Lower Yolo Ranch Restoration Project

The Lower Yolo Ranch Tidal Restoration Project is located in the Delta. The project will restore about 1,670 acres on a site which has historically been used for pasture/cattle grazing. The project is a collaboration between multiple agencies including DWR and the site owner, Westlands Water District, which serves western Fresno and King counties. Westlands plans to transfer long-term ownership of the site to DWR upon final crediting approval. DWR and its partner, the California Department of Fish and Wildlife, will ensure long-term land management and will monitor habitat establishment and performance.

The tidal wetland restoration includes new tidal channels, berm breaches, new tide gates, new diversion structures, a relocated lift pump structure, new drainage ditches, and integration with irrigated agriculture. Project restoration will have no impacts on levees or flood protection abilities of the bypass. The Lower Yolo Ranch restoration effort will provide approximately 1,700 acres for Delta Smelt, 1,800 acres of salmonid rearing habitat, and 1,200 acres of Swainson's Hawk habitat and an agricultural easement (on Westlands Water District retained lands).

5.0.0.29 Montezuma Wetlands Restoration Project, Phase I

The Montezuma Wetlands Restoration Project, owned and operated by the Montezuma Wetlands LLC, is located Solano County, at Montezuma Slough near the eastern end of the Suisun Marsh and aims to restore 1,800 acres of tidal wetlands. Phase 1 of the project consists of tidal and seasonal wetland restoration on approximately 630 acres of currently diked baylands. The project includes initial placement of dredged materials to raise the site elevation followed by additional

construction activities and then breach of the existing dikes to enable tidal action on the site. Most of the dredged material has been placed.

5.0.0.30 North American Wetlands Conservation Act 3 – Lower Putah Creek Floodplain Restoration

The Lower Putah Creek Floodplain Restoration project is located in Lower Putah Creek, adjacent to I-505 and the City of Winter, CA. The site area north of the creek is owned by the City of Winters and south of the creek is owned by Solano County. The purpose of the project is to improve fish and wildlife habitat by improving the form and function of the creek's floodplain and low-flow channels. The primary action of the project is grading for the purpose of increasing the floodplain areas that is suitable for natural recruitment and growth of high value native plants and narrowing a wide segment of the low-flow channel to reduce water temperatures for the benefit native aquatic life, such as chinook salmon and rainbow trout.

5.0.0.31 North Delta Fish Conservation Bank

The 811-acre North Delta Fish Conservation Bank (Bank) is located on Liberty Island within the Yolo Bypass in Yolo County, California. The Bank lies on the northern tip of the island next to the Liberty Island Conservation Bank. The goal of the North Delta bank is to restore, enhance and manage habitat beneficial to Delta fish species. Restoration activities at the Bank will create and enhance accessible rearing habitat consisting of tidal marsh complex (a mosaic of tidal emergent marsh, seasonal wetland, interior riparian scrub shrub, and shallow open water habitat), tidal channel, open water, upland level, tule SRA, and riparian SRA.

The bank was approved by USFWS, CDFW, and NMFS for projects requiring salmonid, Delta smelt, and longfin smelt mitigation. The service area for salmonids and Delta smelt includes the boundaries of the Delta, while the longfin smelt service area includes the Delta, Honker Bay, Suisun Bay, Grizzly Bay, San Pablo Bay, San Francisco Bay, the Napa River, and any major tributaries as approved by CDFW.

5.0.0.32 North Delta Flood Control and Ecosystem Restoration Project

The North Delta Flood Control and Ecosystem Restoration Project consists of flood control and habitat improvements where the Mokelumne River, Cosumnes River, Dry Creek, and Morrison Creek converge. Flood flows and high-water conditions in this area threaten levees, bridges, and roadways. The project will reduce flooding and provide contiguous aquatic and floodplain habitat along the downstream portion of the Cosumnes River Preserve by modifying levees on McCormack-Williamson Tract and at Grizzly Slough.

The project is implemented by BOR with the goal of improving flood protection while restoring floodplain and tidal marsh habitats.

5.0.0.33 Prospect Island Tidal Habitat Restoration Project

Prospect Island is a 1,600-acre property located in southeast Solano County, in the northwestern part of the Delta. The site is bound on the east by Miner Slough, on the west by the DWSC, on the south by the confluence of the DWSC and Miner Slough, and on the north by an east-west

levee that runs from Arrowhead Harbor Marina to the DWSC. It is located just east of the naturally restored 4,500-acre Liberty Island. Both the northern, 1,300-acre portion and the southern, 300-acre portion of Prospect Island are owned by DWR.

The project aims to restore between 1,000 and 1,500 acres of tidal and sub-tidal restoration. Specific project objectives include to enhance productivity and food availability for Delta Smelt and other native fishes, increase salmonid rearing habitat, increase habitat to support other listed species, provide ecosystem benefits including water quality enhancement, recreation, and carbon sequestration, promote future habitat resiliency, and avoid establishment or spread of exotic invasive species.

5.0.0.34 South Canal Diversion Fish Screen Project

The South Canal Diversion Fish Screen Project, implemented by the Yuba County Water Agency, will improve the South Canal Diversion on the Yuba River by replacing the existing rock gabion fish barrier with a state-of-the-art fish screen facility to eliminate entrainment of salmonids and other native fish within the South Canal Diversion Pond and the South Canal while maintaining water deliveries to irrigators and minimizing long-term maintenance and repair costs. Funding will be used to complete environmental compliance, identify the preferred project, design the project, and obtain permits to advance the project to the implementation phase. The project would protect juvenile anadromous fish in the Yuba River by improving the South Canal intake.

5.0.0.35 Fremont Weir Adult Fish Passage Modification Project

The Fremont Weir Adult Fish Passage Modification Project is located in the Upper Yolo Bypass. The Fremont Weir is owned by the Sacramento-San Joaquin Drainage District and agricultural crossing are owned by Knaggs Ranch.

The project improves adult fish passage at the Fremont Weir along the Tule Canal by widening and deepening the existing fish ladder at the Fremont Weir. The maximum flow through the fish passage structure is limited to approximately 1,100 cubic feet per second, and the upstream and downstream adjoining channels are reconfigured to accommodate migratory fish passage. Replacement of an existing earthen agricultural road crossing with a permanent crossing allows for clear passage of migratory fish.

5.0.0.36 Tule Red Tidal Restoration Project

The Tule Red Tidal Restoration Project restored 420 acres of marsh habitat on the eastern edge of Grizzly Bay in the Suisun Marsh. The project provides self-sustaining tidal marsh to benefit listed fish and wildlife species, including Delta Smelt, Longfin Smelt, and Salmonids. The restoration of Tule Red contributes to the 8,000-acre tidal marsh restoration requirements for the Central Valley Project and State Water Project Long-term Operational Criteria and Plan (OCAP) Biological Opinion.

5.0.0.37 Winter Island Tidal Habitat Restoration Project

The Winter Island Tidal Habitat Restoration Project restores tidal connectivity to the interior of Winter Island to create aquatic habitat at intertidal and shallow sub-tidal elevations, associated

high marsh, and riparian habitats on the site to benefit native fish species. The goal of the project is to restore unrestricted tidal connectivity to the interior of Winter Island to create tidal wetland, associated high marsh, and riparian habitats on the site to benefit native fish species. To achieve this goal, the project breached the perimeter levee to restore tidal hydrology to the site.

5.0.0.38 Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project

The Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (the Big Notch Project) is a 30,000-acre floodplain habitat restoration and fish passage project in the Yolo Bypass in Yolo County. The project will expand floodplain rearing habitat for juvenile salmon and improve access through the bypass for salmon and sturgeon, which is pivotal to the recovery of these threatened and endangered fish species. Part of the project includes the removal of a section of the Fremont Weir, the installation of three gates, the excavation of 180,000 cubic yards to carve a new path for salmon, and construction of a control building and pedestrian bridge.

When the project is finished in late 2023, the gated passage, or notch, will be opened when the Sacramento River is high enough to flow into the Yolo Bypass floodplain. The water will enter the bypass through the notch at Fremont Weir and create shallow-water habitat for fish to easily migrate through the area. Juvenile salmon will be able to feed in a food-rich area for a longer time, allowing them to grow more rapidly in size, improving their chances of survival as they travel to the Pacific Ocean. Adult salmon and sturgeon will benefit from improvements that will reduce stranding and migratory delays due to passage barriers.

5.0.0.39 Yolo Flyway Farms Restoration Project

The Flyaway Farms Tidal Habitat Restoration Project was completed by DWR to restore sub-tidal, intertidal, and seasonal wetlands to benefit native fish species. The project is located adjacent to the Tule Canal at the southern end of the Yolo Bypass in southern Yolo County. The project involved restoring and enhancing approximately 300 acres of tidal freshwater wetlands and an additional 30 acres of seasonal wetlands by reconnecting the Project site to tidal action. The project excavated interior channels and graded and planted benches to support tidal wetland habitat. The channels were connected to tidal action by excavating a connection to the Tule Canal. Construction was completed in 2018.

5.0.0.40 Sump 151 Pump Outfalls Replacement Project

The City of Sacramento will be replacing the outfalls for Sump 151, which is located on the right bank of the American River near Lathrop Way, just upstream of the American River Erosion Contract 4A project site. Work is anticipated to be completed in 2024.

5.1 Cumulative Impacts Analysis

5.1.1 Transportation and Circulation

The 2016 ARCF GRR Final EIS/EIR did not evaluate cumulative impacts to Transportation with the compressed construction calendar that is currently proposed. Some other ARCF 2016 Projects, discussed in the No Action Alternative, could have overlapping haul routes if there are schedule delays for these existing projects. In particular American River Contract 3A has

overlapping haul routes with American River Contract 3B along a portion of Howe Avenue, Hurley Way, Ethan Way, Exposition Boulevard, and Arden Way. Overlapping haul routes would result in potentially more severe impacts to transportation-related programs, ordinances or policies, increased transportation-related hazards, and inadequate emergency access.

Cumulative transportation impacts could result if the Interstate 80 Corridor Improvement Project that is planned for implementation by the California Department of Transportation (Caltrans) were to occur at the same time as the Proposed Action. Additionally, overlapping haul routes exist with the American River Mitigation Project and American River Contracts 4A and 3B due to primary haul routes on the I-80 corridor specifically along I-80 Business. Heavy trucks would be transporting materials via these routes to access project sites, which are expected to have an impact on traffic congestion and traffic patterns. Construction for the I-80 Corridor Improvement Project is expected to begin in 2025 during which time through-traffic is expected to increase in the above-mentioned areas.

Other potential cumulative impacts to transportation include overlap with the Interstate 5 Richard Boulevard Interchange Project and American River Contract 4A. The I-5 Interchange at Richards Boulevard will be in final design by summer 2023, so construction in 2025 or 2026 could potentially interfere with construction haul routes for the American River Contract 4A, which include Richard Boulevard and I-5. This would be a considerable contribution to a significant cumulative impact on traffic.

In addition, Caltrans is implementing the U.S. 50 Multimodal Corridor Enhancement and Rehabilitation Project which has project components on U.S. 50 from I-5 to Watt Avenue, potentially overlapping with haul routes for American River Contract 3B. Construction is expected to occur in 2025 and 2026 resulting in potentially considerable cumulative impacts to transportation as both projects may increase traffic on nearby local routes.

Transportation mitigation measures for American River Contract 4A and 3B include implementation of a traffic control plan under TRANS-1. Transportation impacts including conflicts with local plans, policies, or ordinances and increased transportation hazards for project components are determined to be significant and unavoidable; similarly, cumulative impacts would remain significant and unavoidable. Implementing TRANS-1 would reduce impacts related to inadequate emergency access and therefore would not result in a cumulatively considerable impact.

5.1.2 Recreation

Because of the high recreational value of the American River and Sacramento River, any major project that occurs within the American River Parkway or along the Sacramento River could have a significant cumulative impact to recreation if the timelines of the projects are close. Because the Proposed Action and related projects require closures and disruptions to portions of nearby parks and recreational areas, impacts to recreation would be unavoidable.

Previously completed work from the ARCF 2016 Project that would be completed in the years just prior to the Proposed Action could have a significant cumulative impact on recreation resources in the area due to the closure and disruption to some recreational facilities and increased use of other nearby recreational facilities. Also, if there are schedule delays for

previous ARCF 2016 Project, there could be larger portions of the American River Parkway or the Sacramento River Parkway closed at once. In addition, a higher density of local parks could be closed at once. In particular American River Contract 3A is upstream of American River Contract 4A and downstream of American River Contract 3B. Overlapping construction work could close a large portion of the American River Parkway. In addition, if the Sacramento River Bank Protection Project, the West Sacramento GRR Project, and restoration projects associated with the Folsom Dam Raise occur within a few years of the Proposed Action, there would be a short-term significant cumulative impact on recreation in the American River Parkway and along the Sacramento River. Since the Proposed Action is along long stretches of riverbank for both the American River and Sacramento River, the Proposed Action would result in a considerable contribution to the short-term significant cumulative impact on recreation.

There are many upcoming projects within the Delta. If many of the projects occur at the same time as the Proposed Action, the Proposed Action could contribute to a significant cumulative impact on boaters in the area. The SRMS, Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Lookout Slough Tidal Habitat Restoration and Flood Improvement Project, Prospect Island Tidal Habitat Restoration Project, and Winter Island Tidal Habitat Restoration Project could all have a short-term significant cumulative impact on boaters wanting to recreate in the area if the timelines are close enough. All these projects involve work near the riverbank, so during construction the riverbank views could degrade the recreational experience of boaters, especially if many projects in the area have riverbank work around the same time. The Proposed Action would include habitat mitigation over time, so over time the vegetation would regrow and return to the natural visual state. However, during the first several years of vegetation growth, there would be little to no vegetation on site due to the time needed for vegetation to mature. Additionally, all these projects, except for the Rio Vista Estuarine Research Station, include habitat improvement and would result in a significant cumulative impact due to project overlap and the time needed for vegetation to mature onsite. The Proposed Action would result in a considerable contribution to significant cumulative impact if the Proposed Action timeline overlaps with the other projects.

5.1.3 Public Utilities and Services

Impacts to public utilities and service systems, such as temporary interruptions of natural gas, electric service, telecommunications, water and sewer systems would be short-term and temporary in nature for all project components and Alternatives being considered for the proposed revisions to the ARCF 2016 Project. Whether or not a line is relocated, or protected in place, the impact to the human environment is the interruption in service. Since these interruptions would be temporary in nature, cumulative impacts are unlikely. This project would not be associated with a permanent increase in use of public utilities or services; therefore, cumulative effects would be limited to effects to communities where numerous construction projects occur within the same general time period.

A review of reasonably foreseeable future actions which could affect public utilities and service systems in the same communities includes the Sacramento River Bank Protection Project, the I Street Bridge replacement, the Folsom Dam raise Project, the U.S. Highway 50 Multimodal Corridor Enhancement and Rehabilitation Project, the City of Sacramento Water+ Treatment Plants Resiliency and Improvements Project, and the Interstate 80 Corridor Improvement

Project. Construction of these projects could result in service interruptions to communities surrounding the project area. Many of these projects could be completed during a similar time frame and it is possible for some communities to be subjected to numerous service interruptions. However, the amount of work able to be accomplished at one time would be limited by the labor and materials markets. Further, since all projects would endeavor to keep service interruptions to the shortest time frame achievable, it is unlikely that even taken together, they could rise to the level of a significant cumulative effect, provided all projects incorporate needed mitigation measures, such as coordinating with affected utility owners and provides, to reduce their impacts to the extent achievable.

5.1.4 Land Use and Prime and Unique Farmlands

The Proposed Action would not divide established communities or conflict with land use policies enacted to reduce or avoid environmental effects because the levee systems and canals are already in place and the proposed alterations would not create new barriers for established communities. Additionally, proposed improvements have been designed to comply with local land use policies, and implementing construction actions such as saving onsite vegetation where feasible would reduce impacts. Additionally, mitigation measures are included to avoid, and where needed compensate, for unavoidable impacts. The Proposed Action would not significantly affect Important Farmland, and effects on forest land would be short-term because mitigation measures would require construction of additional riparian forest habitat to replace habitat lost because of implementing the project. There would be no significant cumulative impact on division of established communities or land use conflict from the related projects because they would be constructed on the existing flood protection system outside of established communities and would not result in the need for land use changes. Implementing Alternative 5b would result in the conversion of 227 acres of Important Farmland to nonagricultural use. If this Alternative is implemented, it would make a considerable contribution to a significant cumulative impact on the loss of agricultural land in Yolo County.

5.1.5 Environmental Justice

Construction of the Proposed Action could result in temporary effects to surrounding disadvantaged communities, particularly by disrupting transportation to schools near the Magpie Creek, by potentially displacing unhoused individuals residing on the American River and Magpie Creek, and by contributing to burdens experienced by disadvantaged communities in the project area, including exposure to airborne PM2.5 and traffic proximity and volume. It is possible that other flood risk management projects occurring in the same general area, such as additional components of the ARCF 2016 Project, Sacramento River Bank Protection Project, the West Sacramento General Reevaluation Report project, ARCF Natomas Basin Project, and restoration projects associated with the Folsom Dam Raise, could be simultaneously constructed with elements described in the Proposed Action, which could exacerbate adverse effects. However, coordination with organizations representing EJ communities in the area (e.g., school district(s) and advocacy groups) and the development of traffic control plans would allow for consideration of all potential impacts from nearby projects and ensure that effects are minimized. In this way, the Proposed Action would not create significant adverse effects.

In conjunction with the other flood risk management projects in the greater Sacramento area, the authorized project would contribute to cumulatively beneficial impacts to communities within and surrounding the project area by reducing the risk of flooding that could result in catastrophic loss of lives and irreparable damage to homes and businesses.

5.1.6 Socioeconomic Conditions

The 2016 ARCF GRR FEIS/EIR did not analyze cumulative impacts to socioeconomic conditions directly. The purpose of the authorized project would provide higher beneficial impacts, rather than negative outcomes, to the City and County of Sacramento. The Proposed Action would reduce the risk of flooding that could result in the catastrophic loss of lives, irreparable damage to homes and business, and would have compounding socioeconomic impacts.

The implementation of multiple flood risk reduction projects in the greater Sacramento area would result in minor socioeconomic impacts due to business entrances temporarily being rerouted and the potential for relocation of a few residences and businesses. These projects would include the Sacramento River Bank Protection Project, the Natomas Basin Project, the West Sacramento Project Yolo Bypass East Levee, and restoration projects associated with the Folsom Dam Raise could be simultaneously constructed. Thorough consideration of project alternatives and ongoing adaptive engineering design to human and natural constraints would prevent the need to remove housing or require substantial displacement and relocation of residents.

There would be increased likelihood with simultaneous construction to displace groups of the unhoused population that camp along the American and Sacramento Rivers. Widespread construction would reduce available sites for people to migrate to. As a part of ongoing levee maintenance, the local maintaining agency does require relocation of encampment of unhoused people on and within 25 feet of the levee. While construction could cause more frequent disruptions of these encampments, it would be within the authority of the project and be required for the safety of people, that no member of the public would be permitted to reside within the construction limits. Encampments within 25 feet of critical safety infrastructure (including levees) are subject to relocation under existing City and County codes and ordinances even in the absence of active construction. Therefore, the impacts to the unhoused population of the greater Sacramento area would be less than significant and no mitigation would be required.

While the purpose of the ARCF 2016 Project and other Federal actions, such as Sacramento River Bank Protection Project, is to provide flood risk reduction to communities, the levee improvements do not substantially protect new additions in the existing floodplains. Cumulatively, the projects do not induce development in the floodplain. Short-term construction related economic growth would occur, however, it is expected that the large available workforce within the Sacramento region would provide most of the construction workers needed. Generally, no new housing would be needed as these workers would be expected to already live locally and commute daily to the project sites.

Projects in the Delta, including the SRMS, Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Prospect and Winter

Island Tidal Habitat Restoration Project, would result in temporary economic growth as goods and services would be needed in the small towns of Rio Vista and Isleton. Projects in this area are geared towards habitat restoration and mitigation; therefore, no new housing or development would be constructed as part of the Proposed Action. The Proposed Action and related projects would not result in a cumulatively considered impact to socioeconomic conditions.

5.1.7 Aesthetics/Visual Resources

Any levee work requiring vegetation clearing that occurs prior to the establishment of mitigation vegetation associated with the Proposed Action would cause significant cumulative visual impacts to scenic vistas, scenic resources, and visual character and quality, to both the American and Sacramento Rivers. Both rivers have high visual character and viewer sensitivity. Since removed vegetation takes years to grow back, any project removing vegetation would add to the visual degradation of the area until vegetation grows. Projects within the ARCF 2016 Projects outlined in the No Action Alternative, Sacramento River Bank Protection Project and West Sacramento General Reevaluation Report would likely cause a short-term significant cumulative impact on the natural views along the Sacramento and American Rivers if work starts within 3-5 years of the Proposed Action. Since some portions of the Sacramento River Erosion Contract 3 do not include planting benches, if other projects along the Sacramento River are not replanting as well, there would likely be a long-term significant cumulative impact on the natural views given that the area would look barren and lacking in vegetation. Because the Proposed Action would cause visual impacts along long stretches of the American River and Sacramento River, the Proposed Action would make a cumulatively considerable incremental contribution to a significant cumulative impact.

Projects within the Delta near the SRMS could similarly have a cumulative impact on the natural look of the area if projects are close in timeline. Specifically, the SRMS, the Decker Island Tidal Habitat Restoration Project, Rio Vista Estuarine Research Station, North Delta Fish Conservation Bank, Prospect Island Tidal Habitat Restoration Project, and Winter Island Tidal Habitat Restoration Project could cumulatively impact the natural views of the area if work on multiple projects is performed closely in time such that vegetation does not have sufficient time to establish or takes longer to re-establish than anticipated. Because the SRMS could be contributing to the disturbance of natural views along the Sacramento River, the Proposed Action would make a cumulatively considerable incremental contribution to a significant cumulative impact on visual resources. No feasible mitigation measures are available to avoid or reduce this considerable contribution such that it is a significant and unavoidable cumulative impact.

5.1.8 Geologic Resources

Construction activities associated with most of the Proposed Action 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. The Proposed Action and related projects would disturb more than 1 acre of land and therefore is required by law to comply with NPDES discharge permits from the Central Valley RWQCB, which require preparation of a SWPPP and implementation of the SWPPP's erosion control BMPs. Therefore, there would be no significant cumulative effect related to construction-related erosion and the

Proposed Action would not make a cumulatively considerable incremental contribution to a significant cumulative effect related to geological resources.

If not addressed, erosion-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 sites. However, the Proposed Action and related projects would implement erosion control and levee improvement measures that would reduce the risk of levee failure. Therefore, the Proposed Action would not cumulatively increase the risk of levee failure but would reduce flood risk and related substantial erosion. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative impacts related to erosion.

The Proposed Action and most of the related projects would entail earthmoving activities in the Riverbank and/or Modesto Formations, which are considered to have high paleontologically potential (SVP 2010: 1). 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. However, the presence of unique paleontological resources is site-specific, and a low potential exists that any project, including the Proposed Action, would encounter unique, scientifically important fossils, and the cumulative impact would be less than significant.

5.1.9 Hydraulics and Hydrology

The ARCF GRR FEIS/FEIR stated that the past, present, and reasonably foreseeable actions at that time would not contribute to cumulative effects to hydrology and hydraulics. Most of the surrounding levee projects include levee raises, subsurface improvements, bank protection, flood walls, and other improvements to the existing levee system to meet flood design standards and are designed to not adversely affect hydrology or hydraulics. The Proposed Action requires additional in-water rock placement for launchable rock toe construction. On the Sacramento River, this action in combination with the Sacramento River Bank Protection Project and West Sacramento General Reevaluation Report projects, would result in additional material and plantings below the Sacramento River OHWM. However, the cumulative impacts on water surface elevation (WSE) from these projects will be addressed by the Sacramento Weir expansion that is currently under construction and will decrease flood flows entering the Sacramento River portion of the ARCF 2016 Project. On the American River, the Proposed Action also includes additional in-water rock placement. This additional rock and the in-water plantings, combined with the annual gravel placement of the Lower American River Anadromous Fish Habitat Restoration Project could result in a stage increase. The Lower American River Anadromous Fish Habitat Restoration Project would involve placing gravel upstream of the Proposed Action. The addition of gravel was modeled to not affect the streambed elevation downstream of RM 12 (City of Sacramento and BOR 2019). The model run (Pasternack et al. 2004) for the Lower American River Anadromous Fish Habitat Restoration Project determined that adding 30,000 tons per year would not affect the capacity of the LAR channel due to a sediment trap between RM 10.5 and 13.5. (City of Sacramento and BOR 2019). Because the USACE projects will be assessed for stage increase and because the Lower American River Anadromous Fish Habitat Restoration Project model showed that the project

was not anticipated to impact the streambed elevation below RM 12, there will not be a significant cumulative impact on hydrology.

5.1.10 Water Quality

When considered cumulatively, water quality impacts from the various past, present, and future projects could affect the project area and areas upstream and downstream. Projects which involve temporary construction-related activities similar to those considered under the Proposed Action, such as work adjacent to surface waters or placement of in-water materials have the potential to temporarily degrade water quality through introduction of sediment, contaminants bound to that sediment, or through the spillage of gas, oil, or lubricants used for the maintenance of construction equipment. These impacts are temporary in nature, but when multiple projects are occurring at once, could result in incrementally significant cumulative effects. Past, present, and future projects which involve vegetation removal would contribute to long-term or permanent cumulatively significant effects to water temperature.

On the Sacramento River, the Sacramento River Bank Protection Project would repair levees for erosion protection, while the West Sacramento GRR Project would address seepage, stability, height, and erosion concerns beginning in 2024. Both projects include repairs within the same geographic area and have the potential to be constructed at the same time and would require removal of vegetation along the Sacramento River. Construction of the I Street Bridge Replacement is planned between 2024-2027 and would likely coincide with construction of the Proposed Action. Additionally, the City of Sacramento conducts annual maintenance dredging at Miller Park, upstream of Sacramento River Erosion Contract 3. All these projects would require mitigation measures for construction-related sediment inputs into the river; however, even with these measures the simultaneous construction could contribute to cumulatively considerable incremental contribution to sedimentation and turbidity increases in the river. These effects would be temporary for the duration of construction. Vegetation removal as part of these projects, in combination with the vegetation removal that is planned for other erosion contracts from the ARCF 2016 Project, could contribute to long-term cumulatively considerable incremental contribution to temperature increases and nonattainment of beneficial uses along the Sacramento River.

On the American River, the Lower American River Anadromous Fish Habitat Restoration project is located just upstream of American River C3B and involves placing a maximum of 30,000 tons of gravel yearly into the river for the replenishment of spawning habitat. This would coincide with construction of the Proposed Action with potential cumulatively significant turbidity effects, even with mitigation measures in place for construction. Cumulative water quality impacts and the Proposed Action's contributions would be significant and unavoidable.

5.1.11 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). However, a single project can exceed local air district emissions and contribute towards nonattainment or keep an area from achieving attainment. 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 such as watering exposed surfaces, limiting vehicle speed, minimizing idling time, etc. The full list of SMAQMD emission reduction practices is included in Mitigation Measure AIR-1. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit). Furthermore, the proposed project is part of the larger ARCF 2016 Project, which has been determined to meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NO_x emissions. Although the ARCF 2016 Project as a whole will exceed General Conformity *de minimis* thresholds for the Sacramento Federal Nonattainment Area in 2024, 2025, and 2026, the impact will be reduced to a less-than-significant level after implementing Mitigation Measures AIR-1 through AIR-5 because emissions in years where the *de minimis* thresholds would otherwise be exceeded would be offset to zero. Individual ARCF 2016 Project components, including those that are part of the No Action Alternative for this SEIS/SEIR, could be delayed or be constructed during different years than planned. Annual payments of fees and offsets to air districts would be made to reflect actual contracted work for a given year and additional offsets might need to be purchased to in some years to offset the additional NO_x emissions. Construction of the Proposed Action will not result in significant impacts individually to air quality and would not exceed Federal General Conformity *de minimis* thresholds after mitigation in either air basin. Therefore, the Proposed Action with refinements would not cause a cumulatively considerable incremental contribution to significant cumulative effects related to air quality.

5.1.12 Greenhouse Gas Emissions, Climate Change, and Energy Consumption

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 intended to address GHG emissions at a cumulative and even a global level. The Proposed Action and the related projects that would generate GHG emissions in excess of CEQA threshold levels would implement the mitigation measures and adopted to reduce emissions and/or purchase carbon offsets. Individual ARCF 2016 Project components, including those that are part of the No Action Alternative for this SEIS/SEIR could be delayed or be constructed during different years than planned. Some years there could be higher GHG emissions than what has been discussed in the SEIS/SEIR, these additional emissions would still be mitigated through measures to reduce emissions and/or purchase of carbon offsets. The proposed project 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 and distances traveled by construction equipment. The highest estimated year of GHG emission to construct the refined project would occur in 2025. Estimated at 13,842.92 MT CO₂e, this would equate to a 0.0034% increase in overall GHG emissions when comparing to 2021 GHG inventory total in Sacramento County of 4,026,910 MT CO₂e (Sacramento County 2023). Even with any cumulative impacts from the discussed local, state or federal projects, the proposed project 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.

5.1.13 Noise and Vibration

A cumulative effect might occur if construction activities associated with any of the related project(s) were to occur within 600 feet of daytime construction activities associated with the proposed project except for the SRMS, and within 1,200 feet during nighttime construction associated with MCP and the ARMS. Additionally, 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, this could result in a cumulatively considerable impact. Any of the related projects could require construction that exceeds the applicable local City or County noise ordinances or General Plans; however, the proposed project will limit noise-generating activities to the extent possible, to the hours when the City of Sacramento exempts construction noise. Nighttime construction activities would only occur as necessary to prevent a safety concern. Therefore, the proposed project is unlikely to 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 or in other applicable local, State, or Federal standards.

5.1.14 Hazards and Hazardous Materials

The Proposed Action would include use of small quantities of fuels, oils, and lubricants for operation of construction equipment. The construction contractors would be required to comply with all Federal, State, and local regulations for the storage, transport, use, and disposal of hazardous materials, as detailed in Mitigation Measure GEO-1. This includes preparation of a SWPPP, which details the methods to prevent releases into the environment and BMPs that detail storage requirements and measures for spill prevention and response. None of the sites considered under the Proposed Action are on existing lists of hazardous materials sites; and transport and disposal of contaminated materials is not anticipated. Therefore, any adverse hazards or hazardous materials effects would be localized to the areas under construction and would not result in a considerable incremental contribution to a significant cumulative effect when combined with other projects occurring in the same region. Construction of the Proposed Action could result in exposure to unknown hazardous materials sites not previously identified in database searches. If this occurs, the mitigation measures described in Section 4.3.8 Hazards and Hazardous Materials would minimize the potential exposure of humans and the environment and reduce likelihood of a considerable incremental contribution to significant cumulative effect related to hazardous materials.

5.1.15 Vegetation and Wildlife

Project implementation has the potential to contribute to the loss or degradation of sensitive habitats, riparian habitats, waters of the United States, waters of the State, and forestland. Similar anticipated adverse effects on habitats are associated with the flood-risk reduction and development projects, including the Natomas Basin Project, the Sacramento River Bank Protection Project, the Lower Elkhorn Basin Levee Setback Project, the West Sacramento GRR Project, the I Street Bridge Replacement Project, the Folsom Dam Raise, and other ARCF 2016 Projects; and the removal of vegetation that could pose a risk to levee integrity 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.

These affects, along with the historical decline of vegetation due to urbanization, would result in significant cumulative effects. Additionally, other local projects complying with the Corps' vegetation policy, that do not receive vegetation variance, could result in the removal of vegetation along waterways. Implementation of Mitigation Measures described in Section 4.4.1, *Vegetation and Wildlife*, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal Endangered Species Act and California Fish and Game Code (including the California Endangered Species Act) and other regulatory programs that protect habitats, such as Clean Water Act (CWA) Sections 401 and 404. The mitigation measures would be implemented in accordance with the recommendations of the Coordination Act Report; however, potential adverse effects on biological resources would remain significant due to the amount of habitat being removed to construct the project and the time lapse before the new plantings would mature to the level of those removed. Once all the mitigation and compensation plantings have matured to the level of those removed, the affects to biological resources would be less than significant because the new habitat would be similar to those removed over the 50-year life of the project.

5.1.16 Aquatic Resources and Fisheries

Potential cumulative effects on fish would include effects associated with other projects proposed to occur on the Sacramento and American Rivers. While short-term cumulative effects would be significant from the direct effects associated with construction, the implementation of these projects would in time result in a net benefit to fish from the construction of setback levees, planting berms, and other aquatic-based restoration programs being implemented as part of multi-benefit projects. The ARCF 2016 Project along with many other projects being considered for the region (Sacramento River Bank Protection Project, West Sacramento GRR, I Street Bridge Replacement Project, other phases of the ARCF 2016 Project, and the removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region) could result in Shaded Riverine Aquatic (SRA) impacts and limited opportunities for future SRA habitat mitigation. However, there are currently sufficient SRA habitat mitigation sites and planting areas to mitigate the impacts of known reasonably foreseeable projects in the region. Therefore, the ARCF 2016 Project would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects to fish, benthic macroinvertebrates and aquatic habitats.

With the implementation of USACE's proposed mitigation and compensation efforts for both the West Sacramento and ARCF 2016 Project, including the Proposed Action, significant cumulative effects on delta smelt, salmonids and green sturgeon would be minimized and replacement habitat compensation would be created for the remaining unavoidable impacts. Therefore, the ARCF 2016 Project would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on delta smelt, salmonids and green sturgeon.

5.1.17 Special Status Species

Project implementation has the potential to adversely affect special status species. Similar potential for adverse effects on special status species and their habitats would be associated with the flood-risk reduction projects, including future ARCF 2016 Project contracts proposed along the American River and Sacramento 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 nearby levee projects relate to plants, fish, and wildlife and would be associated with construction disturbances of special status species 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 Endangered Species Act and the California Fish and Game Code (including the California Endangered Species Act). Implementation of Mitigation Measures described in Section 4.4.3, Special Status Species, would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the Federal and California Endangered Species Acts, and other sections of the California Fish and Game Code. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on special status species.

5.1.18 Cultural Resources

Project implementation has the potential to impact and adversely affect significant cultural resources. These impacts would result, primarily, from the disturbance of previously unknown archaeological resources during construction activities, with potential regional impact implications if the resources are part of a historic district, landscape, or traditional cultural property of significance to a Native American tribe or tribes.

Adverse effects on cultural resources have already, or could occur, on similar flood-risk reduction and development projects, including the Natomas Basin Project, the Sacramento River Bank Protection Project, the Lower Elkhorn Basin Levee Setback Project, the West Sacramento GRR Project, the I Street Bridge Replacement Project, Folsom Dam Raise, and other ARCF 2016 projects. Similar impacts also have, or could occur, during vegetation removal by levee maintaining agencies in and around the Sacramento area.

The continued disturbance or destruction of archaeological materials, Native American ancestral burials, and other types of cultural resources on multiple projects will likely lead to the loss or degradation of information important for understanding, appreciating, and respecting past lifeways and cultures. At present, as described in Section 4.5.1, there are multiple local and regional construction projects involving ground disturbance, all of which could potentially impact known and currently unknown cultural resources. Given the extent of flood risk reduction, ecosystem restoration, infrastructure, and other construction projects in Sacramento and the surrounding area, cumulative impacts to nonrenewable cultural resources are likely.

Project improvements analyzed in this SEIS/SEIR, and other state and federal projects, would implement mitigation measures to address the effects caused by proposed actions. ARCF 2016 Projects are mitigating significant impacts to cultural resources as stipulated in the existing Section 106 PA; however, the mitigation of all adverse effects across multiple projects to the extent that cumulative impacts are completely avoided is unlikely. Considering the nature of finite cultural resources that may be lost or damaged by the implementation of these projects, while mitigation would help to minimize these impacts, some degree of significant cumulative impacts to cultural resources from multiple projects is likely.

5.2 Growth-Inducing Effects

Because the Proposed Action would not involve construction of housing, the Proposed Action with refinements 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 will not indirectly result in a population increase or induce growth by creating permanent new jobs. Furthermore, the Proposed Action will not involve constructing businesses or extending roadways or other infrastructure that could indirectly induce population growth. Consequently, the Proposed Action will not induce growth leading to changes in land use patterns, population densities, or related impacts on environmental resources.

Levee improvements will benefit areas identified for future growth anticipated in the City and County of Sacramento. Local land use decisions are within the jurisdiction of the City or County of Sacramento, which have each adopted a general plan consistent with State law.

The flood risk reduction improvements would increase the levees resistance to erosion, provide better overall levee stability and reliability, and provide additional flood risk reduction for growth anticipated in the City of Sacramento and Sacramento County General Plans. 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 or County of Sacramento and, therefore, would not be growth-inducing. The Proposed Action with Design Refinements 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 with refinements would not directly or indirectly support development in the floodplain.

Chapter 6. Compliance with Federal and State Laws and Regulations

This chapter summarizes the environmental laws and regulations that apply to the ARCF 2016 Project and describes the status of compliance with those laws and regulations.

6.1 Federal Laws, Regulations and Policies

6.1.1 Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d)

The Bald and Golden Eagle Protection Act (BGEPA) provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, the take, possession, and commerce of eagles, including their parts (feathers), nests or eggs. The U.S. Fish and Wildlife Service (USFWS) adopted new amendments to policies regarding implications of the Bald and Golden Eagle Protection Act; however, these changes do not substantially change the application of NEPA to the proposed plan (USFWS 2019). Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is compliant.

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

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to establish national ambient air quality standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, and lead. The primary standards protect the public and the secondary standards protect public welfare. The CAA authorized the establishment of NAAQS and set deadlines for their attainment.

State and local agencies, within areas that exceed the NAAQS, are required to develop state implementation plans (SIP) to show how they will achieve the NAAQS for nonattainment criteria pollutants by specific dates. SIPs are not single documents; rather, they are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and federal controls. USEPA is responsible for enforcing the NAAQS primarily through reviewing SIPs that are prepared by each state. As required by the Federal CAA, the USEPA has established and continues to update the NAAQS.

Pursuant to CAA Section 176(c) requirements, USEPA promulgated the General Conformity Rule, which applies to most federal actions, including the ARCF 2016 Project. The General Conformity regulations at Title 40 Code of Federal Regulations (CFR) Subchapter C Part 93 ensure that the actions taken by federal agencies do not interfere with a state's plans to attain and

maintain national standards for air quality. A General Conformity Determination was completed for ARCF 2016 project in March 2021.

An analysis of air quality effects of the Proposed Action is presented in Section 4.3.5, Air Quality. NOx emissions for ARCF 2016 project, exceeded the EPA's General Conformity *de minimis* thresholds during several of the ARCF 2016 project's construction years, including 2022 and 2023. USACE purchased offsets for NOx emissions from SMAQMD and YSAQMD for 2022 and 2023. Due to changes to the schedule and push in construction a new General Conformity Analysis will be done for years 2024 through 2026. Once the analysis is complete the Proposed Action will be in compliance with all Federal air quality standards.

GHG emission management is regulated by Federal, State, and local levels of government. State and local standards are set by CARB and adjusted by local management districts to better service their counties. The ARCF 2016 Project is currently estimated to exceed the CEQA reporting limits for GHGs based on local and state thresholds and will coordinate with the local districts to mitigate those impacts. CEQ issued a final rule which restores the requirement that federal agencies evaluate all the relevant environmental impacts of the decisions they are making, including those associated with climate change (Whitehouse 2022). The analysis of this Proposed Action is consistent with Executive Order (E.O.) 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis and CEQ's new issued interim National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change. To make comparisons for GHGs released by different projects, various GHGs such as carbon dioxide, methane, and oxides of nitrogen are combined into carbon dioxide equivalents (CO₂eq), by using the global warming potential of each gas as it relates to carbon dioxide, as found in CFR Title 40 Chapter I Subchapter C Part 98 Table A-1 "Global Warming Potentials". Analysis for CO₂eq emissions for ARCF show that compared to the involved counties yearly GHG emissions there is no significant adverse effects on global climate change. As a result, the project is compliant with the CAA.

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

The Clean Water Act (CWA) is the primary Federal law governing water pollution. It established the basic structure for regulating discharges of pollutants into Waters of the U.S. (WOTUS) and gives the USEPA the authority to implement pollution control programs. In California, the USEPA has delegated authority to regulate the CWA to state agencies such as CVRWQCB and State Water Resources Control Board (SWRCB). Section 401 of the CWA regulates the water quality for any activity that may result in any in-water work or discharge into navigable waters. These actions must not violate Federal water quality standards. The CVRWQCB administers Section 401 of the CWA in California, and either issues or denies water quality certifications. Water quality certifications typically include project-specific requirements to ensure attainment of water quality standards. USACE obtained a Programmatic CWA 401 water quality certification (Order No. 5A34CR00819) on July 13, 2021, for the ARCF 2016 Project. Each individual project will request coverage under this overall permit and this permit will expire July 12, 2026.

Section 404 of the CWA requires that a permit be obtained from USACE when an action will result in the discharge of dredged or fill material into wetlands and WOTUS. The 404(b)(1) guidelines specify that “no discharge of dredged or fill material shall be permitted if there is a practical alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” (40 C.F.R. § 230.10[a]). When conducting its own civil works projects, USACE does not issue permits to itself. Rather, USACE complies with the guidelines and substantive requirements of the CWA, including Section 404 and Section 401. The Proposed Action would require discharge of fill material into WOTUS; therefore, a Section 404(b)(1) analysis will be completed after the Draft SEIS/SEIR is published but completed before the Final SEIS/SEIR and will be included in an appendix to the Final SEIS/SEIR. The discharge of fill material would comply with the 404(b)(1) guidelines with the inclusion of appropriate measures to minimize pollution or adverse effects on the aquatic ecosystem. The 404(b)(1) analysis would identify the Least Environmentally Damaging Practicable Alternative (LEDPA).

The project would also require a National Pollution Discharge Elimination System (NPDES) permit since it would disturb more than one acre of land and involve possible storm water discharges to surface waters. Prior to construction, the contractor would prepare a Storm Water Pollution Prevention Plan (SWPPP) and then submit a Notice of Intent form to the CVRWQCB, requesting approval of the proposed work. This storm water plan would identify best management practices to be used to avoid or minimize any adverse effects of construction on surface waters. Once the work is completed, the contractor would submit a Notice of Termination to terminate coverage by the NPDES permit. Therefore, the Proposed Action would comply with this law.

6.1.4 Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 116)

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act, imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment if such materials are accidentally released. The Proposed Action would comply with EPCRA during any fieldwork that may encounter or use hazardous materials, such as, but not limited to, geotechnical soil sampling, groundwater well installation and active construction. These activities would be monitored and regulated by qualified quality control and assurance specialists.

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

Pursuant to the Endangered Species Act (ESA), USFWS and National Marine Fisheries Service (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. Section 7 of the ESA prohibits Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. By consulting with USFWS and NMFS before initiating projects, agencies review their actions to determine if those actions could adversely affect listed

species or their habitat. Through consultation, USFWS and NMFS work with Federal agencies to help design their programs and projects to conserve listed and proposed species. USFWS and NMFS coordination with Federal action agencies is critical to species conservation and may prevent the need to list candidate species, by reducing potential impacts to listed species during Federal activities.

The USFWS is the administering agency for the ESA regarding non-marine species and NMFS is the administering agency for marine fish species. A list of threatened and endangered species that may be affected by the Proposed Action was obtained from USFWS in 2023 (please refer to Appendix D).

The following is a brief consultation history:

- USACE formally consulted with USFWS on the ARCF 2016 Project and received a Biological Opinion (BO) on September 11, 2015 (08ESMF00-2014-F-0518).
- USACE completed a reinitiation for this BO with USFWS March 2021 (08ESMF00-2014-F-0518-R003).
- USACE formally consulted with NMFS on the ARCF 2016 Project and received a Biological Opinion on September 9, 2015 (WCR-2014-1377).
- USACE completed a reinitiation for this BO with NMFS in May 2021 (WCRO-2020-03082).

Based upon these consultations, the Proposed Action is likely to adversely affect the yellow-billed cuckoo (*Coccyzus americanus*), giant garter snake (*Thamnophis gigas*), delta smelt (*Hypomesus transpacificus*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*).

USACE would reinitiate formal consultation if the Design Refinements resulted in a new adverse effect to a species, not previously consulted on, therefore, requiring new mitigation. The ARMS and SRMS are currently being consulted on for adverse impacts to listed species. USACE continues to update USFWS and NMFS on impacts and mitigation for covered species associated with implementing ARCF 2016 Project actions. The Proposed Action is in compliance with ESA upon receipt of the BO's and anticipated implementation of the terms and conditions.

On June 4, 2021, the USFWS and NMFS announced a plan to improve and strengthen the Endangered Species Act (ESA) with a set of proposed actions that follow Executive Order 13990 (Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis). On June 22, 2023, three proposed rules were announced to revise regulations for interagency cooperation, revise regulations for listing species and designating critical habitat, and reinstate a protection option for species listed as threatened under ESA. These ESA policy changes would not affect the application of the ESA to the Proposed Action.

6.1.6 Energy Independence and Security Act of 2007 (Public Law No.110-140)

The Energy Independence and Security Act of 2007 (EISA) is designed to improve vehicle fuel economy, help reduce U.S. dependence on oil, and improve the energy performance of the Federal government. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. EISA increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent.

By addressing renewable fuels and the Corporate Average Fuel Economy (CAFE) standards, the EISA builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century; however, on April 2, 2018, EPA administrator announced a final determination that the current standards should be revised. On August 2, 2018, U.S. Department of Transportation (DOT) and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks through retaining the current model year 2020 standards through model year 2026 and establish new standards covering model years 2021 through 2026 (NHTSA 2019).

The CAA grants California the ability to enact and enforce stricter fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the State applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to establish a nation-wide standard (84 FR 51310). At the time of preparing this environmental document, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors. The Proposed Action would comply with this law in accordance with both State and Federal air quality standards.

6.1.7 Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards (Public Law No. 94-163)

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic Safety Administration (NHTSA), part of the DOT, is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The CAFE program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance.

Under the Energy Independence and Security Act of 2007 (described above), the CAFE standards were revised for the first time in 30 years then later updated in 2012 and 2019. The Proposed Action would comply with this law by using vehicles that meet CAFE program fuel standards.

6.1.8 Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAAct) was enacted to reduce the country's dependence on foreign petroleum and improve air quality. EPAAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAAct requires certain Federal, State, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy. The Proposed Action would comply with this law by using alternative fuel vehicles if available for Federal employees and contractors.

6.1.9 Executive Order 11988: Floodplain Management

The objective of Executive Order (EO) 11988 is the avoidance of long- and short-term adverse effects associated with the occupancy and modification of the base flood plain (1 percent annual event) and the avoidance of direct and indirect support of development in the flood plain wherever there is a practicable alternative. The Proposed Action is consistent with EO 11988 since there is no other practicable alternative to levee improvements, which are the first line of defense for reducing the risk of flooding in established urban areas. Most of the levee improvements occur on the boundary of the existing built environment, such as on the Sacramento River and Lower American River.

The Proposed Action would accommodate growth in the project footprint consistent with local and regional management plans; therefore, the Proposed Action is compliant with the objectives of EO 11988. Specifically, in the MCP segment, economic growth is anticipated in the both the Future without Project (FWOP) condition and under the Proposed Action, due to City and County development plans. The goals of the Proposed Action are to reduce flood risk in urbanized areas to protect human safety, health and welfare.

6.1.10 Executive Order 11990: Protection of Wetlands

EO 11990, issued on May 24, 1977, was implemented to prevent the long- and short-term adverse impacts associated with the destruction or modification of wetlands, and avoid direct or indirect support of new construction in wetlands wherever a practicable alternative existed, for any Federally undertaken, financed, or assisted project. To fully support the goals of NEPA, this EO additionally required the preservation and enhancement of the natural and beneficial values of wetlands.

Reasonable effort during project design to avoid construction in existing wetlands has been taken. Any indirect degradation, direct loss or destruction would be compensated through the creation of new wetland habitat or through the purchase of mitigation credits, depending upon project component.

6.1.11 Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898, issued February 11, 1994, intended to focus Federal attention on the environmental and human health effects of Federal actions on minority and low-income populations, with the goal of achieving environmental protection for all communities. The EO directs Federal agencies to (1) identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations to the greatest extent practicable, (2) develop a strategy for implementing environmental justice (EJ), and (3) promote nondiscrimination in Federal programs that affect human health and the environment and provide minority and low-income communities access to public information and public participation.

In scoping for this SEIS, potential adverse effects to EJ communities have been identified, along with strategies to minimize or mitigate for these effects. Coordination with organizations representing EJ communities in the area (e.g., school districts, homeless advocacy groups) before and during construction would ensure that these communities have equitable access to public information and the opportunity to participate in the public review process. The Proposed Action would have long-term beneficial impacts on the entire population resulting from flood risk reduction, and therefore, would not cause disproportionate effects to any minority or low-income populations.

6.1.12 Executive Order 13112: Invasive Species Regulation

EO 13112, signed February 3, 1989, 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. This order established the National Invasive Species Council composed of Federal agencies and departments. The Council recommends objectives and measures to implement this EO and to prevent the introduction and spread of invasive species. This EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them. Additionally, EO 13112 also calls for the restoration of native plants and tree species. The Proposed Action complies with EO 13112 by discussing invasive species and measures to prevent their spread during construction in Appendix B Section 4.1 Vegetation and Wildlife.

6.1.13 Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

EO 13985, issued on January 20, 2021, directed Federal government to revise agency policies to account for racial inequities in their implementation. This EO advises that advancing equity requires a systematic approach to embedding fairness in decision-making processes and that agencies must recognize and work to rectify inequities in their policies or programs that may hinder equal opportunity. By deliberately conducting outreach to organizations representing communities that have been historically underrepresented in the Government and underserved by Federal policies and programs, in particular low income and unhoused communities in the proposed action area, the project is facilitating communication and engagement with these communities in accordance with this EO.

6.1.14 Executive Order 14008: Tackling the Climate Crisis at Home and Abroad

Signed January 27, 2021, EO 14008 requires that climate change considerations be an essential element of U.S. foreign policy and national security and lays out a government-wide approach to the climate crisis. Sections 219 through 223 of the EO, titled “Spurring Environmental Justice and Spurring Economic Opportunity,” discuss the delivery of EJ through addressing the disproportionately high and adverse human health, environmental, climate-related, and other cumulative impacts on disadvantaged communities. These sections also establish the requirement for the creation of the CEQ Climate and Economic Justice Screening Tool (CEJST) as well as defined the Justice40 Initiative. For the Proposed Action, the CEJST was used to identify disadvantaged communities with the potential to be adversely affected by the Proposed Action, and the types and magnitudes of potential effects are evaluated in this SEIS.

6.1.14.1 Executive Order 13990: Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

This EO, signed January 20, 2021, directs Federal agencies to immediately review, and take action to address, recent Federal regulations and actions that conflict with national objectives to improve public health and the environment; ensure access to clean air and water; limit exposure to chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce GHG emissions; bolster resilience to climate change; and prioritize both environmental justice and employment. The analysis of the Proposed Action demonstrates consistency with this EO by completing quantitative air quality and GHG modeling, and qualitative EJ analysis, demonstrating that the Proposed Action does not result in significant adverse effects. The Proposed Action proportionately provides flood risk reduction to all communities including those of color and low-income.

6.1.15 Executive Order 14901: Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

This EO, signed February 16, 2023, builds upon previous equity related EOs by extending and strengthening equity advancing requirements for agencies. Under this EO, Federal agencies are directed to increase engagement with underserved communities by applying innovative approaches to improve the quality, frequency, and accessibility of engagement. The Proposed Action complies with this EO through purposeful outreach to underserved communities in the area, providing them access and opportunity to engage in the environmental review process.

6.1.16 Executive Order 14096: Revitalizing Our Nation’s Commitment to Environmental Justice for All

This EO requires each Federal agency to make achieving EJ part of its mission, and expands the definition of EJ to mean “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people: (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.”

Agencies are required to identify disproportionate and adverse effects and hazards of Federal activities on communities with EJ concerns and identify barriers related to Federal activities that impair the ability of EJ communities to receive equitable access to human health or environmental benefits, including those related to natural disaster recovery and climate mitigation, adaptation, and resilience. Agencies must take steps to address these effects or barriers as appropriate.

Additionally, Federal agencies must seek out and encourage the engagement of communities with EJ concerns, provide timely opportunities for members of the public to participate in decision-making processes, and fully consider their input. This EO specifically requires that NEPA reviews are conducted in a manner that fully analyzes effects to communities with EJ concerns.

Compliant with this EO, this SEIS fully considers the effects of the Proposed Action on nearby communities with EJ concerns and includes mitigation measures to address adverse impacts. In addition, USACE has reached out to organizations representing EJ communities, initiating contact, and encouraging engagement from these organizations and their respective communities.

6.1.17 Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201-4209)

The Farmland Protection Policy Act (FPPA) was passed by Congress in 1981. The law was established to minimize the permanent conversion of farmland to nonagricultural uses by Federal programs. This act requires federal agencies to examine the impact of their programs before they approve any activity that would convert farmland. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) is charged with oversight of the FPPA.

The parcels that make up Alternative 5c (the Watermark Farms mitigation site) are considered by NRCS as farmland of state importance and prime farmland if irrigated and drained (NRCS 2023). NRCS coordination is required for the Sacramento River Mitigation alternative at Watermark Farms due to the presence of Prime Farmland. A Farmland Conversion Impact Rating form has been submitted to NRCS and is included in Appendix E. There are farmlands considered by NRCS as prime if irrigated at the American River Contract 4A site, the ARMS, the SRMS, and the MCP (Appendix B 2.4, Figure 2.4-11) (NRCS 2023). In addition, there are farmlands listed as farmland of state importance at the MCP component. However, all these areas are listed as urbanized areas by the Census Bureau (Appendix B 2.4, Figure 2.4-10) (U.S. Census Bureau 2020). Under the FPPA, areas considered urbanized areas by the Census Bureau are not considered farmland (7 CFR 658.2(a)), so these project components do not apply to the FPPA.

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

The Fish and Wildlife Coordination Act (FWCA) of 1958, 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. The FWCA requires these Federal agencies to consult with USFWS, NMFS, and the California Department of Fish and Wildlife (CDFW) when constructing water resource development projects and consider, analyze, and mitigate for potential effects on fish and wildlife.

In 2015, during preparation of the ARCF GRR FEIS/FEIR, USACE coordinated with USFWS to consider potential effects on vegetation and wildlife from implementation of the overall ARCF 2016 project. On October 5, 2015, 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 ARCF GRR FEIS/FEIR. Reinitiation of formal consultation with USFWS and NMFS was conducted in 2020 with BO's received in 2021. The Proposed Action would therefore comply with this act.

6.1.19 Hazardous Materials Transportation Act of 1975, as amended (49 U.S.C. § 5101 et. seq.)

The Secretary of the U.S. DOT receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act. DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. 49 CFR Sections 171

through 180, regulate the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. Contractors would be required to comply with the Act for all storage and transportation of hazardous materials and wastes to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

6.1.20 Justice40 Initiative

This Initiative is a government effort to ensure that Federal agencies work with states and local communities to deliver at least 40 percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities. The Justice40 Initiative requires EJ to be considered in all aspects of Civil Works projects, including studying, planning, designing, constructing, and operating. For projects that have already been authorized, as long as the overall project will result in benefits towards disadvantaged communities the project will count towards an investment in EJ. Although projects initiated prior to this memo may not have been specifically designed to benefit disadvantaged communities, if they provide such benefits, they should be considered in the contribution towards EJ objectives. This EO also establishes the Climate and Economic Justice Screening Tool (CEJST) as the default tool for the purpose of identifying disadvantaged communities to implement the memo.

CEJST was the primary tool used in identifying disadvantaged communities that have the potential to be affected by the Proposed Action. The Proposed Action, which is part of the already-authorized ARCF 2016 Project, is currently in the preconstruction, engineering and design.

(PED) phase and if constructed, would result in an overall benefit to EJ communities by reducing their flood risk. This would be counted as an EJ investment by the Sacramento District.

6.1.21 Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 U.S.C. 1801, et seq.)

The National Marine Fisheries Service (NMFS) defines the term “essential fish habitat” in the Magnuson-Stevens Fishery Conservation and Management Act as waters and substrate of the United States necessary for fish spawning, breeding, or growth to maturity. The Magnuson-Stevens Act requires that Federal agencies consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). The Project Area is within EFH for fall-run Chinook salmon for the American River projects and corresponding mitigation site. The Proposed Action would involve in-water work, and implementing standard water quality protection measures, stormwater pollution prevention BMPs, and mitigation measures for monitoring and control of turbidity would avoid indirect effects on EFH. Following completion of the ongoing consultation with NFMS, the Proposed Action would be in compliance with this act.

6.1.22 Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703, et seq.)

The Migratory Bird Treaty Act (MBTA) implements a series of international treaties (U.S., Canada, Japan, Mexico, and Russia) that provide for migratory bird protection. The MBTA

authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird ...” (16 USC § 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 (50 CFR 10.13) 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. Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is in compliance with the MBTA. Generally, all survey-detected, nesting birds would be avoided with the species-appropriate buffer during construction.

6.1.23 National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were intended to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains. The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP) to subsidize flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The maps are designed for flood insurance purposes only and do not necessarily show all areas subject to flooding. The maps designate lands likely to be inundated during a 1 percent (100-year) storm event and elevations of the base flood. They also depict areas between the limits affected by 1 percent (100-year) and 0.2 percent (500-year) events and areas of minimal flooding. Flood Insurance Rate Maps are often used to establish building pad elevations to protect new development from flooding effects.

The ARCF 2016 Project was modified by WRDA 1999 to include improvements to convey an emergency release of 160,000 cubic feet per second (cfs) from Folsom Dam. The Proposed Action would comply with this law.

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

The National Historic Preservation Act (NHPA) is the primary Federal legislation specific to cultural resources. Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations (36 CFR Part 800) require Federal agencies to consider the effects of their undertakings on historic properties. Historic properties are cultural resources that are included in, or are eligible for inclusion in, the NRHP (36 CFR § 800.16[1]). Undertakings include activities directly carried out, funded, or permitted by Federal agencies. Federal agencies must also allow the Advisory Council on Historic Preservation the opportunity to comment on proposed undertakings and their potential effects on historic properties.

Because the ARCF 2016 Project is being implemented in phases, and because implementation of ARCF 2016 Project phases may have an effect on historic properties, USACE consulted with the SHPO and other parties and executed a PA to govern Section 106 compliance. The PA

establishes the process USACE follows to comply 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 in consideration of cultural resources listed on or eligible for listing on the NRHP, as discussed in Appendix B, Section 5.1, Cultural and Tribal Cultural Resources. Determinations of the specific mitigation measures to be implemented to resolve or avoid effects on historic properties would be made by USACE, in consultation with SHPO and other PA consulting parties, as required by the PA and as described in detail in the HPMP for the ARCF 2016 Project. Specific mitigation measures that are consistent with the PA and the HPMP are also identified in Appendix B, Section 5.1 to address potential impacts on 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, i.e., Proposed Action. A detailed description of consultation with Native Americans is provided under Native American Consultation in Appendix B Section 5.1. In accordance with the PA, USACE will consult with the SHPO, requesting comments on the delineation of the APE, on the adequacy of inventory methods, the findings of cultural resources investigations, NRHP eligibility determinations, and findings of effect for each of the phases of the Proposed Action. Through implementation of the actions specified in the PA, the Proposed Action complies with Section 106 of the NHPA.

6.1.25 National Wild and Scenic Rivers Act (16 U.S.C. 1271 et. seq.)

This act was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The Lower American River was listed for having extraordinary anadromous fishery resources and recreation. The Wild and Scenic Rivers Act applies to the parts of the Proposed Action along the American River, specifically all construction work and some staging associated with American River Contract 3B, American River Contract 4A, and the ARMS. USACE will ensure that the Proposed Action complies with the Wild and Scenic Rivers Act by coordinating with the National Park Service to determine whether the Proposed Action would result in a direct and adverse effect on the Lower American River's free-flowing nature, water quality, anadromous fish Outstandingly Remarkable Value, or recreational Outstandingly Remarkable Value. The National Park Service will be notified of the public review period of this Draft SEIS/SEIR. A consistency determination will be completed for the Final SEIS/SEIR, which will complete compliance with this Act.

6.1.26 Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.)

The Occupational Safety and Health Administration (OSHA) is the Federal agency responsible for ensuring worker safety. The Occupational Safety and Health Act and its implementing regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. All workers during construction would comply with OSHA's

hazardous materials management and handling requirements including such measures as having all appropriate personal protective equipment (PPE) to reduce the possibility of acute or chronic exposure hazards and protect worker safety. The Proposed Action would comply with this law.

6.1.27 Resources Conservation and Recovery Act (RCRA) of 1976 (42 USC § 6901 et seq.)

The Resource Conservation and Recovery Act (RCRA) was adopted in 1976 and codified in 40 CFR Part 260 to create a framework for a national system of solid waste control. RCRA Subtitle D regulates non-hazardous waste solid waste requirements. RCRA Subtitle C regulates the generation, transportation, treatment, storage, and disposal of hazardous waste by “large-quantity generators” (1,000 kilograms per month or more) as well as “small quantity generators” (under 1,000 kilograms) through comprehensive life cycle or “cradle to grave” tracking requirements. The requirements include maintaining inspection logs of solid non-hazardous and hazardous waste storage locations, records of quantities being generated and stored, and manifests of pick-ups and deliveries to licensed treatment/storage/disposal facilities. RCRA also identifies standards for treatment, storage, and disposal. Contractors would be required to comply with RCRA hazardous waste requirements to reduce the possibility of inadvertent releases and spills. The Proposed Action would comply with this law.

6.1.28 Rivers and Harbors Appropriation Act of 1899 - Sections 9 and 10 (33 U.S.C. §§ 401 and 403)

Section 9 of the River and Harbors Appropriation Act requires Congress’s consent to build a ridge, causeway, dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States. It also requires the Secretary of Transportation, Chief of Engineers, and Secretary of the Army to review and approved plans associated with these projects. Section 10 of the River and Harbors Appropriation Act prohibits construction of any wharf, pier, boom, weir, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines. The Rivers and Harbors Appropriation Act of 1899 applies to the parts of construction work within navigable waters at American River Contract 3B, the ARMS, Sacramento River Erosion Contract 3, and the SRMS. The Proposed Action would comply with this law with funding and authorization to construct provided by Congress.

6.1.29 Safe Drinking Water Act of 1974, as amended (42 U.S.C. §300f-300j)

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation’s public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs, and ground water wells. SDWA authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. USEPA, states, and the local water system managers work together to ensure these standards are met. The Proposed Action would comply with this law.

6.1.30 Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. § 4601)

The Uniform Relocation Act and its implementing regulations (49 CFR 24) ensures the fair and equitable treatment of persons whose real property is acquired or who are displaced as a result of a Federal or Federally assisted project. The Act may provide relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal. The Proposed Action would require acquisition of private property to construct flood risk management improvements. USACE and Project Partners would be responsible for any mitigation such as compensation for temporary loss of business, temporary relocation of residents or permanent property acquisition under the Act.

6.2 State of California Laws, Regulations, and Policies

6.2.1 Assembly Bill 1007: State Alternative Fuels Plan

Assembly Bill (AB) 1007 (Chapter 371, Statutes of 2005) required the California Energy Commission (CEC) to prepare a state plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other State, Federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation to public health and environmental quality. The Proposed Action would comply with this law.

6.2.2 Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to AB 2076 (Chapter 936, Statutes of 2000), California Energy Commission (CEC) and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, Reducing California's Petroleum Dependence. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT (CEC and CARB 2003). Further, in response to CEC's 2003 and 2005 Integrated Energy Policy Reports, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

A performance-based goal of AB 2076 was to reduce petroleum demand to 15 percent below 2003 demand by 2030. The Proposed Action would comply with AB 2076.

6.2.3 California Clean Air Act of 1988

Section 4.3.5 of this document discusses the effects of the Proposed Action on local and regional air quality. CARB is responsible for the development, implementation, and enforcement of

California’s motor vehicle pollution control program, GHG statewide emissions and goals, and development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act requires projects to determine whether emission sources and emission levels significantly affect air quality, based on Federal standards established by EPA and State standards set by CARB.

Sacramento Metropolitan Air Quality Management District (SMAQMD) has local jurisdiction over the Project Area. The analysis in Section 4.3.5 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.

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (226 Cal.App.4th 704), also known as the “Friant Ranch decision,” which requires a project’s environmental documents to include a clear analysis of potential long term air quality health impacts from the project’s anticipated emissions of air pollutants.

The Proposed Action was analyzed using a health risk analysis (HRA) to identify whether there would be adverse health impacts from emissions during construction. The results of the HRA show that the Proposed Action would be in compliance with the California Clean Air Act and the court’s Friant Ranch holding.

6.2.4 California Endangered Species Act

The California Endangered Species Act (CESA) requires non-Federal agencies to consider the potential adverse effects on State-listed species. As discussed in Section 4.4.3 of this document, with implementation of mitigation measures, activities associated with the Proposed Action are not anticipated to adversely affect any State-listed species, so no further action is required to achieve compliance with CESA.

6.2.5 California Energy Action Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 California Energy Action Plan (2008 update). The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access. The Proposed Action would comply with this plan.

6.2.6 California Environmental Quality Act of 1970

The California Environmental Quality Act (CEQA) requires that State and local agencies identify the significant environmental impacts of their actions, and avoid or mitigate those impacts, when feasible. The CVFPB, as the non-Federal partner, will undertake activities to ensure compliance with CEQA. Certification of the final SEIR by the CVFPB would provide full compliance with CEQA.

6.2.7 California Environmental Protection Agency

The Secretary of the California Environmental Protection Agency (Cal EPA) is directly responsible for coordinating the administration of the Unified Program. The Secretary certifies Unified Program Agencies. The Secretary has certified 83 Certified Unified Program Agencies (CUPAs) to date. These 83 CUPAs carry out the responsibilities previously handled by approximately 1,300 State and local agencies. In January 1996, Cal EPA adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The CUPA is the local agency that is responsible for the implementation of the Unified Program. The Proposed Action would comply with the United Programs.

6.2.8 California Fish and Game Code

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.

Section 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory nongame bird, as designated in the Federal MBTA (16 USC 703 et seq.) before January 1, 2017; any additional migratory nongame bird designated in the MBTA after that date; or any part of a migratory nongame bird described in Fish and Game Code Section 3513, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA, unless those rules or regulations are inconsistent with the Fish and Game Code. Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure compliance with this.

6.2.9 California Health and Safety Code

Hazardous Waste Control Law; Hazardous Materials Transportation—CCR Title 22 and Hazardous Waste Control Law, Chapter 6.5

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Cal EPA has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs. The Office of the State Fire Marshal is responsible for ensuring implementation of the Hazardous Material Management Plans and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Hazardous Material Release Response Plan (Business Plan) Program. The Governor's Office of Emergency Services is responsible for providing technical assistance and evaluation of the Business Plan Program and the California Accidental Release Response Plan Program. The Proposed Action would comply with this law when handling or transporting known or potentially hazardous waste during environmental sampling required for the project.

California Human Health Screening Levels and California Land Environmental Restoration and Reuse Act of 2001

The California Human Health Screening Levels (CHHSLs) were developed as a tool to assist in the evaluation of contaminated sites for potential adverse threats to human health. Preparation of the CHHSLs was required by the California Land Environmental Restoration and Reuse Act of 2001 (SB 32) (Chapter 764, Statutes of 2001; OEHHA, 2010). The CHHSLs are concentrations of 54 hazardous chemicals in soil or soil gas that Cal EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment and are contained in its report entitled Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil (OEHHA and Cal EPA 2005). The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of 1 in 1 million and a hazard quotient of 1.0 for noncancer health effects. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by EPA and Cal EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site. The Proposed Action would comply with this law during environmental sampling of soil or soil gas prior to construction.

6.2.10 California Land Conservation Act of 1965 (Williamson Act)

The Williamson Act empowers local governments to establish "agricultural preserves" consisting of lands devoted to agricultural uses and other compatible uses. Upon establishment of such preserves, the locality may offer to owners of included agricultural land the opportunity to enter annually renewable contracts that restrict the land to agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax rate, based on the value of the land for agricultural/open space use only and unaffected by its development potential.

As a public agency that may acquire lands within agricultural preserves, including lands under contract, the project proponent(s) is exempt from the normal cancellation process for Williamson Act contracts, because the contract is nullified for the portion of the land acquired (California Government Code Section 51295). The project proponent(s) must provide notice to the

California Department of Conservation prior to acquiring such lands (California Government Code Section 51291[b]). A second notice is required within 10 working days after the land is acquired (California Government Code Section 51291[c]). As the land would be acquired for flood damage reduction measures, the project proponent(s) is exempt from the findings required in California Government Code Section 51292 (California Government Code Section 51293[e][1]) because the proposed project consists of flood damage reduction works. The preliminary notice to the California Department of Conservation, provided before lands are acquired, would demonstrate the purpose of the project and the exemption from the findings. There are no lands under Williamson Act contract currently being utilized for the Proposed Action. If new lands come under contract, the Project Partners would nullify any contracts and mitigate if required by this act or other local regulations protecting farmland.

6.2.11 California Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations. Mitigation Measure PLANT-1: 'Implement Measures to Protect Special-Status Plants' would ensure compliance with this law.

6.2.12 California Natural Resources Agency Tribal Coordination Policy

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

6.2.13 Delta Plan

The Sacramento-San Joaquin Delta Reform Act of 2009 established the Delta Stewardship Council (Council) to create a comprehensive, long-term, legally enforceable plan to guide how multiple federal, State, and local agencies manage the Delta's water and environmental resources. Any public agency proposing to undertake an action, as defined in Water Code section 85057.5 is encouraged to consult with the Council at the earliest possible opportunities before submittal of the consistency analysis for certification to the Council pursuant to Water Code

Section 85225. The Council’s staff will meet with the agency’s staff to review the consistency of the proposed action and to make recommendations, as appropriate. The Proposed Action will comply with this regulation by providing a consistency analysis to the Delta Stewardship Council.

6.2.14 Executive Order S-06-06

EO S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste.
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications.
- Create jobs and stimulate economic development, especially in rural regions of the state.
- Reduce fire danger, improve air and water quality, and reduce waste.

As of 2018, 2.35 percent of the total electricity system power in California was derived from biomass (CEC 2019). The Proposed Action would comply with this law.

6.2.15 Integrated Energy Policy Report

SB 1389 (Chapter 568, Statutes of 2002) required CEC to: “conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state’s economy, and protect public health and safety” (Public Resources Code Section 25301[a]). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2017 IEPR, the most recent IEPR, was adopted March 16, 2018. The 2017 IEPR summarizes priority energy issues currently facing California, outlining strategies and recommendations to further the State’s goal of ensuring reliable, affordable, and environmentally responsible energy sources. The report covers the following energy topics:

- Progress toward statewide renewable energy targets and issues facing future renewable development.

- Efforts to increase energy efficiency in existing and new buildings.
- Progress by utilities in achieving energy efficiency targets and potential.
- Improving coordination among the State’s energy agencies.
- Streamlining power plant licensing processes.
- Results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand.
- Future energy infrastructure needs.
- The need for research and development efforts to statewide energy policies.
- Issues facing California’s nuclear power plants.

The Proposed Action would comply with this law.

6.2.16 Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act requires each of the state’s nine regional water quality control boards (RWQCBs) to prepare and periodically update basin plans for water quality control. These basin plans must conform to the policies set forth in the California Water Code (Section 13000 et seq.) and any State policy for water quality control. The jurisdiction of each RWQCB 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. The potential effects of the Proposed Action on water quality have been evaluated and discussed in Appendix B, Section 3.4 Water Quality. The Proposed Action is consistent with the goals and objectives of the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). Full compliance with the Water Quality Control act will be achieved by gaining Federal CWA Section 401 water quality certifications for each project component from the Central Valley RWQCB.

6.2.17 Statewide Greenhouse Gas Emissions Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the State government for approximately two decades (State of California 2018). GHG emission targets established by the State Legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32, 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32, 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius (United Nations 2015:3).

California’s 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and “substantially advance toward our 2050 climate goals” (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other State agencies are currently developing a Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal of EO B-55-18.

The State has also enacted more detailed legislation addressing GHG emissions associated with industrial sources, transportation, electricity generation, and energy consumption, as summarized below. The Proposed Action would comply with this law.

6.2.18 State Wild and Scenic Rivers Act (PRC Section 5093.545h.)

The California legislature passed the State Wild and Scenic Rivers Act in 1972 (PRC Section 5093.50-5093.70). The legislature said that it was the State’s intent that “certain rivers which possess extraordinary scenic, recreation, fisheries, or wildlife values shall be preserved in their free-flowing state, together with their immediate environment, for the benefit and enjoyment of the people of the State.” The 23-mile portion of the American River that extends from below Nimbus Dam to the confluence with the Sacramento River has been designated as a Wild and Scenic River for its recreational uses under both the State and Federal Wild and Scenic Rivers Acts. Additionally, the American River Parkway’s recreational uses are designated as an outstanding remarkable value of the river under the Federal Wild and Scenic Rivers Act. In 2008, the County of Sacramento finalized the American River Parkway Plan to provide a guide to land use decisions affecting the Parkway and specifically addressing the Parkway’s preservation, use, development, and administration. The Parkway Plan acts as the management plan for the Federal and State Wild and Scenic Rivers Acts. USACE and Project Partners work closely with the County of Sacramento to ensure the Proposed Action does not violate this Act.

6.2.19 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014 sets forth a framework for the long-term protection of groundwater resources. The SGMA requires local agencies to form groundwater sustainability agencies for high and medium priority basins and to develop and implement groundwater sustainability plans (GSPs). The California Department of Water Resources supports SGMA implementation through evaluation of GSPs and planning, technical, and financial assistance, and through guiding development of best management practices. The Proposed Action would comply with SGMA by protecting groundwater resources during active construction and avoiding permanent impacts to recharge potential.

6.2.20 Warren-Alquist Act

The 1974 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). This law was enacted in response to the State Legislature’s review of studies projecting an increase in statewide energy demand, which would potentially encourage the development of power plants

in environmentally sensitive areas. The act introduced State policy for siting power plants to reduce potential environmental impacts, and additionally sought to reduce demand for these facilities by directing CEC to develop statewide energy conservation measures to reduce wasteful, inefficient, and unnecessary uses of energy. Conservation measures recommended establishing design standards for energy conservation in buildings that ultimately resulted in the creation of the Title 24 Building Energy Efficiency Standards (California Energy Code), which have been updated regularly and remain in effect today. The act additionally directed CEC to cooperate with the Governor's Office of Planning and Research, the California Natural Resources Agency, and other interested parties in ensuring that a discussion of wasteful, inefficient, and unnecessary consumption of energy is included in all environmental impact reports required on local projects. The Proposed Action would comply with this law.

Chapter 7. Public Involvement Coordination and Review of the Draft Supplemental EIS/EIR

Public involvement activities associated with the SEIS/SEIR include public scoping meetings, coordination with USFWS and NMFS, Native American Tribe and agency meetings, distribution of the draft and final SEIS/SEIR for public review and comment; and public meetings to receive comments on the draft SEIS/SEIR. USACE published the Notice of Intent (NOI) to prepare the ARCF SEIS/SEIR in the Federal Register (Vol. 87, No. 194) on October 7, 2022, with an update posted in the Federal Register (Vol. 87, No. 199) on October 17, 2022. USACE and CVFPB held two public scoping meetings on November 2, 2022, and November 30, 2022, to present information to the public and to explain how to submit public comments on the scope of the SEIS/SEIR. Appendix A contains the NOI, the comment letters received during scoping, and the agency responses to comments.

The public comment period for the Draft SEIS/SEIR is planned for December 22, 2023, to February 5, 2024 (45-Days). USACE plans to hold two virtual public meetings on January 6, and 10, 2024. USACE will mail out postcards about the availability of the SEIS/SEIR for review to communities and businesses surrounding project areas.

Chapter 8. Submitted Alternatives, Information, and Analyses

The National Environmental Policy Act (NEPA) requires a Federal agency to fully disclose potential environmental effects of a proposed project with open public participation throughout the decision-making process. Public participation is first achieved in the scoping process, by which the lead Federal agency invites cooperating and participating agencies and interested and potentially affected members of the public to assist in identifying significant impacts to the human and natural environment that could result from the Proposed Action (40 CFR § 1501.9 *Scoping*).

This chapter summarizes the alternatives, information, and analyses submitted by Federal, State, Tribal, and local governments and other public commenters during the scoping process as required by 40 CFR §1502.17 and includes the list of preparers required in 40 CFR §1502.18.

A detailed description of the scoping process which includes the Notice of Intent (NOI), scoping meeting notices, scoping comments received, and their corresponding responses are included in Appendix A.

8.1 Summary of the Scoping Process

The formal scoping comment period began with the publication of the NOI in the Federal¹ Register on October 7, 2022, and ended on December 31, 2022. A public notice was posted as a newspaper advertisement in *The Sacramento Bee* on October 19, 2022. Email notification of the scoping period was sent to all known Interested Parties on October 21, 2022. Public scoping meetings were held virtually on November 2, 2022, and on November 30, 2022, from Sacramento, CA. Comments were accepted via the following methods:

- Orally and in writing at the public scoping meeting.
- Via e-mail to ARCF_SEIS@usace.army.mil.
- Via email to USACE through the project website at www.sacleveeupgrades.com.
- Via U.S. mail to Public Affairs Office, U.S. Army Corps of Engineers, 1325 J Street Room 1513, Sacramento, CA 95814.

8.1.1 Scoping Comment Analysis

A total of 18 people commented during the scoping period. Ten were members of the public, five were agency, and three were non-profit/organization level. Comments were received from the following Federal, State, or local agencies:

¹ (FR Vol. 87, No.194/Friday, October 7, 2022)

- United Auburn Indian Community
- U.S. Environmental Protection Agency
- Sacramento Metropolitan Air Quality Management District
- Sacramento County – Regional Parks Department
- Cordova Recreation and Park District

Each communication included multiple comments resulting in 69 categorized comments. Approximately one-third of the comments were related to mitigation concerns, primarily regarding ARMS.

8.1.2 Submitted Alternatives, Information and Analysis

As required under 40 CFR § 1502.17 a summary of the scoping process is provided. Several of these mitigation related comments included the commenters preferred alternative and/or supplemental information in support of their preferred alternative to the Proposed Action presented during the scoping meetings. The Scoping Report in Appendix A contains the formal comment responses; however, a summary is provided below of the comment, comment number, general concern, the alternative presented and a response summary.

- 1) Commenter: Save the American River Association (Comment No. 3-2, 3-3, 3-7, and 3-8)
 - a. The ARMS will degrade existing high-quality habitat in the American River Parkway by creating multi-purpose habitat for special-status species.
 - b. Use mitigation banks for elderberry shrub impacts [shrubs are habitat for the Federally threatened valley elderberry longhorn beetle].
 - c. Mitigation sites were chosen according to requirements outlined in the 2015 and 2021 U.S. Fish and Wildlife Service Biological Opinions.

- 2) Commenter: U.S. Environmental Protection Agency (Comment No. 15-1)
 - a. USACE should consider a full range of alternatives for the various bank erosion and levee protection methods and compare with the alternatives presented in the 2016 ARCF Final EIS/EIR.
 - b. None presented.
 - c. The suite of alternatives for levee improvements is presented in the 2016 GRR Final EIS/EIR. A brief alternative analysis and selection process for the Design Refinements is described in the Chapter 2 of this Draft SEIS/SEIR which presents how each refinement helps achieve the purpose and need of the ARCF Program.

- 3) Commenter: Sacramento County, Regional Parks (Comment No. 17-2)
 - a. The Proposed Action for ARMS would eliminate a unique wildlife habitat feature [man-made pond] and the associated interpretive and wildlife viewing values to protect a vulnerable fish population from periodic stranding.

- b. USACE should consider an alternative at the ARMS that supports habitat enhancement by preserving a substantial portion of the isolated 30-acre pond.
 - c. The recommended alternative will be analyzed in accordance with the State's California Environmental Quality Act (CEQA) Guidelines.
- 4) Commenter: Member of the Public (Comment No. 19-1)
- a. The Proposed Action for ARMS would result in the loss of an important roosting site for water birds and ultimately reduce the use of the lower stretches of the American River.
 - b. Systematic bird surveys should be conducted at man-made pond to protect the important habitat component for night roosting and daytime feeding habitat. Survey data should be considered during mitigation development. Information submitted includes bird species and data counts from the American River Natural History Association Wildlife Count and Sacramento Christmas Bird Count.
 - c. The value of existing wildlife habitat was considered during mitigation alternative development and will be preserved to the greatest extent while also complying with Endangered Species Act mitigation requirements.

Chapter 9. List of Prepares and Reviewers

9.1 List of Preparers and Reviewers

This SEIS/SEIR was prepared by USACE, Sacramento District, and GEI Consultants, Inc. at the direction of DWR and CVFPB. The following is a list of the individuals who prepared the document, provided substantive background materials, or provided project description engineering clarifications.

U.S. Army Corps of Engineers, Sacramento District

Name	Title	Qualifications and Experience	Contributions
Guy Romine	ARCF Environmental Lead, Regional Technical Specialist	B.S. Geology, 35 years' experience	SEIS Project Manager
Keleigh Duey	Senior Environmental Manager	B.S. Biology (Ecology & Biodiversity), 8 years' experience	SEIS Lead, Document Review, NEPA Compliance, Socioeconomics
Nathaniel Martin	Senior Environmental Manager	B.S. Environmental Studies, M.S. Public Policy & Administration, 22 years' experience	SEIS Lead, Document Review, NEPA Compliance, Project Description Development/Coordination
Lorena Guerrero	Biologist	B.S. Environmental Science (Ecological Restoration), 6 years' experience	Document Review, Public Utilities and Service Systems
Nicole Schleeter	Environmental Manager	B.S. Environmental Science, 8 years' experience	Document Review, Mitigation Lead, FPPA Compliance, Vegetation & Wildlife
Mariah Brumbaugh	NEPA Regional Technical Specialist	B.S. Biology, M.S. Biology. 19 years' experience.	NEPA Compliance and District Quality Control Review
Susannah Lemke	Historian/ District Environmental Justice Coordinator	B.A. History, M.A. Northern Studies/ Museum Studies, 7 years' experience.	Environmental Justice
Ashley Lopez	Environmental Manager/Deputy District EJ Coordinator	B.S. Biology, B.S. Mathematics, M.S. Applied Mathematics, 4 years' experience	Environmental Justice
Andrea Meier	Chief, Environmental Analysis Section	B.S. Environmental Toxicology, Master of Public Policy and Administration, Field Ecology Certification, CPESC, and QSD/QSP; 20 years of experience	First-line supervisory review, staffing resource management, technical guidance, and field survey guidance
Michael D. Porter	Fishery Regional Technical Specialist	B.S. Wildlife Management, M.S. Biology, Ph.D. Fisheries Biology, 22 years of experience	Document Review, NEPA Compliance, Mitigation

Name	Title	Qualifications and Experience	Contributions
Samantha Ezratty	Environmental Manager	B.S. Environmental Policy Analysis and Planning, 3 years of experience	Document Review, Air Quality
Blake Prawl	Environmental Manager	B.S. in Environmental Studies, 5 years of experience.	Magpie Creek Lead, Land Use
Bailey Hunter	Environmental Manager	B.S. Environmental Science (Ecological Restoration), M.S. Plant Biology, 9 years' experience	Lower American River Lead, Project Description, Recreation, Aesthetics and Visual Resources, Mapping.
Geneva Kraus	Chief, Cultural, Recreational, and Social Assessment Section	B.A. Anthropology (minor Geology), M.A. Anthropology, 14 years of experience	First-line supervisory review, staffing resource management, technical guidance, and field survey guidance.
Joanne Goodsell	Cultural Regional Technical Specialist	B.S. Physical Education (minor Classical Civilization), M.A. Anthropology / Archaeology, 17 years of experience.	Document review, Quality Control review, Cultural and Tribal Resources
Jessica Tudor Elliott	Senior Archaeologist	B.A. in Anthropology, M.A. in Cultural Resources Management, 16 years of experience	Document review, Cultural and Tribal Resources, Section 106 Compliance
Brad Anderson	Ecologist	Certified Ecologist, MESM (Master of Environmental Science and Management), B.A. Anthropology; 5 years of experience	Special Status Species, Federal and State Laws and Regulations
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¹: No longer employed at USACE, Sacramento District

GEI Consultants, Inc.

Name	Title	Qualifications and Experience	Contributions
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Phil Dunn	Senior Principal	B.S. Zoology; M.S., Fisheries Biology; 42 years' experience	Document review and CEQA compliance
Anne King	Senior Environmental Planner	B.A., Anthropology; 26 years' experience	Document review and CEQA compliance
Erick Cooke	Senior Environmental Planner	B.A., Biology; M.S., Environmental, Coastal and Ocean Sciences; 22 years' experience	Document review and CEQA compliance
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Madeline Bowen	Senior Historian	B.A., Liberal Studies, M.A., History; 27 years' experience	Cultural Resources, Document review and CEQA compliance
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Melinda Mohamed	Biologist	B.S. Zoology, M.S. Aquatic Resource Management, 10 years' experience	Fisheries
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Kalia Schuster	Environmental Scientist
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Chapter 10. References

10.1 Introduction

See Section 2.1.1 for Related Resources and Documents used in Chapter 1.

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Appendix B. Detailed Analyses

2.1 Transportation and Circulation

This section describes the existing transportation networks within the project vicinity, identifies the regulatory framework, and assesses the potential impacts to transportation and mobility.

2.1.1 Existing Conditions/Affected Environment

The existing transportation networks within the project vicinity most likely to be affected by the project include regional and local roadways, bicycle facilities, and railroads.

Regional and Local Roadways

Major highways used to access the project sites include Interstate 5 (I-5), I-80, I-80 Business, State Route (SR) 160, and U.S. Highway 50. Other major roads used to access project sites and haul materials primarily include Howe Avenue, Watt Avenue, Folsom Boulevard, Fair Oaks Boulevard, Exposition Boulevard, American River Drive, Raley Boulevard, Vinci Avenue, and Dry Creek Rd. A complete description of haul routes and access areas for each project component can be found in Section 3.5, “Alternative 2: Proposed Action”.

Bicycle and Pedestrian Facilities

The Jedediah Smith Memorial Trail extends 32-miles from Discovery Park near where I-5 crosses the American River, to Beal’s Point Recreation Area. The trail can be accessed from most parks in the American River Parkway and several parks in Folsom. The trail is paved and is commonly used by bicyclists for commuting and recreational purposes.

The American River Erosion Contract 3B (North and South), Contract 4A, and Contract 4B include sites located alongside the Jedediah Smith Memorial Bike Trail.

The Sacramento River Parkway includes a paved trail along the levee top from Garcia Bend Park to Freeport Boulevard, passing through the project site for the Sacramento River Erosion Contract 3.

The Sacramento Northern Bike Trail extends from C Street in midtown Sacramento to the community of Elverta in northern Sacramento County. The Sacramento Northern Bike Trail passes the American River Erosion Contract 4A and Magpie Creek Project (MCP) components.

Railroads

As described in the 2016 ARCF GRR FEIS/EIR, existing conditions and the affected environment for the project area on railroads are as follows (USACE 2016, p. 222):

“The Sacramento area has several railroad crossings, including the Union Pacific Railroad (UPRR), the Western Pacific Railroad (WPRR), the Northern Sacramento Railway, and the Yolo Shortline railroad tracks. The Sacramento Valley Station is a major rail hub utilized by several rail companies, including Amtrak and the Sacramento Regional Transit District light rail. These rail lines connect the greater Sacramento area with goods, services, and public transportation. There is a portion of the Sacramento

Southern Railroad located along the Sacramento River that is still in recreational use by the California State Railroad Museum.”

The Union Pacific Railroad (UPRR) extends through the American River Erosion Contract 4A project site, crossing the American River and the American River Parkway on an elevated viaduct.

2.1.2 Applicable Laws, Regulations, Policies, and Plans

Federal

No federal laws, regulations, policies, or plans are applicable to the Proposed Alternatives.

State

No state laws, regulations, policies, or plans are applicable to the Proposed Alternatives.

Local

Sacramento County General Plan of 2005 to 2030

The Transportation Policy Plan established in the Circulation Element of the Sacramento County General Plan of 2005 to 2030 sets out goals, policies, and implementation measures for mobility, roadways, transit, bicycle and pedestrian facilities, transportation systems management, rail transportation, and air transportation (County of Sacramento 2022). The Circulation Element’s goals and policies relating to the Proposed Action are listed below.

GOAL: Provide mobility for current and future residents of Sacramento County through complete streets and through a balanced and interconnected transportation system that includes all modes of travel - automobile, transit, pedestrian and bicycling.

Policy CI-1. Provide complete streets to provide safe and efficient access to a diversity of travel modes for all urban, suburban, and rural land uses within Sacramento County except within certain established neighborhoods where particular amenities (such as sidewalks) are not desired. Within rural areas of the County, a complete street may be accommodated through roadway shoulders of sufficient width or other means to accommodate all modes of travel.

GOAL: Provide safe, continuous, efficient, integrated, and accessible bicycle and pedestrian systems that encourage cycling and walking as a viable transportation mode and as a form of recreation and exercise.

Policy CI-34. Construct and maintain bikeways and multi-use trails to minimize conflicts between bicyclists, pedestrians, and motorists.

City of Sacramento 2035 General Plan Mobility Element

The Mobility Element of the City of Sacramento 2035 General Plan establishes policies to create a well-connected transportation network, encourage walking short distances, support biking long and short distances, improve public transit, reduce greenhouse gases and air pollution, and

continue accommodating vehicular traffic (City of Sacramento 2015). The Mobility Element's goals and policies relating to the Proposed Action are listed below.

Goal M 4.3 Neighborhood Traffic. Enhance the quality of life within existing neighborhoods through the use of neighborhood traffic management and traffic calming techniques, while recognizing the City's desire to provide a grid system that creates a high level of connectivity.

Goal M 1.3 Barrier Removal. Improve accessibility and system connectivity by removing physical and operational barriers to safe travel.

Policy M 1.3.4 Barrier Removal for Accessibility. The City shall remove barriers, where feasible, to allow people of all abilities to move freely and efficiently throughout the city.

American River Parkway Plan

The American River Parkway (Parkway) encompasses approximately 29 miles of open space extending across multiple jurisdictions from the Folsom Dam to the American River's confluence with the Sacramento River. The American River Parkway Plan (Parkway Plan) provides guidance to land use decisions affecting the Parkway including preservation, use, development, and administration. The management plan for the Wild and Scenic Rivers Act is also included within the Parkway Plan. The Parkway Plan is adopted as an element of the County of Sacramento General Plan and mentioned within the City of Sacramento and City of Rancho Cordova General Plans.

Parkway policies relevant to transportation effects of the Proposed Action include (County of Sacramento 2008, p. 21, 23).

Flood Control 4.13. Flood control berms, levees, and other facilities should be, to the extent consistent with proper operation and maintenance of these facilities, open to the public for approved uses, such as hiking, biking, and other recreational activities.

Recreation 5.13. A separate designated pedestrian trail shall be provided along the entire length of the parkway. The pedestrian trail will be adjacent to the existing paved Jedediah Smith Memorial (bicycle) trail, here practical, given the width of the area and location of trees and other natural resources. New trail sections shall avoid heavily vegetated areas and low floodplain locations subject to frequent inundation. This trail shall not be paved; instead, it shall have a naturalistic design and surface that is stable, firm, and slip-resistant in order to support assistive devices for persons with disabilities.

2.1.3 Analysis of Environmental Effects

2.1.3.1 Analysis Methodology

This analysis uses the standard from the Institute of Transportation Engineers (ITE) for assessing the effects of construction projects that create temporary traffic increases. ITE's recommended threshold is 50 or more new peak-direction truck trips during the peak-hour (ITE 1988). Therefore, if 50 or more truck new truck trips per hour during the a.m. or p.m. peak hours (6 to 9 a.m. and 4 to 7 p.m. in the project area) results from the project, it would constitute as a substantial increase in traffic, relating to existing traffic load and capacity of the street, and

significant effect relating to traffic. Construction of the project components would require use of heavy vehicles for earthwork and to haul materials to and from the project sites. Total estimated truck trips required to construct each project component are presented in Table 2.1-1. Haul routes that would be used for delivery of equipment and materials to and from the sites are shown in Chapter 2 “Project Alternatives.” Heavy vehicles affect traffic flow by taking up more roadway space and having poorer operating capabilities than passenger cars, especially relating to acceleration, deceleration, and ability to maintain speeds on grades (T.R.B. 2000). Other environmental effects to the transportation network were evaluated based on conditions in the vicinity of the project and the magnitude and duration of activities relating to construction and operation of the Proposed Action.

Table 2.1-1. Total Truck Trips by Project Component

Project Component	Total Truck Trips	Average Trips per Workday
Magpie Creek Project (MCP)	6,672	37
American River Erosion Contract 3B (North and South) and American River Erosion Contract 4B	24,750	138
American River Erosion Contract 4A	3,287	28
Sacramento River Erosion Contract 3	Materials transported by barge	N/A
ARMS	72,996	405
SRMS	11,950	13
TOTAL TRUCK TRIPS	126,348	N/A

2.1.3.2 Basis of Significance

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, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action while providing distinction between direct and indirect effects as required under NEPA (40 CFR 1508.1(g)). The alternatives under consideration were determined to result in a significant impact related to transportation and circulation if they would do any of the following:

- a. conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities (including adding 50 or more new truck trips during a.m. or p.m. peak hours);
- b. conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- c. substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- d. result in inadequate emergency service.

2.1.3.3 Effects Not Addressed in Detail

Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). (2.1-b)

The purpose of CEQA Guidelines Section 15064.3(b) is to provide criteria for determining

significance of transportation impacts using vehicle miles traveled (VMT). VMT is the total number of miles of automobile traffic attributable to a project.

The project is not a development or transportation project and is not expected to influence the region's development pattern or induce population growth. Therefore, the project would not affect future traffic patterns or VMT, and this issue is not addressed further in the SEIS/SEIR.

Effects from Piezometer Network. Transportation-related impacts from construction of the piezometer network are expected to be minimal; the equipment for the installations would consist of a drill rig and a support vehicle to provide well installation supplies. Furthermore, the piezometer installation would occur scattered across the entire ARCF 2016 Project footprint, thereby spreading this minor increase in truck traffic (one or two vehicles per day) across a larger number of roadways. No additional haul routes would be required beyond those already identified for the ARCF 2016 Project, and no temporary roads or ramps would be required to install piezometers. Additionally, no road closures or substantial disruptions to nearby bike trails would occur. Therefore, this project component would not cause additional direct or indirect transportation impacts and is not discussed further in this section.

2.1.3.4 Effects Analysis

No Action Alternative

The No Action Alternative includes the authorized project components from Alternative 2 in the 2016 GRR FEIS/EIR (USACE 2016, p. 45-58). Since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents listed in Section 2.1.1, "Related Documents and Resources," in the SEIS/SEIR document, and the authorized project includes implementation of all mitigation measures adopted and incorporated into the project. Alternative 2 included all the levee improvements discussed in Alternative 1 of the 2016 GRR FEIS/EIR (USACE 2016, p. 31-45); however, the extent of the levee raises along the Sacramento River were significantly less due to the widening of the Sacramento Weir and Bypass included in Alternative 2. The authorized actions from Alternative 2 are described in the 2016 ARCF GRR FEIS/EIR as follows (USACE 2016, p. 45-46):

"Alternative 2 would include all of the levee improvements discussed in Alternative 1, except for the extent of the levee raises along the Sacramento River would be significantly less. Instead of implementing the majority of levee raises included in Alternative 1, the Sacramento Weir and Bypass would be widened to divert more flows into the Yolo Bypass. The levees along the American River, NEMDC, Arcade, Dry Creek, Robla Creek, and Magpie Creek, would be improved to address identified seepage, stability, erosion, and height concerns through the methods described under Alternative 1. The levees along the Sacramento River would be improved to address identified seepage, stability, and erosion concerns through the measures described under Alternative 1. Due to environmental, real estate, and hydraulic constraints within the American River North and South basins, the majority of the levees would be improved within the existing levee footprint to the extent practicable."

Impacts to transportation previously analyzed under the 2016 GRR FEIS/EIR and thus for this SEIS/SEIR No Action Alternative would include use of heavy vehicles to transport materials

along highways and local roads that provide access to the project levees. Haul trucks would increase traffic on major streets such as Watt Avenue, Fair Oaks Boulevard, Howe Avenue, and Folsom Boulevard for American River levee improvements and on Pocket Road, Freeport Boulevard, and Riverside Boulevard for Sacramento River improvements.

Impacts under the No Action Alternative would be short-term and significant until construction is completed. However, after construction is completed, there would be no long-term impacts and traffic would return to the pre-project conditions.

Proposed Action Alternative

2.1-a, c Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, or substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

CEQA Impact Conclusion: Significant and Unavoidable

NEPA Impact Conclusion: Significant and Unavoidable

Magpie Creek, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable.

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable.

The proposed action does not alter transportation routes that would substantially increase hazards due to a geometric design feature or incompatible use for any of the project components.

Heavy construction vehicles will primarily access the MCP project components via Raley Boulevard from Elk Horn Boulevard or I-80. Other local roads for site access and hauling include Vinci Avenue, Main Avenue, Bell Avenue, Rose Street, Dry Creek Road, and Santa Ana Road. Construction will occur in phases over time with different haul routes used depending on which element is under construction at the time. Total truck trips for material hauling at the MCP over the entire construction materials are presented in Table 2.1-1. Heavy truck traffic would not interfere with pedestrian or bicycle routes.

There are no pedestrian or bicycle routes at the ARMS. The ARMS would be accessed via Northgate Boulevard and existing power line maintenance roads. From Northgate Boulevard, trucks would access the regional road network via Garden Highway, SR-160, I-5, I-80 Business, or I-80. Construction activities would require fill materials hauled to the site and demolition and debris materials hauled offsite. Total estimated truck trips required to construct the ARMS and the MPC is presented in Table 2.1-1.

The increased heavy truck traffic through the haul routes would alter normal traffic flows, potentially slowing traffic down and making it more challenging for other drivers to navigate around local roads. The increased truck traffic could disturb residential areas thereby conflicting

with the County of Sacramento's goal to enhance the quality of life in neighborhood through traffic management. The total number of truck trips for each project component would not be evenly split over the duration of the construction period, rather there would be some days with many more heavy vehicles hauling materials to and from the project sites while other days may not have any. Therefore, it is likely that there would be some days when heavy truck traffic would exceed the ITE-recommended threshold of 50 trips per a.m. or p.m. peak hour on some roadways. This would be a significant impact. Implementing Mitigation Measure TRANS-1, which was previously adopted and incorporated into the ARCF 2016 Project, would include traffic control plans, signage, and notification of trips. However, there is no feasible mitigation available to reduce the total number of truck trips required to transport the required materials to the project sites to a less-than-significant level. This impact would therefore remain significant and unavoidable.

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

Before the start of project-related construction activities, the Project Partners would require the contractor to prepare a Traffic Control and Road Maintenance Plan. This plan would 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 would 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. Encroachment permit conditions, as known at the time of construction contract solicitation, will be included in the construction contract. Encroachment permit conditions would be enforced by USACE and 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 would provide an off-site staging area and as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site.
- Proposed lane closures would be coordinated with the appropriate jurisdiction and be minimized to the extent possible during the morning and evening peak traffic periods. Construction specifications would limit lane closures during commuting hours where feasible, and lane closures would be kept as short as possible. If a road must be closed, detour routes and/or temporary roads would be made to accommodate traffic flows. Signs would 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 and cyclists can avoid traveling through affected areas during these times.

- Provide bicycle detours to allow for continued use by bicycle commuters. Always maintain safe pedestrian and bicyclist access around the construction areas. Construction areas would be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment would be located as far away as possible from areas where bicyclists and pedestrians are present. Signage for street detours would be located outside of the bike lanes and up on the curb where feasible.
- 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 would be always made available.
- The construction contractor would document pre- and post- construction conditions on roadways used during construction. This information would be used to assess damage to roadways used during construction. The contractor would repair all potholes, fractures, or other visual damages associated with project work.
- Comply with Caltrans requirements by submitting this Traffic Control and Road Maintenance Plan to Caltrans for review to traffic controls and cover points of access from the State highway system (SR-160, I-5, I-80 Business, and I-80) for haul trucks and other construction equipment.

Timing: Before and during construction

Responsibility: Project Partners

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable.

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable.

Materials used to construct American River Erosion Contract 4A would primarily be hauled via SR-160, I-80 Business, or I-5, then along local roads including Del Paso Boulevard, Arden Way, Richards Boulevard, Garden Highway, Expo Parkway, Leisure Lane, Commerce Circle, and Lathrop Way. The activities requiring use of the haul routes, site prep, tree clearing, and construction activities, are anticipated to take place in 2025 to 2027. Total estimated truck trips for the American River Erosion Contract 4A project component during this period are presented in Table 2.1-1.

Materials used to construct American River Erosion Contract 3B North and South and the American Erosion Contract 4B, would primarily be hauled from I-80 or U.S. 50 to local roads via Howe Avenue, Watt Avenue, and Fair Oaks Boulevard, among several others. It is anticipated that site prep and tree clearing would begin in 2024 and construction would occur over two years beginning in 2025 and vegetation monitoring occurring in 2027. The total truck

trips resulting from the Proposed Action components of American River Contract 3B over the 3-year period are presented in Table 2.1-1.

The increased heavy truck traffic from transport of materials to and from sites, which would occur through the haul routes, would alter normal traffic flows, potentially slowing traffic down and making it more challenging for other drivers to navigate around. However, a high frequency of heavy truck traffic should only occur during erosion control improvements and would not occur during clearing, plant establishment, and monitoring phases. The increased heavy truck traffic could disturb residential areas thereby conflicting with the County of Sacramento's goal to enhance the quality of life in neighborhood through traffic management. The total number of truck trips for each project component would not be evenly split over the duration of the construction period, rather there would be some days with many more heavy vehicles hauling materials to and from the project sites while other days may not have any. Therefore, it is likely that there would be some days when heavy truck traffic would exceed the ITE recommended standard of 50 truck trips per a.m. or p.m. peak hour on some roadways. This would be a significant impact. The following mitigation measure has been identified to address this impact.

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

Please refer to Impact 2.1-a,c Project Components MCP and ARMS above for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Although Mitigation Measure TRANS-1 would include traffic control plans, signage, and notification of trips, there is no feasible mitigation available to reduce the total number of truck trips required to transport the required materials to the project sites. This impact would therefore remain significant and unavoidable.

As described in Chapter 2 "Project Alternatives", erosion protection work from American River Contract 3B North (Site 3-1 and 4-2), American River Erosion Contract 4B and American River Erosion Contract 4A would impact the Jedediah Smith Memorial Bike Trail. These impacts would be temporary only occurring during the construction season. The American River Erosion Contract 4A includes an erosion protection berm that would block the current path of the Jedediah Smith Memorial Bike Trail underneath the California SR 160 bridge. The Proposed Action includes a permanent re-route of the bike trail on the south side of the wetland, following an existing equestrian, hiking and off-road bike trail for Site 4A. Detours needed for work along the Jedediah Smith Memorial Bike Trail would be coordinated with the Sacramento County Department of Parks and Recreation to ensure they are safe and comply with recreational policies established within the Parkway Plan. While commuter traffic along the bike trail would be significantly impacted, detours would be conducted in compliance with all local and regional plans as required by Mitigation Measure TRANS-1, reducing the transportation impact to bicycle and pedestrian facilities less than significant with mitigation incorporated.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated.

Materials would be hauled to the project location for erosion work by barge; therefore, this project component would include only incidental truck trips for small volumes of materials not transportable by barge. Cut trees would be chipped and hauled away by dump truck and construction workers would travel along existing freeways, highways, county and city roads and levee patrol roads to access the project sites and staging area located at Garcia Bend Park. Tree removal is expected to occur over approximately 4 months. This impact would be less than significant.

As described in Chapter 2, "Project Alternatives," erosion protection work would impact the Sacramento River Parkway trail between Garcia Bend Park and Freeport Boulevard. These impacts would be temporary, only occurring during the construction season, expected during summer months. Detours for work disrupting this segment of the Sacramento River Parkway trail would be coordinated with the City of Sacramento. Commuter traffic along the bike trail will be significantly impacted, but detours will be conducted in compliance with all local and regional plans as required by Mitigation Measure TRANS-1, which was previously adopted for the ARCF 2016 Project. Implementing Mitigation Measure TRANS-1 would reduce the transportation impact to bicycle and pedestrian facilities to less than significant with mitigation implemented.

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

Please refer to Impact 2.1-a,c, Project Components MCP and ARMS above for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

There are no pedestrian or bicycle routes at the SRMS. The Sacramento River Mitigation site at Grand Island would be accessed via Grand Island Road and by private maintenance roads within the site. From Grand Island Road, trucks and workers would access the regional road network

via SR-160, SR-4, I-5, I-80, I-580, and I-680. Construction activities would require hauling fill and excavating earthwork using heavy vehicles along the abovementioned routes. Estimated earthwork and material needs would require approximately 559 truck trips occurring over two construction seasons, specifically 2024 and 2025. Any roads or other access areas damaged by construction activities would be fully repaired and restored to preconstruction condition. It is unlikely the threshold of 50 truck trips per day will be exceeded from the construction of the Sacramento River Mitigation site; however, there is potential that this threshold could be exceeded. For that reason, this impact is considered potentially significant. The following mitigation measure has been identified to address this impact.

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

Please refer to Impact 2.1-a,c Project Components MCP and ARMS above for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Implementation of TRANS-1 includes preparation of a traffic control plan to reduce road hazards resulting from associated truck traffic near the site. Furthermore, pre- and post-construction road surveys will be implemented as part of TRANS-1 to ensure that road conditions will be restored to pre-construction status. Therefore, the proposed action will have a less than significant impact with mitigation incorporated.

2.1-d Result in inadequate emergency service.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated.

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated.

Raley Boulevard would be closed to through traffic between Santa Ana Avenue and Vinci Avenue for 3-month period during the construction of the new crossing structure associated with the MCP. A portion of Del Paso Boulevard could be temporarily closed for the entire construction season between Northgate Boulevard and Railroad Drive during construction of American River Erosion Contract 4A. During this time, all traffic, including emergency vehicles,

would be required to follow detour routes. The American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento River Erosion Improvements, and Sacramento River and American River Mitigation components would not alter emergency routes during construction activities or during long-term operations. Additionally, no staging areas would block or inhibit the flow of traffic. However, both the temporary closure of the Watt Avenue boat launch and the use of heavy trucks could present a delay to emergency operators on roadways and at the Watt Avenue access point for water rescue services. Therefore, this impact would be significant. The following mitigation measure has been identified to address this impact.

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

Please refer to Impact 2.1-a,c Project Components MCP and ARMS above for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Implementing Mitigation Measure TRANS-1, which was previously adopted for the ARCF 2016 Project, would require the provision of detour routes in consultation with the City of Sacramento, would ensure that access for emergency service vehicles would be maintained at all times, and require informing emergency service providers prior to construction activities. Because detours would be provided and emergency service providers would be informed of construction activities, this impact would be a less than significant impact with mitigation implemented.

Alternatives Comparison

The number of truck trips for each Alternative is provided in Table 2.1-2 below.

Table 2.1-2. Truck Trips by Alternative

Alternative	Truck Trips
Alternative 3a	586
Alternative 3b	4,058
Alternative 3c	3,282
Alternative 3d	2,495
Alternative 4a	45,000
Alternative 4b	48,875
Alternative 5a	0
Alternative 5b	62,500
Alternative 5c	0

Alternative 3a

Alternative 3a would only change the American River Contract 4A by replacing the waterside berm with a landside berm between the levee and the State Route 160 bridge piers. This would avoid temporary or permanent bike trail closures that are part of the Proposed Action. In addition to avoid impacts to the bike trail, a similar or slightly smaller number of materials and equipment

would be needed compared to the Proposed Action. All other project components would be the same as the Proposed Action. Impact conclusions for Alternative 3a is presented in Table 2.1-3.

Table 2.1-3. Alternative 3a Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	Significance Conclusion	NEPA Effects Determination
2.1-a, c: Conflict with transportation plans or increase hazards	American River Contract 4A	Slight modifications to the design would avoid impact to bike trail in Alternative 3. Other impacts would be the same as the Proposed Action	TRANS-1	Significant and Unavoidable	Significant and Unavoidable
2.1-d: Result in inadequate emergency service	American River Contract 4A	No change from Proposed Action	TRANS-1	Less than Significant after Mitigation	Short-term and Negligible effects that are Less than Significant after Mitigation

Alternative 3b, 3c, and 3d

In Alternative 3b, the bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 3d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. All other project components would be the same as the Proposed Alternative. Impact conclusions for Alternatives 3b, 3c and 3d are presented in Table 2.1-4.

The modifications to the bike re-route under these Alternatives would not substantially change the distance and the materials volumes and associated truck trips would be unchanged from the Proposed Action. Therefore, impacts would remain the same as the Proposed Action, Significant and Unavoidable.

Table 2.1-4. Alternative 3b, 3c, and 3d Effects on Transportation

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Conclusion	NEPA Effects Determination
2.1-a, c: Conflict with transportation plans or increase hazards	American River Contract 4A	No change from Proposed Action	TRANS-1	Significant and Unavoidable	Significant and Unavoidable
2.1-d: Result in inadequate emergency service	American River Contract 4A	No change from Proposed Action	TRANS-1	Less than Significant after Mitigation	Short-term and Negligible effects that are Less than Significant after Mitigation

Alternative 4a – CEQA-Only

Alternative 4a would only change the ARMS. This alternative would retain a portion of the existing pond, which would reduce the need for fill material and associated truck trips compared to the Proposed Action. In Alternative 4a, the materials would include import of approximately 536,000 cy of material, compared to about 857,000 cy of material under the Proposed Action. Due to the substantial reduction in material volume, truck trips would be reduced to approximately 45,000 over the entire construction period, a reduction of approximately 30 percent compared to the Proposed Action. While this impact would be reduced compared to the Proposed Action, it would likely still exceed the 50 truck trips per peak hour threshold and therefore would be considered a Significant and Unavoidable impact, similar to the Proposed Action. Impact conclusions for Alternative 4a are presented in Table 2.1-5.

Table 2.1-5. Alternative 4a Effects on Transportation

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
2.1-a, c: Conflict with transportation plans or increase hazards	ARMS	Heavy truck traffic would be reduced under this alternative, but still would exceed 50 truck trips per peak hour. Therefore, impacts would be the same under this alternative, significant and unavoidable.	TRANS-1	Significant and Unavoidable
2.1-d: Result in inadequate emergency service	ARMS	No change from Proposed Action.	TRANS-1	Less than Significant after Mitigation

Alternative 4b – CEQA-Only

Alternative 4b would only change the ARMS. This alternative would retain a portion of the existing pond, which would reduce the need for fill material and associated truck trips compared to the Proposed Action. In Alternative 4b, the materials would include import of about 799,000 cy of material, compared to about 857,000 cy of material under the Proposed Action. Due to the reduction in material volume, this alternative would require approximately 15 percent fewer truck trips compared to the Proposed Action. While this impact would be reduced compared to the Proposed Action, it would likely still exceed the 50 truck trips per peak hour threshold and therefore would be considered a Significant and Unavoidable impact, similar to the Proposed Action. Impact conclusions for Alternative 4b are presented in Table 2.1-6.

Table 2.1-6. Alternative 4b Effects on Transportation

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
2.1-a, c: Conflict with transportation plans or increase hazards	ARMS	Heavy truck traffic would be reduced under this alternative, but still would exceed 50 truck trips per peak hour. Therefore, impacts would be the same under this alternative, significant and unavoidable.	TRANS-1	Significant and Unavoidable
2.1-d: Result in inadequate emergency service	ARMS	No change from Proposed Action.	TRANS-1	Less than Significant after Mitigation

Alternative 5a and 5c

Alternative 5a includes an alternative approach for the SRMS project component. All other project components (American River 3B, American River Erosion Contract 4A, Sacramento River, Magpie, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action; however, Conservation Bank Credits would be used for mitigation in lieu of the SRMS.

Alternative 5c would similarly include the purchase of conservation bank credits, but funds would also be provided for the Sunset Pumps Project. Sunset Pumps is being implemented by BOR, DWR and USFWS and consequently BOR, DWR and USFWS would complete corresponding environmental compliance documents. There would be no additional activities outside of BOR and USFWS’s NEPA document or DWR’s CEQA document, so there would be no additional project-related impacts from Alternative 5c on transportation.

There would be no new project-related construction or disturbance associated with Alternative 5a and 5c, as existing mitigation banks would be used or funds would be provided for the Sunset Pumps Project. Consequently, there would be no impacts to transportation for the SRMS project component for these alternatives. Impact conclusions for Alternative 5a are presented in Table 2.1-7.

Table 2.1-7. Alternative 5a Effects on Transportation

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Conclusion
2.1-a, c: Conflict with transportation plans or increase hazards	Sacramento River Mitigation	Alternative 5a would include purchase of mitigation credits and support for Sunset Pumps project, and so there would be no transportation impacts associated with the Sacramento River Mitigation project component, avoiding the impacts of the Proposed Action.	None	No Impact	No Impact
2.1-d: Result in inadequate emergency service	Sacramento River Mitigation	Alternative 5a would include purchase of mitigation credits and support for Sunset Pumps project, and so there would be no transportation impacts associated with the Sacramento River Mitigation project component, avoiding the impacts of the Proposed Action.	None	No Impact	No Impact

Alternative 5b

Alternative 5b includes an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Watermark Farms, located on the right bank of the Sacramento River between RM 50.5 and 51.25, would be used as the mitigation site for Sacramento River-related habitat impacts under Alternative 5b. This alternative would require approximately 1 million cubic yards of material to be imported for levee construction. Habitat creation would have balanced cut and fill, with approximately 530,000 cubic yards of material being moved on-site. This increased import of soil material would result in a substantial increase in truck trips for Alternative 5b compared to the Proposed Action. Unlike the Proposed Action, the truck trips required to implement Alternative 5b (see Table 2.1-2) would likely result in more than 50 truck trips per day during some periods of construction, and Alternative 5b would have a significant and unavoidable impact on transportation, compared to a less-than-significant impact after mitigation for the Proposed Action.

Alternative 5b would also require a rerouting of South River Road and would likely require temporary closures or lane reductions during construction. Although this impact would be reduced to a less-than-significant level after implementing Mitigation Measure TRANS-1, which requires notification of emergency services providers and coordination to minimize effects on the roadway network, the Proposed Action would construct the SRMS at a location which would not require road realignments, closures, or lane reductions during construction. This impact would be greater than the impact of the Proposed Action, although it would nevertheless be reduced to a less-than-significant level after mitigation. Impact conclusions for Alternative 5b are presented in Table 2.1-8.

Table 2.1-8. Alternative 5b Effects on Transportation

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.1-a, c: Conflict with transportation plans or increase hazards	SRMS	Alternative 5b would include construction of Sacramento River Mitigation at Watermark Farm. Approximately 1 million cubic yards of soil would need to be imported, a substantial increase in material transport over the Proposed Action.	TRANS-1	Significant and Unavoidable	Significant and Unavoidable
2.1-d: Result in inadequate emergency service	SRMS	Alternative 5b would include construction of Sacramento River Mitigation at Watermark Farm. This alternative would include a rerouting of South River Road and could affect emergency access during construction, an increased impact compared to the Proposed Action.	TRANS-1	Less than Significant after Mitigation	Short-term and Moderate after Mitigation

2.2 Recreation

2.2.1 Existing Conditions/Affected Environment

Water-based Recreational Opportunities

The environmental setting described in Section 3.14.1 of the 2016 ARCF GRR FEIS/EIR covering water-based recreational resources is applicable to the aquatic recreational resources found within the project site. It describes boating as an important recreational resource along both the American and Sacramento Rivers. American River Erosion Contract 3B, American River Erosion Contract 4B, American River Erosion Contract 4A, and the American River Mitigation site (ARMS) are all along the American River. Sacramento River Erosion Contract 3 and the Sacramento River Mitigation site (SRMS) are along the Sacramento River. Rafting, kayaking, paddleboarding, and fishing occurs on the American River. The ARMS property has been privately owned, so recreational use of the area is limited for public users. The Sacramento River is typically used for motorized boats, fishing, and waterskiing.

The Watt Avenue Boat launch is within the American River Erosion Contract 3B footprint. Garcia Park and Miller Park, which both have boat launches, are within the Sacramento River Erosion Contract 3 footprint. In addition, there are private boat docks within the Sacramento River Erosion Contract 3 footprint.

Land-based Recreational Opportunities

The environmental setting described in Section 3.14.1 of the ARCF GRR FEIS/EIR covering land-based recreational resources is generally applicable to the land-based recreational resources found within the project sites. Generally, it describes the primary recreational resource that could be affected by the flood risk reduction work as bicycling. In particular, the Jedediah Smith Memorial Trail, which is a multi-use trail in the American River Parkway connecting Discovery Park with Folsom Lake, is described as an important and heavily used recreational resource. In addition, bicyclists use the top of the levees along the Sacramento River and American River. Commuters also regularly use the bike trails to get to work. The Sacramento Northern Bike Trail, which connects Elverta and Rio Linda with the City of Sacramento, crosses through the Magpie Creek Project (MCP) site (Figure 2.2-4). In addition, the Sacramento Northern Bike Trail connects with the Jedediah Smith Memorial Trail just north of the American River Erosion Contract 4A site and just south of the ARMS. The Sacramento Northern Bike Trail is 8.8 miles (Sacramento 2011, Appendix D).

American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, and the ARMS are all within the American River Parkway (Figure 2.2-1 and Figure 2.2-2). The ARMS is located in the American River Parkway. The property has been private so recreation on the property has not been historically encouraged; however, wildlife on the property can be viewed from a distance. The environmental setting described in Section 3.14.1 of the ARCF GRR FEIS/EIR describes the American River Parkway in detail. It describes that the American River Parkway is listed under the Federal Wild and Scenic Rivers Act for outstanding recreational value (Heritage Conservation & Recreation Service 1980) and the State Wild and Scenic Rivers Act for recreation (Public Resources Code Section 5093.545h). The American River Parkway Plan supplies guidance on how to manage land use in the American

River Parkway. Other recreational activities within the American River Parkway include walking, cycling, running, hiking, bird watching, wildlife viewing, and horse riding. Recreational events, such as Ride the Parkway, Run the Parkway, Great American Triathlon, and the American River Half Marathon, occur within the American River Parkway.

Sacramento Erosion Contract 3 is located adjacent to the Sacramento River Parkway (Figure 2.2-3). The Sacramento River Parkway is located on the east side of the river from I-80 to Freeport (City of Sacramento 2012) and is managed by the City of Sacramento. The Sacramento River Parkway is a mix of private and public lands. Currently, portions of the Sacramento River Parkway have paved bike trails for bike and pedestrian access to the Sacramento River. Other areas of the Sacramento River Parkway have gravel roads that can be used for bike and pedestrian access. Some areas are on private land and fenced off to the public.

There are also several local parks and developed recreation areas within the project site:

Larchmont Community Park

Larchmont Community Park is approximately 12 acres and is managed by the Cordova Recreation and Park District. This park is adjacent to the American River levee near the College Green East neighborhood (Figure 2.2-1) and has large soccer fields, multi-use fields, tennis courts, a playground, and picnicking areas (Cordova Recreation and Park District 2023). The soccer fields are heavily used by youth soccer programs (Taylor 2022).

University Park

The American River Erosion Contract 2 Supplemental Environmental Impact Statement and Environmental Impact Report (EIS/EIR) sufficiently describes University Park and is incorporated here by reference. This park is approximately 3.4 acres (City of Sacramento 2023b) and is managed by the City of Sacramento. University Park is just east of Howe Avenue (Figure 2.2-1). University Park is under powerlines, but has open grassy fields, benches, and a small playground. In addition, there is a dog park in the southern portion of University Park.

Oak Meadow Park

Oak Meadow Park is between American River Drive and Kadema Drive and is across from the Kadema River Access (Figure 2.2-1). The Mission Oaks Recreation and Park District manages Oak Meadow Park and Oak Meadow Park is approximately 5.5 acres (Mission Oaks Recreation and Park District 2013). Oak Meadow Park is under powerlines, but contains open grassy fields, benches, and a walking trail.

Glenbrook Park River Access

Glenbrook Park River Access is approximately 3.5 acres and is managed by the City of Sacramento. This park is located along La Riviera Drive (Figure 2.2-1). Though under powerlines, this access area to the American River Parkway contains grassy fields and a bike trail that leads to the top of the levee.

Camp Pollock

The Sacramento Valley Conservancy manages Camp Pollock, which is approximately 11 acres (Sacramento Valley Conservancy 2023). Camp Pollock is located on the right bank of the American River within the American River Parkway just downstream of the State Route (SR) 160 Bridges (Figure 2.2-2). The Sacramento Valley Conservancy allows kayaking, canoeing, paddle boarding, fishing, weddings, youth educational camping, and events with over 200 people at Camp Pollock (Sacramento Valley Conservancy 2023). In addition, there is a native plant nursery at Camp Pollock.

Discovery Park

The Sacramento County Department of Regional Parks and Recreation manages Discovery Park. Discovery Park is 302 acres and is located on the right bank of the American River within the American River Parkway near Interstate(I)-5 (Figure 2.2-2). Discovery Park is popular for rafters and waders. The property has a boat launch, archery range, and is often used for large outdoor events like concerts.

Garcia Bend Park

The Sacramento River East Levee Contract 2 Supplemental Environmental Assessment (SEA) and EIR discusses Garcia Bend Park, which discussion is incorporated by reference. This park is located in the Pocket Neighborhood along Pocket Road Figure 2.2-3). Garcia Bend Park is managed by the City of Sacramento and contains a boat launch, picnic areas, soccer fields, tennis courts, and playgrounds. Overall, the park is 18.9 acres.

Miller Regional Park

Sacramento River East Levee Contract 2 Supplemental EIR/EA discusses Miller Regional Park. This park is located approximately 3 miles north of the Proposed Action and is just south of I-80. The City of Sacramento manages the 40.3-acre Miller Regional Park. The recreational resources available at Miller Park include picnic areas and a boat launch.

Walter S. Ueda Parkway

The City of Sacramento manages the Walter S. Ueda Parkway, and the recreational area is 491.84 acres (City of Sacramento 2023d). The area contains a 12.5-mile walking path. Only the most northeastern section between Rio Linda Boulevard and Rose Street is within the Project Site (Figure 2.2-4).

Dry Creek Parkway

Sacramento County manages the Dry Creek Parkway, and the recreational facility is 1,300 acres (Sacramento County 2003). The Dry Creek Parkway is a 6-mile corridor that contains recreational resources such as a golf course, horse trails, picnic facilities, soccer fields, and hiking trails (Sacramento County 2023d). Only the most southern section between Rio Linda Boulevard and Rose Street is within the Project Site (Figure 2.2-4).

Watt Avenue Boat Launch

Sacramento County Department of Regional Parks manages the Watt Avenue Boat Launch. The Watt Avenue boat launch has two boat ramps and many parking spots. This recreational facility is in the American River Parkway on the left bank just under the Watt Avenue bridge and is a popular spot for kayakers, canoers, and paddleboarders to access the American River.

Waterton Way River Access

Sacramento County Department of Regional Parks manages the Waterton Way River Access. This recreational facility has parking spots and access to the American River Parkway, though the area has been closed to vehicle access recently. It is located on the left bank in the Larchmont Riviera neighborhood near the Manlove Pump Detention Basin (Figure 2.2-1).

Kadema Drive River Access

This recreational facility has parking spots and access to the American River Parkway. It is located on the right bank across from Oak Meadow Park.

Estates Drive River Access

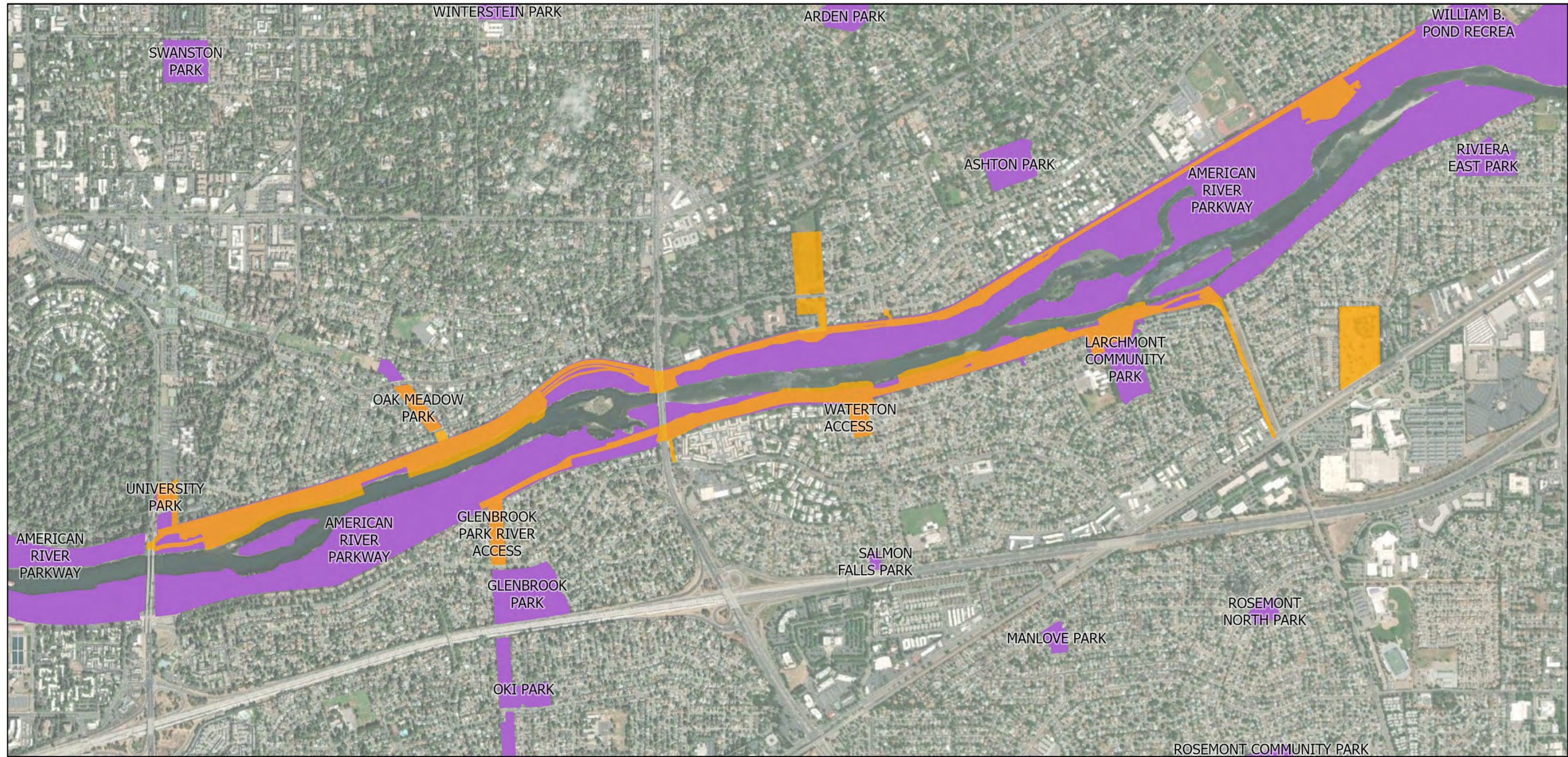
This recreational facility has parking spots and access to the American River Parkway. It is located on the right bank in the Wilhaggin neighborhood.

Harrington Way River Access

This recreational facility has access to the American River Parkway. It is located on the right bank at Harrington Way in Carmichael.

North Point Way River Access

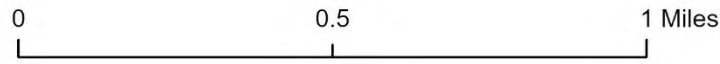
This recreational facility has access to the Sacramento River and is managed by the City of Sacramento. It is in the Pocket neighborhood along North Point Way (Figure 2.2-1).



Recreational Areas Near American River Erosion Contracts 3B North and South

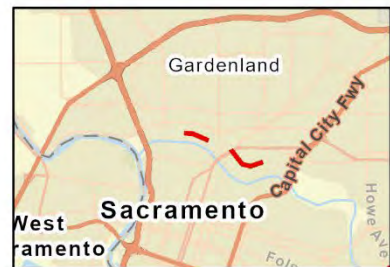
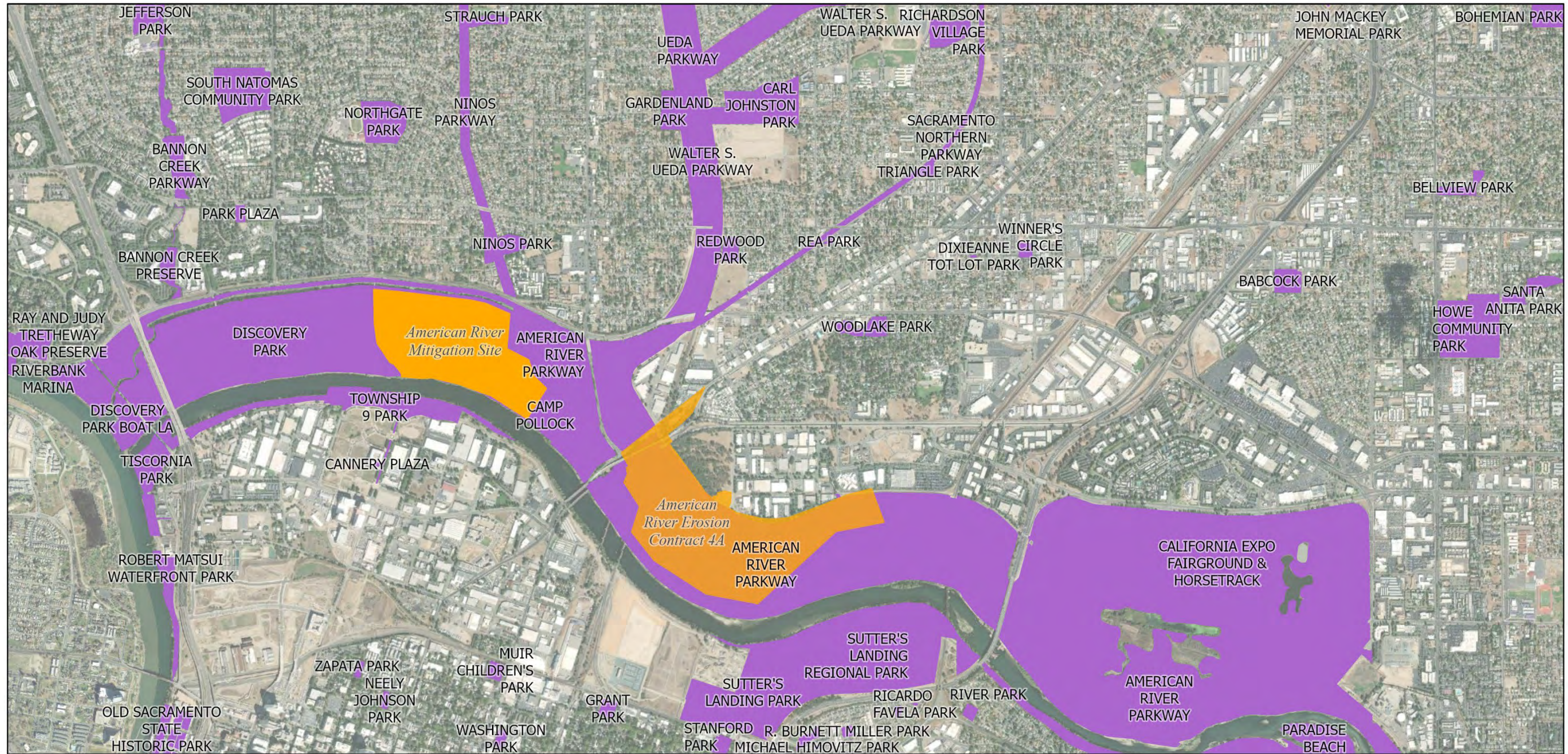
- Project Site
- Recreational Area

Updated 11/14/2023



US Army Corps of Engineers
Sacramento District

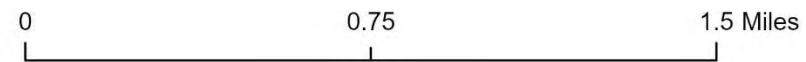
Figure 2.2-1. Recreational areas near American River Contracts 3B North and South



Recreational Areas Near American River Erosion Contract 4A and American River Mitigation Site

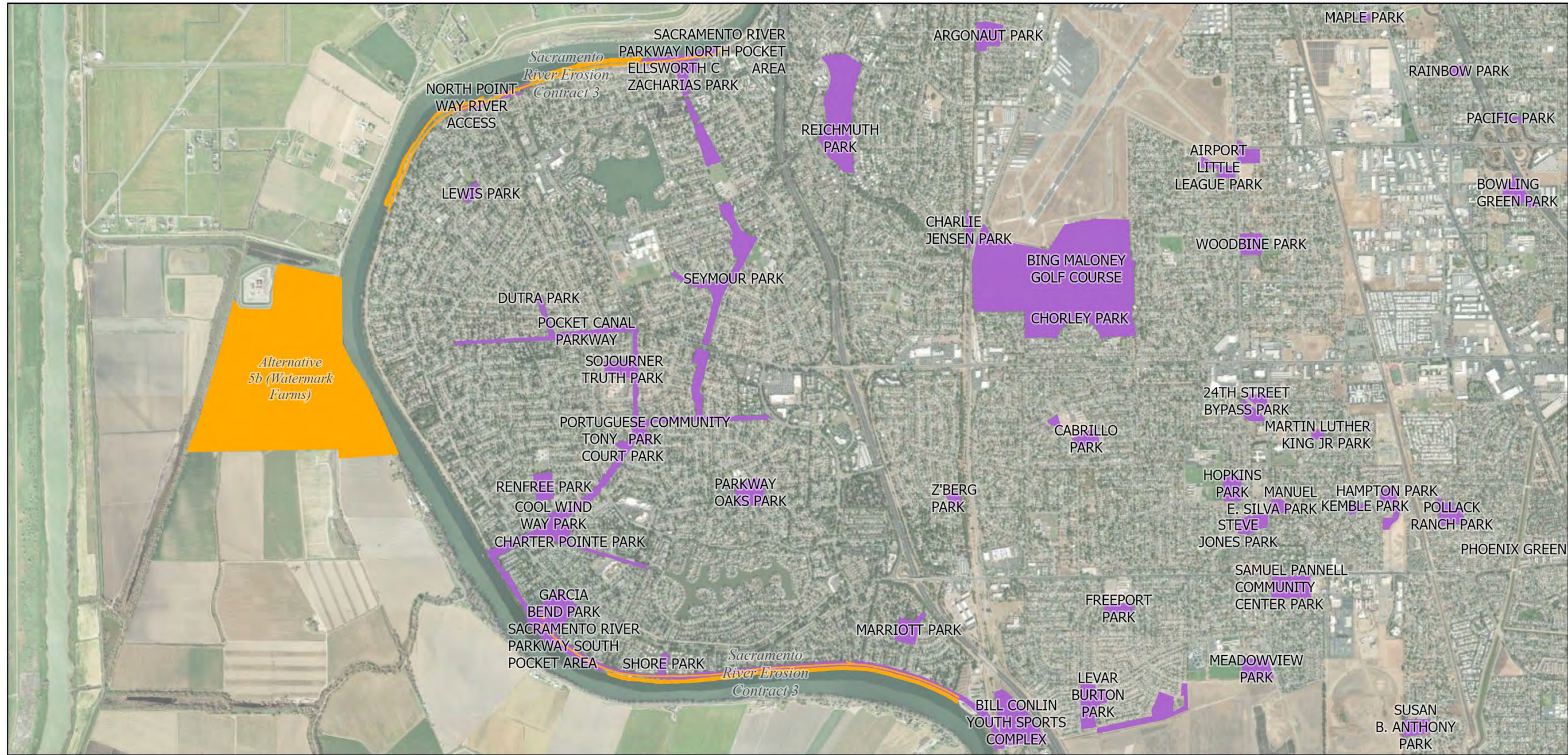
- Project Site
- Recreational Area

Updated 7/11/2023



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Sacramento District

Figure 2.2-2. Recreational areas near American River Contracts 4A and the ARMS



Recreational Areas Near Sacramento River Erosion Contract 3 and Alternative 5b

- Project Site
- Recreational Area

Updated 6/29/2023

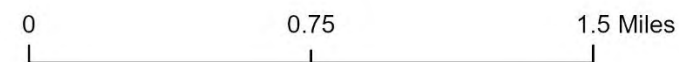
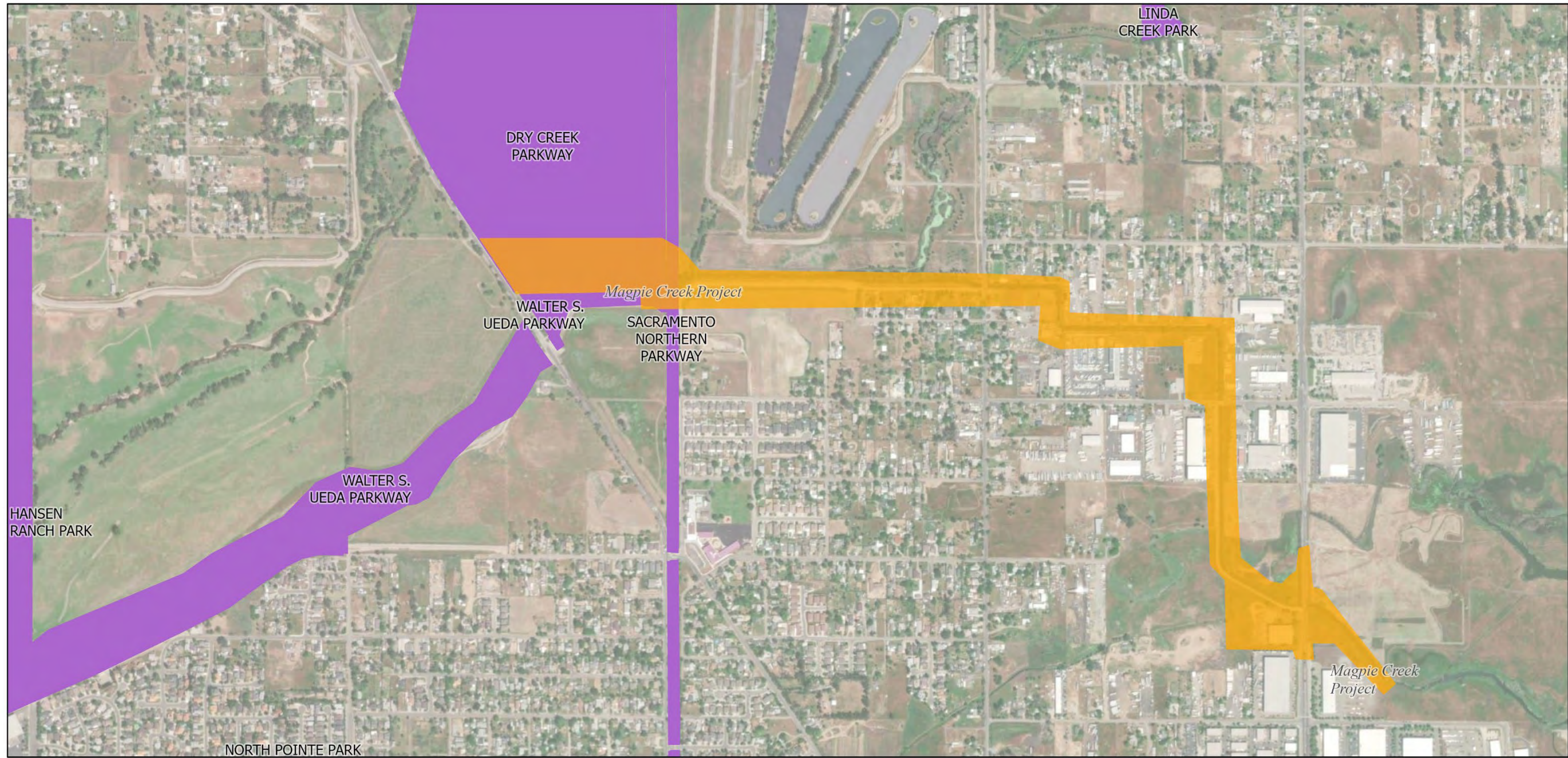


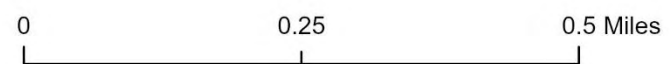
Figure 2.2-3. Recreational areas near Sacramento River Erosion Contract 3 and Alternative 5b



Recreational Areas Near the Magpie Creek Project

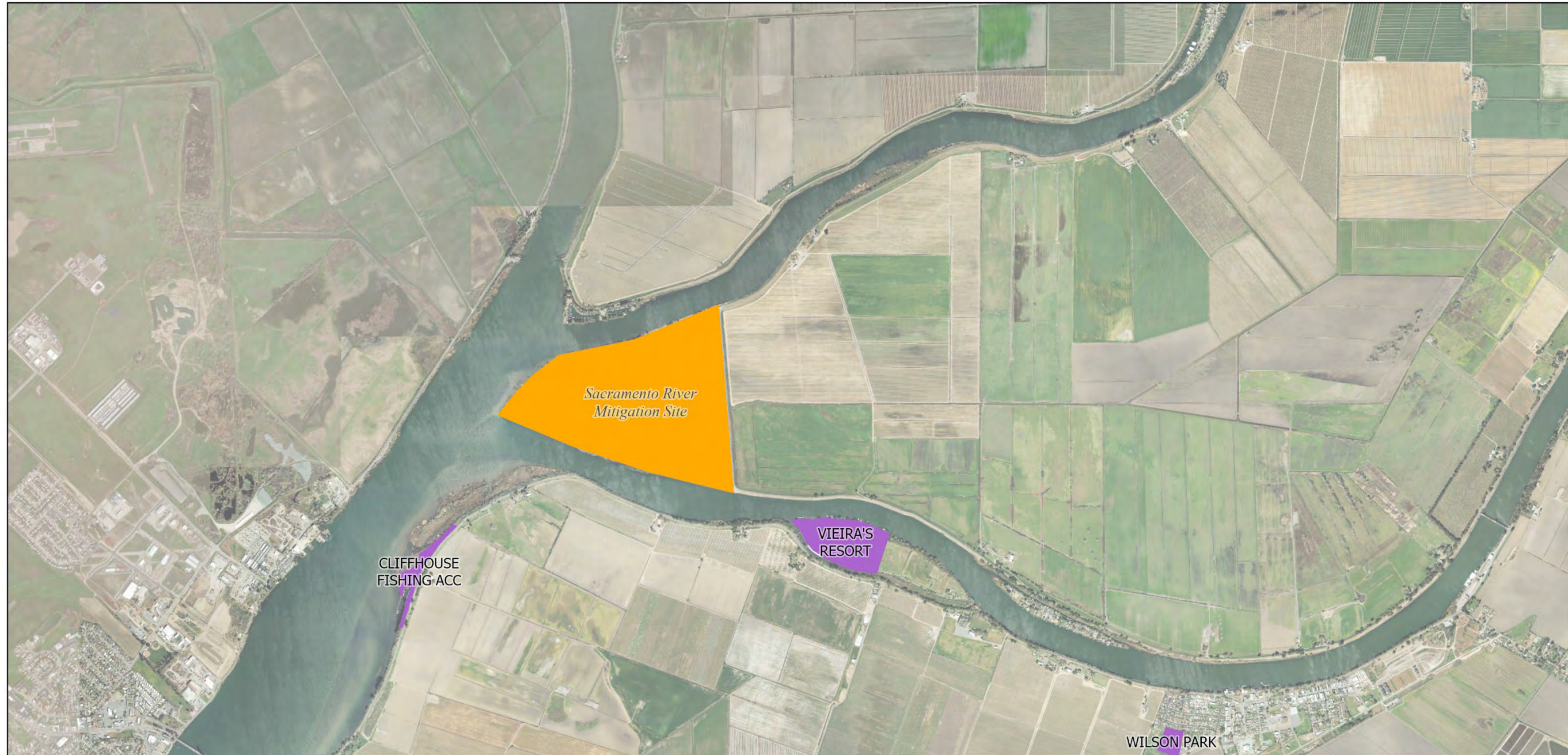
- Project Site
- Recreational Area

Updated 7/11/2023



US Army Corps of Engineers
Sacramento District

Figure 2.2-4. Recreational areas near MCP



Recreational Areas Near Sacramento Mitigation Site

- Project Site
- Recreational Area

Updated 7/11/2023

0 0.5 1 Miles

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**US Army Corps
of Engineers®**
Sacramento District

Figure 2.2-5. Recreational areas near SRMS

2.2.2 Applicable Laws, Regulations, Policies, and Plans

Federal

National Wild and Scenic Rivers Act (16 U.S.C. 1271 et. seq.)

The Wild and Scenic Rivers Act of 1968 was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981. The Lower American River was listed for having extraordinary anadromous fishery resources and recreation. The act applies to the parts of the Proposed Action along the American River, specifically all areas disturbed by implementation of the Proposed Action within the Parkway associated with American River Erosion Contract 3B, American River Erosion Contract 4A, and the ARMS.

Sections 9 and 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. §§ 401 and 403)

Section 9 of the River and Harbors Appropriation Act requires Congress's consent to build a ridge, causeway, dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States. It also requires the Secretary of Transportation, Chief of Engineers and Secretary of the Army to review and approved plans associated with these projects. Section 10 of the River and Harbors Appropriation Act prohibits construction of any wharf, pier, boom, weir, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines. The Rivers and Harbors Appropriation Act of 1899 applies to the parts of construction work within navigable waters at American River Erosion Contract 3B, ARMS, Sacramento River Erosion Contract 3, and SRMS.

State

California Wild and Scenic Rivers Act (PRC Section 5093.545h.)

The California Wild & Scenic Rivers Act of 1972 was put in place to preserve certain rivers that have extraordinary recreational, scenic, fishery or wildlife values. The Lower American River between Nimbus dam and where the American River intersects with the Sacramento River has been designated under the State Wild and Scenic Rivers Act for recreational values. The act applies to the parts of the Proposed Action along the American River, specifically all areas disturbed by implementation of the Proposed Action within the Parkway associated with American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, and the ARMS.

Local

American River Parkway Plan

The American River Parkway Plan outlines how the American River Parkway should be protected, enhanced, and expanded, where appropriate. Sacramento County Department of Parks and Recreation handles the day-to-day management from the junction of the Sacramento River and the American River upstream to Hazel Avenue. There are portions of the American River

Parkway that are managed by State and Federal land managers. Sacramento County Department of Regional Parks manages some State-owned property while other Federal land-owning managers are encouraged to administer their properties in accordance with the American River Parkway Plan. The American River Parkway Plan applies to the parts of the Proposed Action in the American River Parkway, specifically all disturbed by implementation of the Proposed Action within the Parkway associated with American River Erosion Contract 3B, American River Erosion Contract 4A, and the ARMS. See Appendix B Section 2.4 “Land Use and Prime and Unique Farmland” for a discussion regarding the Proposed Action's consistency with the American River Parkway Plan, as well as policies outlined in the American River Parkway Plan that apply to the Proposed Action.

American River Parkway Natural Resources Management Plan

The American River Parkway Natural Resources Plan is to be used in conjunction with the American River Parkway Plan to manage natural resources in the American River Parkway (Sacramento County 2023a, Chapter 1). A final draft of this document was adopted on February 28, 2023 (Sacramento County 2023a). The American River Parkway Natural Resources Plan is applicable to the parts of the Proposed Action in the American River Parkway, specifically all disturbed by implementation of the Proposed Action within the Parkway associated with American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, and the ARMS.

Sacramento City Parks and Recreation Master Plan

This policy document, updated in 2009, guides the direction for Sacramento City Parks and Recreation. In addition, it outlines how Sacramento City Parks and Recreation aligns with the City's goals, demonstrates benefits provided by the Sacramento City Parks and Recreation, and tells the public how they can get involved (City of Sacramento 2009). The Sacramento City Parks and Recreation Master Plan applies to the parts of the Proposed Action in parks managed by the City of Sacramento, specifically all construction work and some staging for American River Erosion Contract 4A, American River Erosion Contract 4B, the ARMS, Sacramento River Erosion Contract 3, MCP, and some staging and some construction work for American River Erosion Contract 3B.

Sacramento County Bikeway Master Plan

The Sacramento County Bikeway Master Plan, developed in April of 2011, guides Sacramento County on bikeway policies, programs, and development standards with the intention of increasing those who use bicycling as a mode of transportation within Sacramento County (Sacramento County 2011). The Sacramento County Bikeway Master Plan applies to the parts of the Proposed Action impacting bike trails, specifically some construction work for American River Erosion Contract 3B, American River Erosion Contract 4A, the ARMS, MCP, and Sacramento Erosion Contract 3.

City of Sacramento 2035 General Plan – Education, Recreation, and Culture

Approved on March 3, 2015, the City of Sacramento 2035 General Plan (City of Sacramento General Plan) is a comprehensive plan that directs the City of Sacramento on future land use, development, and environmental protection. Goal ERC 2 lists the policies for maintenance of

recreational facilities, development of recreational facilities, and development of recreational programs (City of Sacramento 2015). These policies include maintaining a complete park system, connecting recreational facilities, service goals, providing a range of experiences, and preserving the Sacramento and American River Parkways (City of Sacramento 2015). The City of Sacramento General Plan applies to the parts of the Proposed Action impacting the City of Sacramento, specifically all construction work and some staging for American River Erosion Contract 4A, the ARMS, Sacramento River Erosion Contract 3, MCP, and some staging and some construction work for American River Erosion Contract 3B.

Sacramento County General Plan of 2005 to 2030, Open Space Element and Conservation Element

Adopted November 9, 2011, the Sacramento County General Plan of 2005 to 2030 (Sacramento County General Plan) outlines the goals, objectives, and policies for future development in the unincorporated areas of Sacramento County. The Open Space element, which was updated November 26, 2017, discusses that open space is important for providing passive recreation. Policies listed to protect open space include protecting open space, maintaining open space, maintaining a regional park standard of 20 acres per 1,000 population, establishing trail connections, and establishing greenbelts. The Conservation Element, which was updated September 26, 2017, discusses protecting streams, riparian habitat, and the American River for recreational values. Policies related to recreation include prohibiting recreational uses on prime farmland, dedicating land near streams for recreation, encouraging recreational opportunities as important parts of levee stabilization, and protecting stream corridors for recreational uses. The Sacramento County General Plan applies to all areas disturbed by the Proposed Action associated with the SRMS and some construction work and staging areas associated with American River Erosion Contract 3B.

Cordova Recreation and Park District Master Plan for New Development in Incorporated Areas

The Cordova Recreation and Park District Master Plan outlines the recreation planning efforts of Rancho Cordova over a 10-year timeframe. Larchmont Community Park, a staging area under American River Erosion Contract 3B, is under the jurisdiction of Cordova Recreation and Park District, so staging at Larchmont Community Park falls under this Master Plan.

Mission Oaks Recreation and Park District Master Plan 2013-2022.

Adopted December 10, 2013, the Mission Oaks Recreation and Park District Master Plan 2013-2022 outlines funding, trends, information on parks, information on assets and a description of maintenance practices. Oak Meadow Park, a staging area under American River Erosion Contract 3B, is under the jurisdiction of Mission Oaks Recreation and Park District, so staging at Oak Meadow Park falls under this Master Plan.

Dry Creek Parkway Recreation Master Plan

Adopted in December of 2003, the Dry Creek Parkway Recreation Master Plan outlines the management and operation plans for future land use within the Dry Creek Parkway. A proposed staging area for The MCP is located at the southernmost end of the Dry Creek Parkway. Use of this land for staging falls under this Master Plan.

2.2.3 Analysis of Environmental Effects

2.2.3.1 Analysis Methodology

The evaluation of potential effects relies on the American River Parkway Plan, and the Final American River Parkway Natural Resources Plan for a description of recreational resources in the American River Parkway. The Sacramento County General Plan, City of Sacramento General Plan, the Cordova Recreation and Park District Master Plan, and the Mission Oaks Recreation and Park District Master Plan were reviewed to understand recreational goals and service levels for the portions of the Proposed Action covered under each planning document. In addition, these plans, in combination with the recreation agencies' websites were used to understand the recreational resources available at the public parks. Google Earth™ was used to compare the locations of recreational areas within the project sites. City of Sacramento park data was downloaded from the City of Sacramento Open Data (City of Sacramento 2023c) to understand park locations and size. Sacramento County park data (Sacramento County 2023b) and park district data (Sacramento County 2023c) were downloaded from the City of Sacramento Open Data to understand which parks were associated with each park district, park locations and sizes. Aerial photographs in ArcPro was used to estimate the acreage of the parks when the size of the parks was not easily found on the recreation agencies' websites.

Comments submitted during the NEPA scoping period (from October 7, 2022, to November 30, 2022) in response to the NOI were reviewed for relevance to the analysis of environmental consequences and development of mitigation measures. Two comment letters received from agencies had comments related to recreation. A letter was received during the NEPA scoping period from the Park Planning and Development Manager for the Cordova Recreation and Park District (Taylor 2022). This letter outlined concerns of the impacts on recreational resources associated with use of Larchmont Community Park as a staging area. Another letter from the County of Sacramento's Director of Regional Parks states that the American River Parkway Plan lists the goals and policies of the Discovery Park Area (the location where the ARMS is), is to reclaim and restore the site to support historical and cultural interpretive activities, hiking, picnicking, and wildlife viewing. The letter from County of Sacramento's Director of Regional Park also requests that an alternative ARMS option with a pond be analyzed which would preserve interpretive and wildlife viewing values. Three comments were received from the public relating to recreation as well. Two comments were concerned about ARMS's impact to the American River Parkway. The third comment was focused on bird habitat associated with ARMS and discussed birding census activities done at the site. These comments were considered during the analysis.

2.2.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g) and the State CEQA Guidelines, as amended. The alternatives under consideration were determined to result in a significant impact related to recreation if they would do any of the following:

- a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment; or
- c. Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).

2.2.3.3 *Effects Not Addressed in Detail*

Due to the scale of the Proposed Project, all project components were analyzed for impacts to recreational resources.

2.2.3.4 *Effects Analysis*

No Action Alternative

Since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents listed in Section 2.1.1, “Related Documents and Resources,” in the SEIS/SEIR document, and the authorized project includes implementation of all mitigation measures adopted and incorporated into the project. Only impacts from previous ARCF 2016 Projects that are directly related to the Proposed Action are summarized here. The ARCF GRR FEIS/EIR Section 3.14 analyzed impacts to recreational resources that are relevant to the project site. The ARCF GRR FEIS/EIR concluded that the detours and disruptions caused by closure of portions of the Jedediah Smith Memorial Trail and the top of levees along the American River during project construction would conflict with the requirements of the Wild and Scenic Rivers Act, having a significant direct impact on the tranquility of river areas within the project site, and cause a significant unavoidable impact to recreational resources. Mitigation measures listed in section 3.14.6 of the ARCF GRR FEIS/EIR would be implemented to minimize the impacts as much as feasible, although there would still be short-term significant unavoidable impacts to recreational resources. In addition, construction vehicles would cause significant unavoidable impacts to recreational resources kept open due to increases in traffic, noise, visual effects, odors, and air emissions. University Park would be closed during work for American River Erosion Contract 2, reducing the recreational experiences of the park. Garcia Bend Park and Miller Park would be used for staging for Sacramento East Levee Seepage, Stability and Overtopping Contract 2, Sacramento East Levee Seepage, Stability and Overtopping Contract 4, Sacramento River Erosion Contract 2 and Sacramento River Erosion Contract 4.

Closures of the levee crown along the Sacramento River would have direct short-term impacts to recreation since there are areas where the recreational trail is along the top of the levee. Walking trails and the bike path may be rerouted during work. Paved parking areas of Miller Park and Garcia Bend Park would be used for staging; however, the boat ramps would still be accessible to the public. Overall, there would be direct short term significant impacts to recreation along the Sacramento River.

Construction of the east side tributaries, including the MCP, under the No Action Alternative, would have a less than significant impact on recreational facilities. The only recreational facility in the area is the Sacramento Northern Bike Trail and it would not be negatively impacted by construction activities under the No Action Alternative.

The short-term significant unavoidable impact related to recreational resources would not be reduced to a less-than-significant level with implementation of mitigation measures listed in section 3.14.6 of the ARCF GRR FEIS/EIR. Disturbance associated with construction work and hauling is necessary for work to be done and consequentially the significant impact on recreation cannot be avoided.

Proposed Action Alternative

2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-term to Medium-Term and Moderate to Major effects that are Less than Significant.

American River Mitigation Site, Sacramento River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

There would be no complete closures of local parks or other recreational areas associated with the SRMS site, ARMS, and the Piezometer Network. Even though the ARMS is within the American River Parkway, the land was originally private and closing the area would not impact nearby parks. Because both the SRMS, Piezometer Network and ARMS do not involve closures of recreational areas, there would not be increased usage of nearby recreational areas due to the Proposed Action nor would the recreational areas degrade at an accelerated pace. The Proposed Action would have no impact on use or deterioration of other recreational areas under both CEQA and NEPA.

American River Erosion Contracts 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant.

NEPA Impact Conclusion (Design Refinements): Short-term to Medium-Term and Moderate to Major effects that are Less than Significant

Portions of the American River Parkway would be closed for both American River Erosion Contract 3B North, 3B South and 4A. Several local parks near the American River Erosion

Contract 3B North and South sites and American River Erosion Contract 4B would be closed during construction. Oak Meadow Park (5.5 acres) and Glenbrook Park River Access (3.5 acres) would have complete closures during construction. Larchmont Community Park and University Park would have partial closures during construction (Figure 2.2-1). Approximately 3 acres of University Park would be closed, and 7.5 acres of Larchmont Community Park would be closed (Figure 2.2-1).

Three recreational areas would be directly impacted by Sacramento Erosion Contract 3: the Sacramento River Parkway, the North Point Way River Access, and the Garcia Bend Park. All three of these parks are managed by the City of Sacramento. Approximately 54 acres of the Sacramento River Parkway and 5 acres of the North Point Way River Access would be closed (Figure 2.2-3) for approximately 8 weeks during tree clearing that is anticipated to occur from fall of 2025 to winter of 2026. During construction a small portion of Garcia Bend Park (approximately 0.1 acres) and a small portion (approximately 5.5 acres) of where the Sacramento River Parkway and the project site overlap would be closed (Figure 2.2-3).

The MCP would directly impact three recreational areas. A small portion (approximately 11.6 acres) of the Dry Creek Parkway would be directly impacted by staging and the work associated with the culvert replacement under the Sacramento Northern Bike Trail (Figure 2.2-4). Additionally, a small part (close to 1.3 acres) of the Sacramento Northern Bike Trail would be directly impacted by access and installation of the culvert under the trail (Figure 2.2-4). Finally, a small portion (approximately 3.5 acres) of land in the Walter S Ueda Parkway would be directly impacted by staging (Figure 2.2-4). The Northern Sacramento Bike Trail and the Walter S Ueda Parkway are managed by the City of Sacramento. The Dry Creek Parkway is managed by Sacramento County.

Due to closures and disruptions, recreationalists would likely instead access the American River further upstream or downstream of the project sites, specifically at the Howe River Access, Campus Commons River Access, and Kansas Way River Access and River Walk Way River Access. During American River Erosion Contract 3B work and American River Erosion Contract 4B, these access points could result in an increase in use during construction since it is anticipated that recreationalist who typically utilize the access points impacted by these components would start going to the next closest access point instead. Sierra Oaks Park is nearby Oak Meadow Park and could see an increase in use during construction of American River Erosion Contract 3B North since it is anticipated that recreationalists who typically utilize the parks impacted by American River Erosion Contract 3B would use the next closest park. Both the Howe River Access and the Glenbrook Park, south of Glenbrook Park River Access could see an increase in use during construction of American River Erosion Contract 3B South and American River Erosion Contract 4B since it is anticipated that recreationalist who typically utilize the parks impacted by American River Erosion Contract 3B would use the next closest park. During Sacramento River Erosion Contract 3 tree clearing, Zachariah's Park and Richard Marriott Park would likely see an increase of use by recreationalist since it is anticipated that recreationalist who typically utilize the parks impacted by Sacramento River Erosion Contract 3 would use the next closest park. The increase in use would occur over an anticipated 2-to-3-year timeframe around American River Erosion Contract 3B and approximately 8 months for Sacramento River Erosion Contract 3. Recreationalists at Dry Creek Parkway and Walter S. Ueda Parkway would likely use different areas of the parkways.

Several local governments have developed parkland to population service ratios in order to ensure adequate parklands are incorporated into development. Sacramento County has a service goal of 20 acres of parkland per 1,000 population (Sacramento County 2017). The City of Sacramento has a service goal of 5 acres of parks per 1,000 population and one park within 0.5 mile of all residences (City of Sacramento 2015). The Cordova Recreation and Park District has a service goal of 5 acres of parks per 1,000 population (Cordova Recreation and Park District 2014).

Table 2.2-1. Park Service Ratio Impacts

Department or District	Acres of Parks Managed	Acres Impacted by Proposed Action	Percent of Managed Parks Impacted	Population	Service Ratio Goal	Service Ratio without Proposed Action	Service Ratio with Proposed Action
City of Sacramento Department of Parks and Recreation	4,255.5 ¹	70.4	1.65%	525,041 ²	5 ³	8.11	7.97
Mission Oaks Recreation and Parks District	102 ⁴	5.5	5.39%	57,216 ⁴	--	1.78	1.69
Cordova Recreation and Park District	600 ⁵	7.5	1.25%	115,000 ⁶	5 ⁶	5.22	5.15
Sacramento County Department of Regional Parks	15,000 ⁷	331.6	2.21%	1,585,055 ²	20 ⁸	9.46	9.25

Compiled by USACE in 2023.

¹ City of Sacramento. 2023a. *Parks Directory*. Available: <https://www.cityofsacramento.org/ParksandRec/Parks/Park-Directory>. Accessed February 12, 2023.

² US Census. 2022. *Quick Facts*. Available: <https://www.census.gov/quickfacts>. Accessed February 16, 2023.

³City of Sacramento. 2015. *2035 General Plan*. Available: <http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/2035--General-Plan>. Accessed January 25, 2023.

⁴Mission Oaks Recreation and Park District. 2013. *Mission Oaks Recreation and Park District Master Plan 2013-2022*. Available: <https://www.morpd.com/files/d0079c33b/Master+Plan+2013-2022+Executive+Summary.pdf>. Accessed February 16, 2023.

⁵ Taylor, L.L. 2022. Letter from Cordova Recreation and Park District regarding: American River Common Features Project Notice of Intent to Prepare a Draft Supplemental Environmental Impact Statement in addition to a Draft Subsequent Environmental Impact Report XIV regarding the Lower American River Erosion Contracts 3B and 4A Public Scoping Comment Period October 31 to December 31, 2022.

⁶Cordova Recreation and Park District. 2014. *Master Plan for New Development in Incorporated Areas*. Available: https://crpd.com/wp-content/uploads/CRPD-Master-Plan_Chapter-1-3-1.pdf. Accessed February 16, 2023

⁷Sacramento County. 2023e. *Regional Parks-About Us*. Available: <https://regionalparks.saccounty.gov/Pages/AboutUs.aspx>. Accessed February 16, 2023.

⁸Sacramento County. 2017. *Sacramento County General Plan of 2005 to 2030, Open Space Element*. Available: <https://planning.saccounty.net/LandUseRegulationDocuments/Documents/General-Plan/Open%20Space%20Element%20-%20Amended%2009-26-17.pdf>. Accessed January 25, 2023.

Though service ratios would temporarily decrease due to the park closures, the decreases in the service ratios would be minimal (Table 2.2-1). Because these service ratios are not significantly changed and because the park closures are only temporary, the Proposed Action is not anticipated to cause rapid degradation to other parks and impacts would be less than significant on other local parks under both CEQA and NEPA.

2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

CEQA Significance Conclusion: Short-term Significant and Unavoidable impact, Long-term Less than Significant.

NEPA Significance Conclusion: Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant.

MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, American River Mitigation, Sacramento River Mitigation, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

There would be no recreational facility constructed or expanded by the MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network. There would be no impact.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable impact, Long-term Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable impact and Long-Term and Negligible effects that are Less than Significant.

A permanently rerouted path along the Jedediah Smith Memorial Trail would be constructed for American River Erosion Contract 4A (Figure 3.5.3-4, Map with Proposed Action) of the SEIS/SEIR). This path would generally follow an existing off-road bike trail. Construction of this trail would involve some grading, tree trimming and removal of trees blocking the bike path route. There would be a short-term significant and unavoidable direct impact from creation of the rerouted bike trail (Jedediah Smith Memorial Trail), and a long-term less than significant direct impact after the bike trail is constructed and open to the public.

2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).

CEQA Significance Conclusion: Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated.

NEPA Significance Conclusion: Short-term Significant and Unavoidable, Long-term Negligible Effects that are Less than Significant with Mitigation Incorporated

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term No Impact with Mitigation

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable, Long-term No Impact with Mitigation Incorporated

The ARCF GRR FEIS/EIR determined that construction activities would not directly impact the Sacramento Northern Bike Trail; however, the design refinements include changes that would affect this trail. The design refinements include a closure of the Sacramento Northern Bike Trail while the culverts are constructed in Robla Creek. The closure is anticipated to occur over a 3-5-month period starting in spring of 2027. There would be a detour onto side streets to go around the construction work. The Sacramento Northern Bike Trail is the only major paved bike trail in the area, the bike trail is a major bike connection for the area to central Sacramento. The bike trail would likely be closed between 3-5 months starting spring of 2027, and because putting bicyclists on streets would disrupt the natural views and sounds there would be a short-term significant and unavoidable direct impact on recreation. Implementing Mitigation Measure REC-1, which was previously adopted by the 2016 ARCF Project, would minimize the negative recreational impacts as much as possible.

Mitigation Measure REC-1: Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas

Project Partners would implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the project site:

- Consult with recreation user groups (directly or through Sacramento County Department of Regional Parks or City of Sacramento Department of Parks and Recreation) prior to and during construction for input into mitigation measures that would reduce effects to the maximum extent practicable. Advance notice would be given to recreation users, informing them of anticipated activities and detours to reduce the effects. Closures of paved trails would be noticed 14-days in advance via signage at the detour locations. When work in the American River Parkway affects the Jedidiah Memorial Trail, a Bike Detour Plan and a Sign Plan would be submitted to the Sacramento County Department of Regional Parks prior to work starting.
- Post signs at entry points for parks and recreation facilities clearly indicating closures and estimated duration of closures. Information signs would notify the public of alternate parks and recreation sites, including boat launch ramps, and provide a contact number to call for questions or concerns. Where feasible, avoid placing construction signage in the bike lanes themselves.

- Provide flaggers and post warning signs and signs restricting access before and during construction to ensure public safety.
- Provide marked detours for all bike trails and on-street bicycle routes that would be temporarily closed during construction. Detours would be developed in consultation with the Sacramento County Department of Regional Parks or City of Sacramento Department of Parks and Recreation and Sacramento County Department of Transportation or City of Sacramento Transportation Division at least 10 days before the start of construction activities, as applicable. Signs that clearly indicate closure routes would be posted at major entry points for bicycle trails, information signs would be posted to notify motorists to share the road with bicyclists where necessary, and a contact number would be provided to call for questions or concerns. Fences would be erected to prevent access to the project site.
- Provide traffic control in conformance with California Manual for Uniform Traffic Control Devices in areas where recreational traffic would intersect with construction vehicles.
- If any access point or boat launch ramp needs to be closed during construction, post notices providing alternative access routes and facilities.
- Upon completion of levee improvements, coordinate with the City of Sacramento, Sacramento County, Cordova Recreation and Parks District, and/or Mission Oaks Recreation and Park District to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

Timing: Before, during and after construction

Responsibility: Project Partners

After completion of construction activities, the bike trail would be reopened for use and there would be no direct or indirect impact in the long term.

A staging location is proposed within the Dry Creek Parkway. In addition construction vehicles would access the site through both the Dry Creek Parkway and Walter S. Ueda Park for two construction seasons. The staging area and access areas are within land that is generally fenced off to the public. There is part of a trail on the levee in the western portion of the project within the Walter S. Ueda Parkway that would be used for access. This trail is on the outskirts of the Walter S. Ueda Parkway and only 0.25 miles of the total 12.5 miles of trails available in the parkway would be impacted by the Proposed Action. Though visible by recreationalist, the staging area is generally fenced off, so there would not be recreational activities disrupted by the staging areas. Those who use the area for wildlife and bird viewing, would likely see less wildlife and birds during construction as construction equipment would likely scare away wildlife and birds. Staging and site access would have a less than significant direct impact to recreation since the area uses a small portion of the Walter S. Ueda Parkway and the Dry Creek Parkway is generally fenced off.

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated

There are many recreational areas involved with American River Erosion Contract 3B North and South and American River Erosion Contract 4B. One major recreational area is the American River Parkway. The American River Parkway is used for walking, cycling, running, hiking, bird watching, wildlife viewing, horse riding, rafting, kayaking, paddleboarding, and fishing. The intermittent construction, tree clearing, and site replanting over the timeframe of the work would reduce the quality of all of these recreational experiences in the American River Parkway, causing a direct significant impact that cannot be mitigated to a less-than-significant level, though mitigation measures (listed below as REC-1) would be implemented in an attempt to minimize the negative recreational impacts as much as possible. In addition, until vegetation reestablishes, wildlife and bird view would be impacted as habitat would be temporarily impacted. Parts of the American River Parkway would have to be closed during construction (Figure 2.2-1). A consistency determination would be coordinated with the National Park Service (NPS) to ensure the closure and American River Parkway impacts are in compliance with the Wild and Scenic Rivers Act. In addition, haul trucks would disrupt access and use of parks, boat launches, bicycle trails, hiking trails, and equestrian trails.

In particular, the Jedediah Smith Memorial Trail, which is a heavily used bike trail, would be directly and indirectly negatively impacted by the construction. Though the US Army Corps of Engineers (USACE), Central Valley Flood Protection Board and Sacramento Area Flood Control Agency (Project Partners) are aiming to keep bike traffic on the Jedediah Smith Memorial Trail when feasible, in some areas the Jedediah Smith Memorial Trail would have to be detoured to other locations on the levee, streets, or require stops and flaggers. The Project Partners would consult with the Sacramento County Department of Regional Parks on these detours. If street detours must be used, the Project Partners would consult with the Sacramento County Department of Transportation or the City of Sacramento Transportation Division as well. The top of the levee in most portions of American River Erosion Contract 3B is used for recreational activities such as walking, running, hiking, and biking. In addition, there are dirt trails throughout the site that are used for walking, hiking, biking, and horse riding. Most of the levee area is being used for haul access, construction, or staging so in some areas there would not be a feasible way to detour these hiking, and equestrian use trails within the parkway. During construction, these trails would be closed to hiking, and equestrian use in some areas for safety. Consultation would be done with Sacramento County Department of Regional Parks to ensure that detours are put in place for hiking and equestrian use where it is safe to do so, but it is anticipated that there would be locations where detours are not safely feasible. Where it is unsafe to provide detours, the trails would be closed during construction. The areas left open would be indirectly impacted by the work as noise and dust would disturb the recreational experience along the Jedediah Smith Memorial Trail. The American River Parkway hosts events like the Great American Triathlon. These events could be disrupted from the construction work and haul trucks. Project Partners consult with event organizers and Sacramento County on an annual basis on possible closures related to the ARCF 2016 Project in order to minimize possible disruptions to these events.

The disruption to use of the recreational resources in the American River Parkway over a multiyear timeframe (in conjunction with the work at American River Erosion Contract 4A) and additional disruption for the future work associated with the ARMS would cause direct significant and unavoidable impacts on recreation in the area. Mitigation measures (listed below as REC-1) would be implemented to minimize some of these impacts; however, there would still be a direct short-term significant and unavoidable impact on recreation in the American River Parkway.

Many staging areas for American River Erosion Contract 3B North and South and American River Erosion Contract 4B are public parks or recreational areas. Specifically, Oak Meadow Park, University Park, Waterton Way River Access, Larchmont Community Park and Glenbrook Park River Access would be used for staging. Some minor tree removal may be required for use of these parks as staging areas and for general access. As part of the real estate process to get access to use parks for the Proposed Action, consultation would occur with the City of Sacramento, Sacramento County, Cordova Recreation and Park District or Mission Oaks Recreation and Park District prior to removal of any tree. Any trees or vegetation that might be removed in the parks would be replanted in consultation with City of Sacramento Department of Parks and Recreation, Sacramento County Department of Regional Parks, Cordova Recreation and Park District or Mission Oaks Recreation and Park District.

Two soccer fields of the four soccer fields would be taken up for staging at Larchmont Community Park. Larchmont Community Park is used for youth soccer leagues and the loss of these fields would mean limited availability for games and practice.

Because American River Erosion Contract 3B erosion protection installation is anticipated to occur from early Spring or Summer 2025 to late 2026, these staging areas could be needed over multiple years. If the American River Erosion Contract 4B occurs after the American River Erosion Contract 3B work, there could be an additional year of disturbance in the area as well. Some staging access would be needed for tree clearing (likely occurring fall of 2024 to spring 2025 and fall 2025 to spring of 2026) and site revegetation (likely occurring 2026 and 2027), though it is likely that only small portions of the staging areas would be needed for this work and only minor haul traffic needed for tree clearing and site revegetation. The hauls routes are not anticipated to be completely blocked off for recreational use for tree clearing and site revegetation; however, active areas would be blocked off and additional areas outside the active work area could need to be blocked depending on bike ramp location and the ability of recreationalists to get through the area safely. In addition, access points included in the design refinements include the Estates Drive River Access, Harrington Way River Access, Watt Access on the North side of the River, and the Kadema River Access sites.

The recreational experience of these parks and recreational areas would be directly and indirectly significantly degraded over a multiple year timeframe since some of these parks would need to be closed or at least partially closed for safety reasons. Haul trucks would access the project site through parks at many locations (Figures 3.5.2-3 and 3.5.2-4 of the SEIS/SEIR). This means that those parks that only have a partial closure would have loud noises, air quality impacts, visual effects, and odor during construction hours, meaning that even if parks can stay partially open, the recreation experience at these parks would still be indirectly significantly degraded during construction. Implementing Mitigation Measures REC-1, which was previously adopted for the

2016 ARCF Project, would reduce some of the direct and indirect impacts, but since disturbance is required for work there would still be short-term significant unavoidable indirect and direct impacts on the recreational resources at the parks. After all construction activities are completed and sites are re-opened to the public, long-term impacts would be less than significant.

Mitigation Measure REC-1: Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordination to Repair Damage to Recreational Areas

Please refer to description above for the full text of this mitigation measure.

Timing: Before, during and after construction

Responsibility: Project Partners

Mitigation measures would not decrease impacts to less than significant. Recreational area closures are necessary for work due to the location of the flood risk reduction measures.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable with Mitigation Incorporated, Long-term No Impact

The ARCF GRR FEIS/EIR previously determined that for the ARCF 2016 Project, the intermittent construction over the timeframe of the work would reduce the quality of recreational experiences in the American River Parkway (such as walking, cycling, running, hiking, bird watching, wildlife viewing, horse riding rafting, kayaking, paddleboarding, and fishing), causing a significant direct and indirect impacts that cannot be mitigated to a less than significant level. Mitigation measures (listed above as REC-1) would be implemented to minimize the negative impacts to recreation as much as possible, but there would still be a significant unavoidable impact. In addition, since riparian habitat would be impacted, wildlife and bird viewing would be impacted until vegetation establishes. Portions of the American River Parkway would be closed during the duration of the construction. A consistency determination would be coordinated with the NPS to ensure the closure and general American River Parkway impacts are do not permanently impede the recreational qualities of the parkway under the Wild and Scenic Rivers Act of 1968. In addition, the ARCF GRR FEIS/EIR emphasized the haul trucks would disrupt access and use of parks, boat launches, bicycle trails, hiking trails, and equestrian trails. In particular, the Jedediah Smith Memorial Trail, which is a heavily used bike trail, would be negatively impacted by the construction. The direct and indirect significant impacts to recreation and the measures listed in Mitigation Measure REC-1 still apply to the design refinements. Since the ARCF GRR FEIS/EIR generally analyzed the impacts to the American River Parkway as a whole, and since the construction methods of the new erosion protection work would have the same general impacts to recreation that were analyzed in the ARCF GRR FEIS/EIR, there would be no new significant impacts for recreational activities within the American River Parkway.

The design refinements are anticipated to directly impact the Watt Avenue boat launch and could directly impact events along the American River Parkway. These impacts are not any different than discussed in the ARCF GRR FEIS/EIR, so there would be no new direct or indirect impacts associated with events in the Parkway or Watt Avenue boat launch.

There are many additional recreational facilities that would be directly impacted by the design refinements that were not addressed in the ARCF GRR FEIS/EIR. The ARCF GRR FEIS/EIR discussed that equestrian and hiking trails could be detoured. For American River Erosion Contract 3B North and South both hiking and equestrian trails go through the project site. Because the analysis in the ARCF GRR FEIS/EIR did not consider closure, the discussion on hiking and equestrian closures above under the CEQA Impact Conclusion is applicable for NEPA as well. Even with detours placed when feasible, there would be a short-term significant unavoidable direct impact to recreational use of these trails.

Additionally, the ARCF GRR FEIS/EIR did not analyze the effects of specific staging areas or access roads. In general, the ARCF GRR FEIS/EIR mentioned that staging would likely be done in the American River Parkway. In addition, the Supplemental EIS/EIR for American River Erosion Contract 2 analyzed use of University Park as a staging area. Because the use of parks for staging is part of the design refinements, the discussion above under the CEQA Impact Conclusion is applicable for NEPA as well. In addition, some of these recreational areas may have rental space available to the public. There would likely be a decrease in revenue to the recreational agencies as parks may be closed or less enticing to rent with construction equipment around. In addition, temporary loss of soccer fields at Larchmont Park could mean loss of revenue to the soccer leagues due a decrease in available soccer fields during construction, which is being analyzed under NEPA only. Under the typical real estate processes completed by Project Partners to acquire access to sites for work, possible financial impacts would be worked out prior to gaining access rights to the property. Overall, there would be significant direct and indirect impacts to recreation in the area because of the closure of some parks and because the recreational experience of parks kept open would be degraded due to the loud noises, air quality, visual effects, and smells during construction hours. Mitigation measures previously listed in REC-1 would reduce some of the impacts, but there would still be short-term significant unavoidable impacts to the recreational resources at the parks. After all construction activities are completed and sites are re-opened to the public, long-term direct and indirect impacts would be less than significant.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term Less than Significant

There are many recreational areas involved with American River Erosion Contract 4A. One major recreational area within the American River Erosion Contract 4A footprint is the American River Parkway. The discussion of recreational effects associated with the American River Parkway listed above for American River Erosion Contract 3B are applicable to American River Erosion Contract 4A as well. The disruption to the use of the recreational resources in the American River Parkway is estimated to occur from 2026 to 2027 in conjunction with American River Erosion Contract 3B work estimated to occur 2025 to 2027 and in conjunction with future work associated with the ARMS would cause significant and unavoidable impacts to recreation in the area. Mitigation measures (listed above as REC-1) would be implemented to minimize some of these impacts; however, there would still be a significant and unavoidable impact to recreation in the American River Parkway. After all construction activities are completed and sites are re-opened to the public, long-term impacts would be less than significant.

In addition, the Proposed Action includes permanently rerouting the Jedediah Smith Memorial Trail closer to the river and providing a larger buffer between the bike trail and the businesses just north of the levee. This route would be approximately 0.3 miles longer than the current route. Currently the Jedediah Smith Memorial Trail travels along the levee toe. Though slightly longer, the new route would provide a larger buffer from the urban areas than the current bike route, providing a beneficial impact on recreation.

The Final American River Parkway Natural Resources Management Plan shows that the route of the paved bike path reroute is already listed as an un-paved bike trail (Sacramento County 2023a, page 8-37), so the general use of the path for biking would be consistent with the planning documents associated with the American River Parkway. The Final American River Parkway Natural Resources Management Plan also shows an equestrian trail in the same general area as parts of the bike trail (Jedediah Smith Memorial Trail) reroute path. Project Partners would consult with Sacramento County Department of Regional Parks to ensure that the bike trail reroute is designed in a manner that does not cause safety issues for equestrian use. Because the bike path would be along an existing trail, there would be a less than significant impact to paving the trail for bike use.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant.

The ARCF GRR FEIS/EIR previously determined that the intermittent construction over the timeframe of the work would reduce the quality of recreational experiences in the American River Parkway, causing a significant impact that cannot be mitigated to a less than significant level, though mitigation measures (listed above as REC-1) would be implemented to minimize the negative impacts on recreation as much as possible. Parts of the American River Parkway would have to close due to construction. A consistency determination with the Wild and Scenic Rivers Act would be coordinated with the NPS to ensure that closures are in compliance with the Wild and Scenic Rivers Act.

In addition, the ARCF GRR FEIS/EIR emphasized the haul trucks would disrupt access and use of the American River Parkway, bicycle trails, hiking trails, and equestrian trails. The American River Parkway is used for The Jedediah Smith Memorial Trail, which is a heavily used bike trail, would be negatively impacted by the construction. The significant direct and indirect impacts to recreation still apply to the design refinements. If bike trail detours cannot be done safely in the American River Parkway, street detours may be needed (Figure 3.5.3-2 of the SEIS/SEIR). The area around American River Erosion Contract 4A outside the American River Parkway generally does not have infrastructure in place for bicycle use. Improvements such as regrading, paving, signs and barriers may be needed to make street detours safe. Since the ARCF GRR FEIS/EIR generally analyzed the impacts on the American River Parkway as a whole, and since the construction methods of the new erosion protection work would have the same impacts that were analyzed in the ARCF GRR FEIS/EIR, there would be no new significant impacts on general recreational resources within the American River Parkway.

Because the ARCF GRR FEIS/EIR did not talk about closures of hiking and equestrian trails, the discussion on hiking and equestrian closures under American River Erosion Contract 3B and above under the CEQA Impact Conclusion for American River Erosion Contract 4A is

applicable here as well. Even though the Sacramento County Department of Regional Parks would be consulted to ensure detours are put where it is safe to do so, these possible closures would create a short-term significant and unavoidable direct and indirect impact. After all construction activities are completed and sites are re-opened to the public, long-term direct and indirect impacts would be negligible.

Design refinements associated with recreational facilities at the American River Erosion Contract 4A site include rerouting the Jedediah Smith Memorial Trail. The discussion above under the CEQA Impact Conclusion is applicable for NEPA as well for these design refinements. Project Partners would consult with Sacramento County Department of Regional Parks to ensure that the Jedediah Smith Memorial Trail reroute is designed in a manner that does not cause safety issues for equestrian use. Though slightly longer, the new route for the Jedediah Smith Memorial Trail would provide a larger buffer from the urban areas than the current bike route, providing a direct beneficial impact on recreation.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

There are a few recreational facilities that would be impacted by work on the Sacramento River Erosion Contract 3 site. The top of levee would be closed to those wanting to use it for recreation. A small portion of Garcia Bend Park would be used for staging Figure 2.2-3. Both Miller Park and Garcia Bend Park would be used for river access for construction staff. Since there would only be minor use of Miller Park and Garcia Bend Park, there would be a less-than-significant impact for use of those recreational resources because there would be no substantial long-term disruption of those recreational facilities.

The most northern and southern work for Sacramento River Erosion Contract 3 site is near the Sacramento River Parkway, which contains a paved bike trail in the area. In addition, there is riparian habitat along the Sacramento River Parkway that is used for bird and wildlife watching. The levee and bike trail for the Sacramento River Parkway in the area would be closed for approximately 8 weeks November to February prior to the 2025 and 2026 construction years during tree clearing activities, along with the North Point Way River Access. REC-1 would be implemented and detours would be provided to reduce impacts from bike closures to a less than significant impact. There is minor overlap between the southern-most part of the Sacramento River Parkway property and the top the project site along the levee. This area would be closed during erosion protection construction; however, this is only a small portion of land and is a strip of land at the edge of the park and project. Overall, because detours would be provided for the bike trail on the Sacramento River Parkway, and because there is only a small strip of land being closed during erosion protection construction, the impacts of the project to the Sacramento River Parkway are less than significant.

The Sacramento River itself is used by boaters and fishermen as a recreational resource. Since materials would be brought to the site from barges and most construction would occur from the barges in the river, there would be an increase in barge traffic and added construction work within the Sacramento River. The presence of barges in the river would disrupt the tranquility

and increase the congestion in the Sacramento River. Those wanting to jet ski in the area would need to be cautious around the barges and those wanting to fish in the area would be subjected to loud construction noises. The Sacramento River would remain open and available for boaters during construction. However, the construction work could have a significant impact on those using the Sacramento River for water recreation. Implementing Mitigation Measure REC-2, which was previously adopted for the ARCF 2016 Project, would reduce this impact to less than significant.

Mitigation Measure REC-2: Implement Measures to Notify Boaters

The Project Partners would implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the project site:

- Post signs at the Sacramento Marina, Garcia Bend Park, Hidden Harbor Marina, Rio Vista Public Boat Launch, and/or Snug Harbor Marina, to clearly indicate the estimated duration of in-water work windows and construction duration.
- Place buoys at the upstream and downstream ends of the construction site to warn boaters of the in-water work.
- Notify the Coast Guard, in accordance with the Rivers and Harbors Act, of in-water work from barges moored in the river. Notification would include in-water work windows and construction duration.

Timing: Before and during construction

Responsibility: Project Partners

Mitigation measure REC-2 would reduce the impact to a short-term less than significant impact. Warning boaters about upcoming construction work in the area would allow boaters the option of choosing a different boat launch and different area along the Sacramento River to use for recreation to avoid the construction work. In addition, placing buoys near the construction area would ensure that boaters who decide to use the area for recreation are aware that there is work in the area.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

There are a few recreational facilities involved in Sacramento River Erosion Contract 3. The ARCF GRR FEIS/EIR previously discussed that the top of levee would be closed to those wanting to use the top of levee for recreation and that Miller Park and Garcia Park would be used for staging. Overall, the ARCF GRR FEIS/EIR determined that there would be short-term significant impacts to recreation along the Sacramento River. Though the erosion protection methods have changed for Sacramento River Erosion Contract 3, the general construction methods would be similar enough that these direct and indirect impacts to the recreational resources would not change. Consequently, there would be no new impacts on recreation due to the closure of levee access, use of Miller Park for river access, and use of Garcia Bend Park for staging and river access.

The ARCF GRR FEIS/EIR did not include recreational facilities and uses that would be impacted by the ARCF 2016 Project. Specifically, the use of the river itself for recreation and impacts to the Sacramento River Parkway were not discussed. The discussion above on use of the Sacramento River for recreation and impacts to the Sacramento River Parkway under the CEQA Impact Conclusion is applicable for NEPA as well. Mitigation measure REC-2 would be implemented to reduce the direct and indirect impacts on water recreation to less than significant. Also, because closure of the bike trail on the Sacramento River Parkway is only for a short time, and because there is only a small strip of land being closed during erosion protection construction, the direct and indirect impacts of the project to the Sacramento River Parkway are less than significant.

The ARCF GRR FEIS/EIR did not discuss the recreational impacts to the property owners who have private docks along the levee at the project site. A majority of the dock owners received the encroachment permits and USACE Regulatory Program permits with the condition that the docks may need to be removed in the future for flood damage reduction activities. All dock owners in the project area would be required to remove docks, stairs and associated infrastructure within the project site, in accordance with their USACE permits and encroachment permits with the Central Valley Flood Protection Board (CVFPB). Owners would have the option to remove dock pilings or leave them in place. If left in place, the contractors would try to work around them; however, the depth of the erosion protection placed in some areas may decrease the water clearance near the pilings when boat docks are reinstalled by their owners. If owners choose to remove dock pilings due to a decrease in water clearance, the owners would need to acquire new encroachment permits with the CVFPB and complete associated environmental permitting. If the water clearance after construction is sufficient for proper use of the dock pilings, the owner may choose to replace the infrastructure after construction is complete. Consequently, there would be both a short-term direct impact to recreational use of these boat docks during construction and the possibility of long-term indirect impacts on recreational use if owners need to submit new encroachment permits. Any currently unpermitted structures that were removed in advance of the project, would need to seek a set of permits from the CVFPB and USACE to be replaced.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable, Long-term and Negligible effects that are Less than Significant.

The ARMS is within the American River Parkway (Sacramento County 2008). The American River Parkway which is considered an outstandingly remarkable and extraordinary recreational resource under the Federal and State Wild and Scenic Rivers Acts, respectively. Consequently, the project site would be an important recreational resource after implementation of the Proposed Action. Prior to purchasing the land for mitigation use, the property was private and was not encouraged for recreational use by Sacramento County Department of Regional Parks. Overall, since the property is private and access to the area would be prohibited, there would be no anticipated impacts to recreational activities that would occur directly on the property itself from

using the site for mitigation purposes. Recreation activities such as wildlife and bird watching that could occur from adjacent properties would be indirectly impacted as construction would likely scare away birds and wildlife and the area would be disturbed until vegetation establishes. The land is not fenced in and is adjacent to the Jedediah Smith Memorial Trail, so even though it is not encouraged, the area is used for recreation such as birdwatching. There is a known bald eagle's (*Haliaeetus leucocephalus*) nest on the site that is viewed by birdwatchers as well. The design refinements do not intentionally include developing additional recreational resources in the area. In addition, "No Trespassing" signs would be posted to discourage use of the site once the property is purchased. Since the property would remain closed to the public, there would be no direct impact to recreation from use of the site as a mitigation site. Converting the pond to slow moving, shallow backwater habitat could change the types of birds and other wildlife that utilize the site; however, it is anticipated that restoring a more natural habitat would provide benefits to a wider range of native and migratory birds. In addition, the improved habitat would provide more diverse habitat for wildlife. Certain species, like the Canvasback Ducks (*Aythya valisineria*), may occur in smaller numbers at the site after restoration, so birders may have a harder time view these specific species. However, the overall increase in a more natural habitat supporting a more diverse list of potential birds to see, would provide a long-term indirect benefit to wildlife viewing and bird watching in the area.

Even though it is anticipated that access for the ARMS mitigation work would be through maintenance roads under the powerlines, it is anticipated that access for construction vehicles and equipment to the site would need to go through Camp Pollock or Discovery Park to access the construction area from Northgate Boulevard between State Route 160 and the Garden Highway. Haul trucks would disrupt the noise, air pollution, smells, and visual resources for those wanting to recreate at Camp Pollock and Discovery Park. Dust from the trucks could directly impact the plants at the native plant nursery at Camp Pollock. For NEPA purposes only, this would have a direct and indirect economic impact on the Sacramento Valley Conservancy because they do not receive any dedicated funding to manage Camp Pollock and rely on donations and rental fees to upkeep the property (Sacramento Valley Conservancy 2023). Under the typical real estate processes completed by Project Partners to acquire access to sites for work, possible financial impacts would be worked out prior to gaining access rights to the property. If Camp Pollock is used for an access point, Project Partners would consult with the Sacramento County Department of Regional Parks and the Sacramento Valley Conservancy to attempt to minimize these direct and indirect impacts on recreational resources, but there would still be a short-term significant and unavoidable impact.

In addition, there is a chance that construction vehicles would need to access the ARMS from a road off Garden Highway across from Azusa Street. This access point crosses the Jedediah Smith Memorial Trail. Implementation of Mitigation Measure REC-1 would reduce impacts during construction to less than significant. Flaggers would be present whenever frequent construction traffic crosses the Jedediah Smith Memorial Trail. Because there is already a stop sign where the road crosses the Jedediah Smith Memorial Trail and because flaggers would be present when there is high construction traffic, direct impacts would be less than significant on those using the Jedediah Smith Memorial Trail. After all construction and vegetation establishment activities, direct long-term impacts would be less than significant.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant.

The SRMS is a Federally owned site currently used for dredge material placement. There are no major roads leading to the site or through the site that could encourage the public to use the site for recreation and there are "no trespassing" signs posted at the borders of the site. In addition, no recreational uses are planned for the site under the Proposed Action. Temporary disturbance of the banks during site construction may look displeasing for those boating or fishing on the Sacramento River or using the Hidden Harbor Marina. However, this is only a small area where boaters along the Sacramento River would be affected, and effects would only last until vegetation establishes. In addition, even though the current plan is to haul materials to the site by trucks, there is a chance that a barge may be needed to bring in some materials. If this is needed, there would be an increase in barges and construction equipment along the river. The river would remain open, but the barges and construction equipment could disrupt the recreational experience of boaters. Implementing Mitigation Measure REC-2, which was previously adopted for the ARCF 2016 Project, would warn boaters about work in the area, so they can use a different part of the river to avoid the recreational disturbance. Because the effects would be localized, short term, and boaters would be alerted to the work in the area, direct and indirect impacts would be less than significant.

Mitigation Measure REC-2: Implement Measures to Notify Boaters

Please refer to description above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant.

Staging areas would consist of some parks and recreational areas (see section 3.5.7.2.1 of the SEIS/SEIR for the list of staging areas anticipated to be used). Long-term storage would be limited on recreational areas as much as feasible but there is a chance that up to 0.3 acres of a recreational area could be used for up to 4 months. As designs are developed, if a staging location is selected that is not listed in Section 3.5.7.2.1 of the SEIS/SEIR, biological and cultural surveys would be conducted to ensure the area does not have sensitive resources. In addition, other environmental compliance might be necessary in order to use additional areas for staging. As part of the real estate access process, Project Partners would work with the entity managing the recreational facility to identify locations within the recreational areas that would

minimize direct recreational impacts. No full park closures would be needed for the staging areas associated with the Piezometer Network. In addition, it is anticipated that the staging areas would be used for just equipment and drum storage. Vehicles would only need to access the staging to collect or store equipment so it is expected that there would not be consistent vehicle and equipment traffic and noises at the staging areas. Because no full park closures are expected, staging would be short term, and construction activity would not be constant at the staging areas, direct and indirect impacts to recreational areas would be less than significant.

Some Piezometers would be installed on top of the levee or on the land side of the levee in the American River Parkway and Sacramento River Parkway. In order for equipment access to install some of the piezometers, some of the bike trails may need to be used. When access is needed from the bike trails, it is anticipated that only one lane of the bike trails would need to be closed. Signs would be placed to alert bicyclists and flaggers would be present to safely direct bike traffic around equipment. Some of the piezometers would also be installed along maintenance roads that are used for walking or bicycling along the American River and the Sacramento River. The piezometers would require small antennas or features for communication and would be capped with a small (approximately 12-inch) utility cover that would be placed in a manner that wouldn't conflict with the maintenance roads on top of the levee. Solar panels may also be needed to provide power to the piezometers. Telemetry infrastructure would be installed above ground and contained in a utility storage box. Any solar panel and the infrastructure associated with telemetry would be installed in a location that doesn't conflict with recreational resources. Installation of the solar panels in areas where large groupings (5-15) of piezometers would occur could distract from the recreational views; however, this would not directly impact the ability to recreate in the area. Because all permanent infrastructure associated with the piezometers would be installed in locations that do not conflict with recreation and because the infrastructure is generally small, direct and indirect impacts would be less than significant.

Alternatives Comparison

Alternative 3a

Alternative 3a includes an alternative design for improvements to the American River Erosion Contract 4A project component. All other project components (MCP, American River Erosion Contract 3B, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. There would be a landside berm built instead of a waterside berm at the American River Erosion Contract 4A project site.

Table 2.2-2. Alternative 3a Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	American River Erosion Contract 4A	Similar to the Proposed Action recreational closures would be temporary and no substantial change to service levels. Alternative 3a is not anticipated to cause nearby recreational areas to degrade quickly or require the need of new recreational areas. There would be a less than significant indirect impact to uses of nearby parks.	N/A	Less than Significant	Short-term and Minor
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	American River Erosion Contract 4A	The berm would be constructed on the landside of the levee and there would be no construction of additional recreational feature or expansion of others.	N/A	No Impact	No Impact
2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource, or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	American River Erosion Contract 4A	The berm would be constructed on the landside of the levee. There would not be a need for construction affecting the Jedediah Smith Memorial Trail or associated detours. This alternative would have an indirect, less than significant impact on recreation in the area since the bike trail would not be affected and most of the views of construction work would be blocked. This impact would be lesser than the impact of the Proposed Action.	N/A	Less than Significant	Short-term and Moderate

Alternative 3b

Alternative 3b includes an alternative design for improvements to the American River Erosion Contract 4A project component. All other project components (MCP, American River Erosion Contract 3B, Sacramento River Erosion Contract 3, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Overall, the new bike trail (Jedediah Smith Memorial Trail) reroute at American River Erosion Contract 4A would parallel the UPRR tracks and head north instead of going under the UPRR tracks (Figure 3.5.3-4 of the SEIS/SEIR).

Table 2.2-3. Alternative 3b Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	American River Erosion Contract 4A	Similar to the Proposed Action, recreational closures would be temporary and there would be no substantial effect on service levels. Alternative 3b would not cause nearby recreational areas to degrade quickly or require the need of new recreational areas. Alternative 3b would have a less than significant indirect impact to nearby parks.	N/A	Less than Significant	Short-term to Medium-Term (more than one construction season) and Moderate to Major
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3b would reroute the existing bike trail partially through riparian forest. Part of this reroute would not follow existing trails and would require additional trees to be removed and a wetland area to be filled. Once work is complete, the recreation trail would be useable again, creating a long-term less than significant impact. Overall, Alternative 3b would result in a direct short-term significant and unavoidable impact from rerouting of the bike trail and a long-term less than significant impact after construction is complete, falling under 2.2-c below, but would not result in an impact by constructing any new recreational features.	N/A	No impact	No impact

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
<p>2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).</p>	<p>American River Erosion Contract 4A</p>	<p>Like the Proposed Action a berm would be built that would block the current bike trail. The berm would disturb recreation in the area causing direct and indirect short-term significant unavoidable impacts while construction occurs. Mitigation measure REC-1 would be implemented to minimize the impacts as much as possible, but there would still be direct and indirect short-term significant and unavoidable impacts to recreation, but a long-term less than significant impact once the trail is reopened. Like the Proposed Action, this bike detour would generally follow existing trails listed in the 2023 Final American River Parkway Natural Resources Plan as an off-road bike trail (Sacramento County 2023a). Unlike the Proposed Action, the route would leave existing trails near the UPRR bridge and follow the UPRR bridge through riparian habitat and a wetland. Since the route does not completely follow the land plans outlined in the 2023 Final American River Parkway Natural Resources Plan, there is a direct significant and unavoidable impact on consistency between the Alternative 3b and the Final American River Parkway Natural Resources Plan. This impact would be greater compared to the impact of the Proposed Action.</p>	<p>REC-1</p>	<p>Short-term Significant Unavoidable, Long-term Less than Significant</p>	<p>Short-term Significant Unavoidable, and Long-Term and Negligible with Mitigation Incorporated</p>

Alternative 3c

Alternative 3c includes an alternative design for improvements to the American River Erosion Contract 4A Project Component. All other project components (MCP, American River Erosion Contract 3B, Sacramento River Erosion Contract 3, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. The bike trail (Jedediah Smith Memorial Trail) route would be a short reroute into the wetlands instead of lower on the levee (Figure 3.5.3-4 of the SEIS/SEIR).

Table 2.2-4. Alternative 3c Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	American River Erosion Contract 4A	Similar to the Proposed Action recreational closures would be temporary and there would be no substantial change in service levels. Alternative 3c is not anticipated to cause nearby recreational areas to degrade quickly or require the need of new recreational areas. There would be an indirect less than significant impact to uses of nearby parks.	N/A	Less than Significant	Less than Significant
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	American River Erosion Contract 4A	Alternative 3c would include a trail realignment instead of a new recreational facility. There would be no impact due to a new or expanded recreational facility.	N/A	No impact	No impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	American River Erosion Contract 4A	Instead of rerouting the bike trail lower on the levee, the bike trail would be rerouted around the berm. Additional wetland and riparian habitat would need to be disturbed in the area to build the bike trail around the berm. During construction the bike trail would need to be closed in the area. A detour somewhere else in the American River Parkway or along the streets would be required. Mitigation measures listed in REC-1 would be implemented to try to minimize these impacts as much as possible, but there would still be direct and indirect significant unavoidable impacts to recreation. In addition, building the berm could cause ground disturbance to the construction area. This would disrupt the natural feel of the area and impact the recreational value of the area until grasses or other vegetation replanted establishes. Consequently, like the Proposed Action there would be a direct short-term unavoidable significant impact to recreational resources in the area with a long-term less than significant impact once the trail is open and the vegetation matures.	REC-1	Short-term Significant, unavoidable, Long-term Less than Significant	Short-term Significant, unavoidable, Long-term and Negligible with Mitigation Incorporated

Alternative 3d

Alternative 3d includes an alternative design for improvements to the American River Erosion Contract 4A Project Component. All other project components (MCP, American River Erosion Contract 3B, Sacramento River Erosion Contract 3, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. The bike detour would go closer to the river bank and follow the railroad to the existing location of the bike trail (Jedediah Smith Memorial Trail) instead of going under the railroad (Figure 3.5.3-4 of the SEIS/SEIR).

Table 2.2-5. Alternative 3d Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	American River Erosion Contract 4A	Similar to the Proposed Action recreational closures would be temporary and there would be no substantial change in service levels. Alternative 3d is not anticipated to cause nearby recreational areas to degrade quickly or require the need of new recreational areas. Alternative 3d would have an indirect less than significant impact to nearby parks.	N/A	Less than Significant	Short-term and Moderate
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3d would reroute the bike trail partially through riparian forest. Part of this reroute would not follow existing trails and require additional trees to be removed and wetland area to be filled. Once work is complete, the recreation trail would be useable again, creating a long-term less than significant impact. Overall, Alternative 3d would result in a direct and indirect short-term significant and unavoidable impact from rerouting of the bike trail and a long-term less than significant impact after construction is complete. However, this is not the result of the construction of a new recreational facility, but the replacement of the facility impacted.	N/A	Short-term Significant, Unavoidable, Long-term Less than Significant	Short-term Significant, Unavoidable, Long-term and Minor

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
<p>2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource, or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).</p>	<p>American River Erosion Contract 4A</p>	<p>Like the Proposed Action a berm would be built that would block the current bike trail. The berm would disturb recreation in the area causing a short-term significant unavoidable impact while construction occurs. Mitigation measure REC-1 would be implemented to minimize the impacts as much as possible, but there would still be direct and indirect short-term significant and unavoidable impacts to recreation with a long-term less than significant impact once the trail is open and the vegetation matures.</p> <p>Like the Proposed Action, this bike detour would generally follow existing trails listed in the 2023 Final American River Parkway Natural Resources Plan as an off-road bike trail (Sacramento County 2023a). Unlike the Proposed Action, the route would leave existing trails near the UPRR bridge and follow the UPRR bridge through riparian habitat and a wetland. Since the route does not completely follow the land plans outlined in the 2023 Final American River Parkway Natural Resources Plan, there is a direct significant and unavoidable impact on consistency between the Alternative 3d and the Final American River Parkway Natural Resources Plan. Unlike the Proposed Action, this reroute would be closer to the river bank and would have an even bigger buffer from the urbanized areas on the landside of the levee. Consequently, there would be a recreational benefit to putting the bike path in this area. However, placing the bike path in the area would add 0.5 miles to the bike trail, which is longer than both the No Action Alternative and the Proposed Action.</p>	<p>REC-1</p>	<p>Short-term Significant, Unavoidable, Long-term Less than Significant</p>	<p>Short-term Significant, Unavoidable, Long-term and Minor with Mitigation Incorporated</p>

Alternatives 4a and 4b (CEQA-Only)

Alternative 4a for the ARMS would retain an approximately 30-acre portion of the existing pond, and Alternative 4b would retain an approximately 20-acre portion of the pond. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRM, and ARMS) would have the same effects as the Proposed Action.

Under Alternatives 4a and 4b, a berm with a top width of 30 feet would be constructed to retain the western or southern portion of the existing pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. The remnant pond would be approximately 30 acres in Alternative 4a, and this alternative would include approximately 54 acres of floodplain habitat below elevation 21. In Alternative 4b, the pond would be approximately 20 acres and approximately 47 acres of salmonid habitat, 29 acres of western yellow-billed cuckoo (*Coccyzus americanus*) stopover habitat, and 22 acres of valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) habitat.

Table 2.2-6. Alternative 4a, 4b Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	ARMS	Similar to the Proposed Action recreational closures would be temporary and there would be no substantial change in service levels.	N/A	Short-term and Moderate
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	ARMS	These alternatives would have no impact, like the Proposed Action	N/A	No Impact
2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	American River Erosion Contract 4A	Like the Proposed Action there would be occasional disruption of the Jedediah Smith Memorial Trail or other recreational facilities. Mitigation measure REC-1 would be implemented to minimize the impacts as much as possible, but there would still be a short-term significant and unavoidable impact to recreation with a long-term less than significant impact once the trail is open and the vegetation matures. There would be no change in impact significance compared to the Proposed Action.	REC-1	Short-term Significant, Unavoidable, Long-term and Minor with Mitigation Incorporated

Alternative 5a

Alternative 5a includes an alternative design for improvements to the SRMS project component. All other project components (MCP, American River Erosion Contract 3B, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Conservation Bank Credits would be used for mitigation. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used. Consequently, there would be no new additional impacts to recreational resources.

Alternative 5b

Alternative 5b includes an alternative design for improvements to the SRMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Watermark Farm, located on the right bank of the Sacramento River between RM 50.5 and 51.25 would be used as the mitigation site for Sacramento River work (Figure 3.7.2-1 of the SEIS/SEIR).

Table 2.2-7. Alternative 5b Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-a Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	SRMS	There would be no park closure associated with Alternative 5b so there would be no impact on nearby parks.	N/A	No Impact	No Impact
2.2-b Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	SRMS	There would be no new recreational construction associated with Alternative 5b and there would be no impact.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.2-c Cause substantial long-term disruption in the use of an existing recreational resource, reduce the quality of an existing recreational resource, reduce availability of an existing recreational resource or result in inconsistencies or non-compliance with planning documents (such as the American River Parkway Plan).	SRMS	Similar to the Proposed Action, the project footprint itself is not used for recreation, but recreationalists on the Sacramento River could have tranquility disrupted and views disturbed by construction and possible barges in the river. Mitigation Measures REC-1 and REC-2 would be implemented to minimize this indirect impact to less than significant. Alternative 5b would be under half a mile away from Dave's Pumpkin Patch. This is far enough that it is not anticipated that noise or views would disrupt those recreating at Dave's Pumpkin Patch. However, haul traffic may make it slower for those driving to the area. Because this will not prevent people from recreating at Dave's Pumpkin Patch, this would be an indirect less than significant impact. Unlike the Proposed Action, Alternative 5b would be across the river from the Pocket Neighborhood. People use the top of levee in the area to recreate. The views and tranquility would be impacted along this part of the river until vegetation reestablishes along the river. However, vegetation would only be impacted along a short stretch of the river and overtime would reestablish to the existing condition. There would be an indirect less than significant impact on recreation since the only impacts to those recreating on the levee would be views and noises to those recreating.	REC-1, REC-2	Less than Significant with Mitigation	Short-term and Minor with Mitigation Incorporated

Alternative 5c

Alternative 5c includes an alternative design for improvements to the SRMS project component. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Delta Smelt Conservation Bank Credits would be used for mitigation. There would be no new activities done related to the purchased of Delta Smelt Conservation Bank Credits, so there would be no additional recreational impacts associated.

In addition, credits would be purchased or funds would be provided for the Sunset Pumps Project. Sunset Pumps is being implemented by BOR, DWR and USFWS and consequently BOR, DWR and USFWS will complete a corresponding CEQA and NEPA document. There would be no additional activities outside of BOR and USFWS NEPA document or DWR's CEQA document, so there would be no additional impacts from Alternative 5c on recreation.

2.3 Public Utilities and Services

Public utilities are defined as those systems which supply essential services to the public within a political subdivision.

2.3.1 Existing Conditions/Affected Environment

2.3.1.1 Water Supply

Since the ARCF 2016 Project was completed in December of 2015, and subsequently revised in May of 2016, there have been some changes with respect to water supply and use context for the region. The ARCF 2016 Project area occurs entirely within Sacramento County, where there are 27 individual water districts that provide municipal water supply services to approximately 200,000 customers within the county (County of Sacramento 2023). Water supply sources include groundwater, surface water diversions, and recycled water, depending on the geographical location of the user and the purpose of the water (DWR 2019). The Regional Water Authority (RWA) is a joint powers authority created by water purveyors in the Sacramento region to establish and maintain a unified approach to regional water issues (RWA 2018). The RWA provides members and associates significant regional coordination, including drought management, to enhance water management practices (RWA 2018). In addition, the Water Forum, a voluntary coalition of businesses, agricultural representatives, citizen groups, environmentalists, water managers, and local governments, work to advance the co-equal goals of water supply and preservation of the fishery, wildlife, recreational, and aesthetic values of the lower American River (Water Forum 2015).

Magpie Creek Project

The Magpie Creek Project (MCP) site is located within the Rio Linda Elverta Community Water District (County of Sacramento 2021). The Rio Linda Elverta Community Water District provides water to its constituents via locally drilled wells (Rio Linda Elverta Community Water District 2014).

Sacramento River Erosion Contract 3

The Sacramento River Erosion Contract 3 North and South is located within City of Sacramento Water District (County of Sacramento 2021). The Freeport water intake facility, operated by the East Bay Municipal Utility District and the Sacramento County Water Agency, is located within the Sacramento River Erosion Contract 3. Water supply operations by the City of Sacramento Water District is fully described in Section 3.16.1 of the 2016 ARCF GRR EIS/EIR.

American River Erosion Contract 3B North and South, 4A, and 4B

Water supply for American River Erosion Contract 3B North and South, and 4B is split between four providers including Sacramento Suburban Water District, Sacramento County Water Agency, City of Sacramento Water and California American Water (County of Sacramento 2021).

Water supply operations by the City of Sacramento Water District and Sacramento County Water Agency are fully described in Section 3.16.1 of the ARCF GRR FEIS/EIR.

The Sacramento Suburban Water District currently has 70 operational groundwater production wells, contractual rights to 26,064 acre-feet from the City of Sacramento water entitlement, and a contract to purchase up to 29,000 acre-feet of surface water per year from Placer County Water Agency (Sacramento Suburban Water District 2023).

California American Water is a subsidiary of American Water (California American Water 2023). California American Water is a publicly traded water and wastewater utility company (California American Water 2023). Water sources provided by California American Water include groundwater, surface water, wholesale, and retail sources (California American Water 2023).

The water supply intake for the Fairbairn Water Treatment Plant Pumpstation is located less than a half-mile from the American River Erosion Contract 3B North and South, and 4B.

The water supply service provider for the American River Erosion Contract 4A is the City of Sacramento Water (County of Sacramento 2021).

American River Mitigation Site

The American River Mitigation Site (ARMS) site is located within the jurisdiction of City of Sacramento Water District (County of Sacramento 2021).

Sacramento River Mitigation Site

The Sacramento River Mitigation Site (SRMS) is undeveloped and does not currently have a water supply provider (County of Sacramento 2021).

Alternative 5c (Sunset Pumps)

The Sunset Pumps are a component of water supply infrastructure within the Sutter Extension Water District (SEWD) (ESA, 2022). The Sunset Pumps supplement SEWD's water supply by ensuring consistent flow from the Thermalito Afterbay via the Sutter-Butte Main Canal (ESA, 2022). The Sunset pumps supply a maximum of 65,000 acre-feet by to SEWD from the Feather River with an associated maximum diversion rate of 234 cfs (ESA, 2022).

Alternative 5b (Watermark Farms)

Water supply to Watermark farms is secured by riparian water rights to the Sacramento River (TRICCommercial Real Estate, 2023). Water is pumped to the property via a 30 hp electric lift-pump station from a slant pump installed in the river to underground pipelines that flow into field distribution canals (TRICCommercial Real Estate, 2023). Historic reasonable usage of the riparian water right has been an average of 1,380 AF/ year (TRICCommercial Real Estate, 2023). Additional appropriated rights are through a North Delta Water Agency settlement agreement from Reclamation District 999 (TRICCommercial Real Estate, 2023).

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American

River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, water supplies are the same as for the respective contracts.

2.3.1.2 Stormwater Drainage

Stormwater drainage was described generally in Section 3.16.1 of the ARCF GRR FEIS/EIR. Design refinements have identified which stormwater drainage systems specifically serve the Proposed Action.

Magpie Creek Project

The MCP site is located within the jurisdiction of the Sacramento County Stormwater Utility (County of Sacramento 2019b). The ultimate receiving water for stormwater runoff for the area covered by the MCP is the Sacramento River (County of Sacramento 2013).

Sacramento River Erosion Contract 3

The Sacramento River Erosion Contract 3 is located within the City of Sacramento Stormwater Utility District (County of Sacramento 2019b). The ultimate receiving water for stormwater runoff for the area covered by Sacramento River Erosion Contract 3 is the Sacramento River (County of Sacramento 2013).

American River Erosion Contract 3B North and South, 4A, and 4B

Stormwater service for American River Erosion Contract 3B North and South, and 4A, 4B are split between the City of Sacramento Stormwater Utility District and the Sacramento County Stormwater Utility (County of Sacramento 2019b). The staging area for American River Erosion Contract 3B overlaps a drainage basin and several outfalls occur in the proposed work area. Immediately adjacent to American River Erosion Contract 4A is a wetland accepts stormwater runoff from Sump 151. The ultimate receiving water for stormwater runoff in the areas covered by the American River Erosion Contracts 3B North and South, 4A and 4B is the American River (County of Sacramento 2013).

American River Mitigation

The ARMS is located within the jurisdiction of City of Sacramento Stormwater Utility District (County of Sacramento 2019b). The ultimate receiving water for stormwater runoff in the ARMS is the Sacramento River (County of Sacramento 2013).

Sacramento River Mitigation

The SRMS does not have stormwater drainage infrastructure (County of Sacramento 2019b). The ultimate receiving water for stormwater runoff in the SRMS is the Sacramento River (County of Sacramento 2013).

Alternative 5c (Sunset Pumps)

The Sunset Pumps are located on the waterside of the levee of the Feather River. There is no additional stormwater drainage infrastructure.

Alternative 5b (Watermark Farms)

Agricultural drains terminate at a freshwater marsh at the southern end of Watermark Farms to drain the property as needed. Watermark Farms falls within the Reclamation District (RD) 765 and RD 999 drainage districts (TRICCommercial Real Estate, 2023).

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, stormwater drainage infrastructure is the same as for the respective contracts.

2.3.1.3 Wastewater

Wastewater service was described in Section 3.16.1 of the ARCF GRR FEIS/EIR and is incorporated here by reference. Since the publication of the ARCF GRR, the Sacramento Regional County Sanitation District, Regional San, commenced construction on the EchoWater project, which aims to purify wastewater to the extent that it can be returned to its intended beneficial uses (Regional San 2017).

Wastewater service for American River Erosion Contract 4A is also provided by Regional San. There are no wastewater facilities associated with SRMS or Sunset Pumps.

Alternative 5b (Watermark Farms)

There is no wastewater service to Watermark Farms; however, sewer lines serving Regional San underlie the property to provide service to the Regional San facility to the southwest of the property.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, wastewater service is the same as for the respective contracts.

2.3.1.4 Solid Waste

Solid waste service was described in Section 3.16.1 of the ARCF GRR FEIS/EIR and is incorporated here by reference. Solid Waste service for American River Erosion Contract 4A is also provided by Sacramento County. The ARCF GRR FEIS/EIR estimated that solid waste may be hauled up to 30 miles from the Proposed Action for recycling or disposal. Some soil material spoils may be hauled and stockpiled for use by the Natomas Basin Project or used for fill on the ARMS.

Alternative 5c (Sunset Pumps)

Solid waste service in the region of the Sunset Pumps is provided by Yuba-Sutter Recology.

Alternative 5b (Watermark Farms)

Solid waste service in the region of Watermark Farms is provided by WasteManagement.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, solid waste service is the same as described for the other project components.

2.3.1.5 Electrical & Natural Gas Services

Electrical and natural gas services were described in Section 3.16.1 of the ARCF GRR FEIS/EIR and is incorporated here by reference. No changes to electrical service providers have occurred since the release of the ARCF GRR FEIS/EIR. The electric Service Provider American River Erosion Contract 4A is the Sacramento Municipal Utilities District, and natural gas service in the region is also provided by Pacific Gas and Electric (PG&E).

Alternative 5c (Sunset Pumps)

Electric and natural gas service in the region of the Sunset Pumps is provided by PG&E.

Alternative 5 b (Watermark Farms)

Electric and natural gas service in the region of the Watermark Farms is provided by Pacific Gas and Electric (PG&E).

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, electrical and natural gas service would be provided by the same purveyors as for the respective contracts.

2.3.1.6 Telephone and Cable Services

Telephone and cable services were described in Section 3.16.1 of the ARCF GRR FEIS/EIR and are incorporated here by reference. No changes to telephone and cable providers have occurred since the release of the ARCF GRR FEIS/EIR. Telephone and cable service for American River Erosion Contract 4A is the same as listed in Section 3.16.1 of the ARCF GRR FEIS/EIR.

Alternative 5c (Sunset Pumps)

Telephone and cable service in the region of the Sunset Pumps is provided by a number of private companies including T-Mobile Home Internet, Xfinity Internet from Comcast, AT&T and Earthlink.

Alternative 5b (Watermark Farms)

Telephone and cable service in the region of the Watermark Farms is provided by a number of private companies including T-Mobile Home Internet, Spectrum Cable Internet, Xfinity Internet from Comcast, AT&T, Earthlink, and HughesNet.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, telephone and cable service would be provided by the same purveyors as for the respective contracts.

2.3.1.7 Public Safety

Public safety services are described in Section 3.16.1 of the ARCF GRR FEIS/EIR and are incorporated here by reference. Public Safety services for American River Erosion Contract 4A are the same as listed in Section 3.16.1 of the ARCF GRR FEIS/EIR.

Alternative 5c (Sunset Pumps)

Public Safety services in the region of the Sunset Pumps are provided Sutter County Sheriff.

Alternative 5b (Watermark Farms)

Public Safety services in the region of the Sunset Pumps are provided Yolo County Sheriff.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, public safety services would be provided by the same purveyors as for the respective contracts.

2.3.1.8 Fire Protection

Fire Protection services were described in Section 3.16.1 of the ARCF GRR FEIS/EIR and are incorporated here by reference. Fire Protection services for American River Erosion Contract 4A are the same as listed in Section 3.16.1 of the ARCF GRR FEIS/EIR.

Alternative 5c (Sunset Pumps)

Fire Protection services in the region of the Sunset Pumps is provided Sutter County Fire Department.

Alternative 5b (Watermark Farms)

Fire Protection services in the region of the Watermark Farms is provided Yolo County Service Area #9.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, fire protection service would be provided by the same purveyors as for the respective contracts.

2.3.1.9 School Facilities

School Facilities were generally described in Section 3.16.1 of the ARCF GRR FEIS/EIR and are incorporated here by reference. Design refinements have identified which school facilities are in closest proximity to Proposed Action.

Magpie Creek

The MCP site is located within the jurisdiction of the Twin Rivers Unified School District and Robla Elementary School District. There are three schools within about a one-mile radius of the MCP: Main Avenue START Elementary School, Bell Avenue Elementary School, and Futures High School.

Sacramento River Erosion Contract 3

The Sacramento River Erosion Contract 3 is located within the Sacramento City Unified School District. There are three schools within about a one-mile radius of the Proposed Action: Matsuyama Elementary School, Caroline Wenzel Elementary School, and John Cabrillo Elementary School.

American River Erosion Contract 3B North and South, 4B and 4A

The American River Erosion Contract 3B North and South, 4B and Contract 4A includes areas under the jurisdiction of three districts; Twin Rivers Unified School District, San Juan Unified School District, and Sacramento City Unified School District. There are 10 schools within about a one-mile radius of the Proposed Action. Sacramento Country Day School, River Valley School, Sacramento City Elementary Unified School, and California State University Sacramento are within about one mile of Contract 3B. Courtyard Private School is within about one mile of Contract 4A.

American River Mitigation

The ARMS site is located within the Twin Rivers Unified School District. American Lakes Elementary School is within about a one-mile radius of the ARMS.

Sacramento River Mitigation

Both the SRMS site and the Watermark Farms site are located within the River Delta Unified School District. There are no schools located within a one-mile radius of either site.

Alternative 5c (Sunset Pumps)

There are no school facilities within a one-mile radius of Sunset Pumps.

Alternative 5 b (Watermark Farms)

There are no school facilities within a one-mile radius of Watermark Farms.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, nearby school facilities are the same as for the respective contracts.

2.3.1.10 Emergency Services

Emergency Services were described in Section 3.16.1 of the ARCF GRR FEIS/EIR and are incorporated here by reference. Emergency services for American River Erosion Contract 4A are the same as listed in Section 3.16.1 of the ARCF GRR FEIS/EIR.

Alternative 5c (Sunset Pumps)

Emergency services in the region of the Sunset Pumps is provided Sutter County Fire Department.

Alternative 5b (Watermark Farms)

Emergency services in the region of the Watermark Farms is provided Yolo Emergency Medical Services Agency.

Piezometer Network

The Piezometer network would be installed within the project footprint of MCP, Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, and American River Erosion Contract 4B. Accordingly, emergency response services would be provided by the same purveyors as for the respective contracts.

2.3.2 Applicable Laws, Regulations, Policies, and Plans

Federal

There are no applicable Federal laws, regulations, policies, or plans relevant to Public Utilities and Service Systems.

State

California Water Plan

The California Water Plan is the state of California's strategic plan for managing and developing water resources. The plan is updated every five years with a goal of equitable and sustainable management of existing and potential future water sources. The plan does not mandate actions or authorize spending, rather it provides information on current trends and future projections; and establishes a forum for stakeholders to outline priorities (DWR 2023).

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 regulates the disposal, management, and recycling of solid waste. The act requires a city, county, or city and county, or regional agency formed under the act, to develop a source reduction and recycling element of an integrated waste management plan containing specified components. The act requires those jurisdictions to divert 50% of the solid waste subject to the element, except as specified, through source reduction, recycling, and composting activities (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended [IWMA]). Since the publication of the ARCF GRR FEIS/EIR, the California Integrated Waste Management Act (AB 939) has been updated and now requires that 75% of the waste stream be recycled (CalRecycle 2023).

Local

Relevant policies from the local planning documents are included in this section. Policies which would not apply to the Proposed Action, and policies which the Proposed Action could not have an effect on were not included.

City of Sacramento 2035 General Plan – Utilities and Public Health and Safety

U 1.1.1 Provision of Adequate Utilities. The City shall continue to provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the city, and shall provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the city that do not currently receive these City services upon funding and construction of necessary infrastructure.

U 1.1.2 Citywide Level of Service Standards. The City shall establish and maintain service standards [Levels of Service (LOS)] for water, wastewater, stormwater drainage, and solid waste services.

U 1.1.8 Joint-Use Facilities. The City shall support the development of joint-use water, drainage, and other utility facilities as appropriate in conjunction with schools, parks, golf courses, and other suitable uses to achieve economy and efficiency in the provision of services and facilities.

U 1.1.10 Safe, Attractive, and Compatible Utility Design. The City shall ensure that public utility facilities are designed to be safe, aesthetically pleasing, and compatible with adjacent uses.

U 1.1.12 Impacts to Environmentally Sensitive Lands. The City shall locate and design utilities to avoid or minimize impacts to environmentally-sensitive areas and habitats.

U 2.1.8 Emergency Water Conservation. The City shall reduce water use during periods of water shortages and emergencies.

U 2.1.12 Water Conservation Enforcement. The City shall continue to enforce City ordinances that prohibit the waste or runoff of water, establish limits on outdoor water use, and specify applicable penalties.

U 2.1.13 Recycled Water. The City shall continue to investigate the feasibility of utilizing recycled water where appropriate, cost effective, safe, and environmentally sustainable.

U 2.1.16 River-Friendly Landscaping. The City shall promote “River Friendly Landscaping” techniques which include the use of native and climate appropriate plants; sustainable design and maintenance; underground (water efficient) irrigation; and yard waste reduction practices.

U 5.1.1 Zero Waste. The City shall achieve zero waste to landfills by 2040 through reusing, reducing, and recycling solid waste; and using conversion technology if appropriate. In the interim, the City shall achieve a waste reduction goal of 75 percent diversion from the waste stream over 2005 levels by 2020 and 90 percent diversion over 2005 levels by 2030 and shall support the Solid Waste Authority in increasing commercial solid waste diversion rates to 30 percent.

U 5.1.8 Diversion of Waste. The City shall encourage recycling, composting, and waste separation to reduce the volume and toxicity of solid wastes sent to landfill facilities.

U 5.1.15 Recycling and Reuse of Construction Wastes. The City shall require recycling and reuse of construction wastes, including recycling materials generated by the demolition and remodeling of buildings, with the objective of diverting 85 percent to a certified recycling processor.

P.H.S 1.1.2 Response Time Standards. The City shall strive to achieve and maintain optimal response times for all call priority levels to provide adequate police services for the safety of all city residents and visitors.

P.H.S. 2.1.2 Response Time Standards. The City shall strive to maintain emergency response times that provide optimal fire protection and emergency medical services to the community.

P.H.S. 2.2.8 Wildland Hazards on Private Properties. The City shall continue to require private property owners to remove excessive/overgrown vegetation (e.g., trees, shrubs, weeds) and rubbish to the satisfaction of the Fire Department to prevent and minimize fire risks to surrounding properties.

Sacramento County General Plan of 2005 to 2030, Public Facilities and Safety Elements

PF-59 Alternative methods of fire protection and access must be instituted if access is reduced to emergency vehicles.

Implementation Measure: Provide for review of all projects by fire districts having jurisdiction and maintain fire district representation on the Subdivision Review Committee.

PF- 130 Encourage local park districts to collaborate and coordinate with other districts, agencies, and organizations.

Implementation Measure: Work in a coordinated fashion with local park districts, County Regional Parks, state and federal agencies, and non-profit entities to acquire sufficient acreage of park lands and funding for recreation facilities improvements to meet the long-range needs of the residents of Sacramento County.

SA-6 The County will coordinate with the City of Sacramento, the Army Corps of Engineers, the Sacramento Area Flood Control Agency, and other Federal, State, and local governments and agencies to develop a plan to finance, develop and construct flood control project improvements to reduce flooding potential in Sacramento County. The construction of flood control projects along the Sacramento and American Rivers and the immediate connection of local streams to these rivers shall be included in these projects. Such projects should provide 200-year flood protection.

SA-11 The County shall implement the improvement of natural drainage channels and certain floodplains for urbanized or urbanizing portions of the County to reduce local flooding. Such improvements shall comply with the General Plan policies contained in the Conservation Element, Urban Streams, and Channel Modification Section.

SA-18a Provide unobstructed access to levees on county-owned lands, whenever practicable, for maintenance and emergencies. Require setbacks and easements to provide access to levees from private property.

SA-20 Levees for the purpose of floodplain reclamation for development shall be strongly discouraged. Floodplain restoration shall be encouraged to provide flood protection and enhancement and protection of a riparian ecosystem.

SA-21 If levee construction is approved to reclaim floodplain for new development, 200-year flood protection is required.

Implementation Measures: Amend the Flood Combining Zone to further limit development within the 100-year floodplain. This zone should enhance flood protection and provide opportunities for reclamation of riparian habitats and recreation.

The County shall implement the improvement of natural drainage channels in urbanized or urbanizing portions of the County to reduce local flooding.

2.3.3 Analysis of Environmental Effects

2.3.3.1 Analysis Methodology

Effects to the human environment as a result of effects to public utilities and service systems from Proposed Action were assessed by comparing existing service capacity and facilities to the potential service capacity and capability during and after implementation of the Proposed Action. Evaluations of potential utility and service systems impacts consider the duration and extent to which such services would be affected as well as the ability of a service provider to continue to provide a level of service that could continue to meet the needs of affected communities.

2.3.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). 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, as amended. The alternatives under consideration were determined to result in a significant impact related to public utilities and services if they would do any of the following:

- a. result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, schools, park, other public facilities;
- b. exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- c. require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- d. have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
- e. result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- f. generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals;
- g. not comply with or result in non-compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

2.3.3.3 Effects Not Addressed in Detail

Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (2.3-b) —While the Proposed Action would not create wastewater in the sense of wastewater treated at a sewer treatment plant, the SWRCB maintains that wastewater can be generated by construction sites. Nevertheless, wastewater in this context is regulated under the Section 402 of the Clean Water Act, National Pollution Discharge Elimination System (NPDES), under the state issued Construction Stormwater General Permits, and these effects are described in detail in Appendix B 3.4.

Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments (2.3-e)—This Proposed Action would not construct any facilities which would require wastewater connections. Temporary sanitary facilities would be provided for the use of workers at the Proposed Action. However, these facilities would self-contained and would not connect to existing wastewater service facilities, nor require the construction of new wastewater service facilities. Therefore, this issue is not addressed further in the SEIS/SEIR.

2.3.3.4 Effects Analysis

No Action Alternative

Under the No Action Alternative, the Proposed Action from the ARCF GRR FEIS/EIR would be implemented. Since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents listed in Section 2.1.1, “Related Documents and Resources,” in the SEIS/SEIR document, and the authorized project includes implementation of all mitigation measures adopted and incorporated into the project. The Proposed Action would not include the portions of Magpie Creek between Vinci Ave and Dry Creek Rd or the new levee east of Raley Blvd. On the Lower American River; additional erosion protection for potential tree scour, and alteration of the Proposed Action to include locations under the Watt Avenue bridge or Contract 3B; and erosion protection and the associated bike trail reroute on Contract 4A would not be constructed. The Sacramento and American River mitigation sites would not be constructed and mitigation for Proposed Action effects would be through bank credit purchases. If constructed as described in the ARCF GRR FEIS/EIR, effects to the human environment from effects to public utilities and service systems would be less than significant with the implementation of mitigation measures discussed in Section 3.16.2.

Proposed Action Alternative

2.3-a Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection, police protection, schools, park, other public facilities

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-Term and Minor effects that are Less than Significant

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Contract 3, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): No Impact

The Proposed Action consists of levee improvements and associated mitigation. Since the levee improvements would occur in developed areas, no new development, or intensification of uses, which would necessitate the provision of new, or alteration of existing governmental or public facilities. There would be no need to construct additional law enforcement, fire protection, emergency medical services facilities, parks, or schools; therefore, there would be no associated environmental impacts. Impacts to existing parks and recreational facilities are addressed in Appendix B, Section 2.2, "Recreation."

The effects described in the ARCF GRR FEIS/EIR for impacts to governmental facilities and public service systems adequately describe the context and intensity of impacts that would occur if the Proposed Action were constructed. Since impact conclusions for a supplemental analysis under NEPA compare the Proposed Action described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no impact under NEPA.

American River Mitigation, Sacramento River Mitigation

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-Term and Minor effects that are Less than Significant

Construction of the mitigation sites at ARMS and SRMS would occur in undeveloped areas. The proposed ARMS is located within the American River Parkway, a county park facility. No new permanent utility services to the ARMS site are planned at the time of writing of this document, and services such as law enforcement are already provided in the American River Parkway and demand is expected to be similar to existing conditions. The ARMS site is surrounded by other areas of the American River Parkway. Developed facilities are available nearby at Discovery Park, and existing use of the Jedediah Smith Memorial Bike Trail already brings substantial numbers of people to the immediate vicinity of the ARMS site.

The proposed SRMS site does not have any existing public facilities or public utility systems. There are no plans to make the site publicly accessible and therefore there would be no need for the provision of new governmental services or public utility systems. The intensity of use of the site by people would not increase and therefore existing fire and police services would be sufficient to prevent the site from becoming a public nuisance or threat to safety.

These mitigation sites were not addressed in the 2016 ARCF GRR FEIS/EIR, so CEQA and NEPA analyses consider the entire footprint.

2.3-c Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Less than Significant with Mitigation Incorporated

Magpie Creek Project

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

The MCP includes water lines, sewer lines, overhead power lines, and telecommunications lines. In general, these utilities are aligned parallel to roadways within the Project disturbance area, within the transportation right of way. However, because the MCP occurs within an area with development on both sides in some areas, some utilities, including a sewer line pass perpendicularly through the levee. The current sewer line is constructed from clay and would need to be temporarily rerouted to prevent damage from nearby earthwork. Upon completion of construction, the sewer line would be replaced with either PVC, ABS, or VCP pipe. Power poles would need to be relocated to align with new features, and storm water conveyance culverts would be re-sized to accommodate anticipated flows. Taken together, there would likely be temporary service interruptions if the MCP is implemented. This would be a significant impact. Implementing Mitigation Measure UTL-1, which was previously adopted for the ARCF 2016 Project, would reduce the length of the interruptions to the extent possible, and by providing notice of the interruption, enable affected parties to make preparations to minimize disturbance. After implementation of Mitigation Measure UTL-1, this impact would be less than significant.

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

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

- Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated.
- Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners.
- Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the Proposed Action, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would 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 would 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 would include worker education training in response to such situations.
- Stage utility relocations during construction to minimize interruptions in service.
- Communicate construction activities with first responders to avoid response delays due to construction detours.

Timing: Before construction

Responsibility: USACE

American River Erosion Contract 3B North and South, American River Erosion Contract 4B

CEQA Conclusion (Entire Proposed Action): Less than Significant

NEPA Conclusion (Design Refinements): Short-Term and Minor effects that are Less than Significant

The project site for American River Erosion Contract 3B North and South and American River Erosion Contract 4B includes stormwater outfalls. Staging areas for American River Erosion Contract 3B North and South would occur in stormwater drainage basins. The project site for American River Erosion Contract 3B also contains water lines which would need to be relocated. American River Erosion Contract 3B North and South was designed to avoid the stormwater outfalls and outlet channels would be provided through the erosion protection features. Since work would not occur during flood conditions, use of the drainage basins for flood water storage would not be precluded. It is anticipated that equipment would be moved from the drainage basins prior to inundation such that capacity would not be reduced. There would be short-term minor impacts that are less than significant to the stormwater and municipal water supply systems due the Proposed Action.

The effects described in the ARCF GRR FEIS/EIR for impacts to utilities and public service systems due to relocations adequately describe the context and intensity of impacts that would occur if the Proposed Action were constructed for this project component. Since impact conclusions for a supplemental analysis under NEPA compare the Proposed Action described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no new impact under NEPA.

American River Erosion Contract 4A

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

There are two known telecommunications lines and one water line within the project footprint of American River Erosion Contract 4A. Construction could temporarily interrupt service to these facilities. Depth to the utility lines is currently unknown. This impact would be potentially significant.

Implementing Mitigation Measure UTL-1, which was previously adopted for the ARCF 2016 Project, would reduce this impact to a less-than-significant level because surveys would be conducted to determine the precise location of the utilities prior to construction, and service providers would be notified of any disruptions. Since there are no known electrical lines, the piezometer network would likely be solar powered. Mitigation Measure UTL-1 would require communication with utility owners and affected users prior to work and any potential service interruptions. If required, utilities would be relocated to an alternate compatible location within the project disturbance footprint to ensure that there are not additional environmental effects due to the relocation of the service lines. Construction of the site could result in service interruptions due to relocations; however, with the implementation of UTL-1, these effects would be less than significant.

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

Please refer to Impact 2.3-c, MCP above for full text of this mitigation measure.

Timing:	Before construction
Responsibility:	USACE

Sacramento River Erosion Contract 3

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): No Impact

The project site for the Sacramento River Erosion Contract 3 improvements encompasses numerous public utility structures including stormwater pipes and outfalls, sump lines, and electrical lines. In addition, the site is immediately adjacent to the Freeport Regional Water Facility. Construction of the site could result in damage to any of the above listed utilities resulting in a service interruption. This would be a potentially significant impact.

Implementing Mitigation Measure UTL-1, which was previously adopted for the ARCF 2016 Project, would require communication with utility owners and affected users prior to work and any potential service interruptions. If required, utilities would be relocated to an alternate compatible location within the project disturbance footprint to ensure that there are not additional environmental effects due to the relocation of the service lines. Construction of the site could

result in service interruptions due to relocations; however, with the implementation of UTL-1, these effects would be less than significant.

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

Please refer to Impact 2.3-c, MCP above for full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE

The effects described in the ARCF GRR FEIS/EIR for impacts to utilities and public service systems due to relocations adequately describe the context and intensity of impacts that would occur if the Proposed Action were constructed for this project component. Since impact conclusions for a supplemental analysis under NEPA compare the Proposed Action described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no impact under NEPA.

American River Mitigation Site

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

There are high voltage overhead lines present within the proposed Project boundary. There may be other utilities present that could be found during the survey process. Due to the risk of working near, and the expense of moving a high voltage line, high voltage lines would be avoided in place. Construction of the site could result in damage to existing utilities resulting in a service interruption. This would be a potentially significant impact. If other utilities were identified within the Proposed Action, implementation of UTL-1, which was previously adopted for the ARCF 2016 Project, would ensure that impacts to utilities due to any necessary relocations would be less than significant.

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

Please refer to Impact 2.3-c, MCP above for full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE

Sacramento River Mitigation Site

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

There are no known utilities on the SRMS. However, utility surveys of this site have not been conducted. The possible disruption of utilities would be a potentially significant impact. Implementing Mitigation Measure UTL-1, which was previously adopted for the ARCF 2016 Project, would require communication with utility owners and affected users prior to work and any potential service interruptions. If required, utilities would be relocated to an alternate compatible location within the project disturbance footprint to ensure that there are not additional environmental effects due to the relocation of the service lines. Construction of the site could result in service interruptions due to relocations, however, with the incorporation of UTL-1, these effects would be less than significant.

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

Please refer to Impact 2.3-c, MCP above for full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE

Piezometer Network

CEQA Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Conclusion (Design Refinements): No Impact

A piezometer network would be installed along the existing levees. In areas with no known electric utilities, the network would be solar powered. In areas with existing electric utilities, the piezometers may be connected to the electrical grid. Installation of the piezometer network would occur after primary levee improvements, but would require the same survey procedures to identify existing utilities. The impact related to disruption of utility service would be potentially significant. Implementing Mitigation Measure UTL-1, which was previously adopted for the ARCF 2016 Project, would require communication with utility owners and affected users prior to work and any potential service interruptions, and would reduce this impact to a less-than-significant level.

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

Please refer to Impact 2.3-c, MCP above for full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE

The effects described in the ARCF GRR FEIS/EIR for impacts to utilities and public service systems due to relocations adequately describe the context and intensity of impacts that would occur if the Proposed Action were constructed for this project component. Since impact conclusions for a supplemental analysis under NEPA compare the Proposed Action described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no impact under NEPA.

2.3-d Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

CEQA Significance: Less than Significant

NEPA Significance: Short-term to Medium-Term and Minor effects that are Less than Significant.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, American River Mitigation, Sacramento River Mitigation, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term to Medium-Term and Minor effects that are Less than Significant.

All the components of the Proposed Action would require temporary water supplies during construction. Water would be needed for fugitive dust mitigation, compaction of soil, blading of roads, irrigation of hydroseed and/or plantings, and other construction related tasks. Water supplies to complete construction could be sourced from municipal supplies at fair market value for the duration of the construction directly from nearby water lines or transported via water truck. Irrigation required for plant establishment period (usually 3-5 years following construction) preferentially uses river water, or existing or newly drilled groundwater wells; however, municipal water would be an alternative water supply. Permits for river water usage may be required depending upon pump size and intake. Permits for well installation would be coordinated at the City or County level depending upon project component. DWR estimates that between 7,000-15,000 new wells are drilled in California each year; therefore, permits and approvals for several wells are not expected to delay the project (DWR, 2020). Regardless of specific water supply type, there would be no on-going commitment of water resources to the

levee improvement or proposed mitigation sites following the completion of construction and plant establishment.

Drought status would likely only affect the price the contractor would pay for needed water, as the project components would not be competing with municipal water users. In very dry years, particularly if those years occurred during the plant establishment period, the cost of acquiring municipal irrigation water could increase substantially if emergency water reduction measures are enacted by local or State governments. Mitigation plantings are selected for drought-adapted and tolerant native plants that have high survival rates even with low water regimes. The installation of several new groundwater wells to support plant establishment would not substantially decrease groundwater levels, nor impact neighboring domestic wells. During drought years, continuous groundwater monitoring would assess negative vertical displacement to prevent aquifer depletion and ongoing regional subsidence. See Section 3.3.3.4, in Appendix 3.3 Hydraulics and Hydrology for additional groundwater impact analysis. Since the use of municipal water supplies would be temporary, and water would be purchased at fair market value, as available, impacts to water supplies from implementation of the Proposed Action would be short-to-medium term with minor effects (NEPA) that are less than significant (CEQA). The ARCF GRR FEIS/EIR did not consider effects to water supply due to implementation of the Proposed Action as it pertains to the use of water supplies in normal and dry years. Therefore, the NEPA and CEQA conclusions would be similar.

2.3-f Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, American River Mitigation Site, Sacramento River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): No Impact

Construction of these project components would generate waste consisting of vegetation, soil, concrete, and asphalt. State regulations require that at least 50 percent of municipal waste be diverted through recycling, composting, or reuse. Topsoil and soils containing high volumes of organic matter could either be reused at mitigation sites or turned in for reuse or composting at county recovery stations. Rubble and concrete aggregates are also accepted at recovery stations. Tables 2.3-1 and 2.3-2 present the estimated waste generated by Contracts 3B and 4A, respectively, and the potential diversion by material. With the exception of small volumes of asphalt, all of the construction waste generated by these project components can be diverted.

Quantities of material that may need to be disposed of have not been calculated for the MCP, Sacramento River Erosion Contract 3, ARMS, American River Erosion Contract 4B, or Piezometer Network project components. However, it is likely that these project components would have a similar diversion rate to the other American River Erosion Contract 3B North and

South, American River Erosion Contract 4A, and the SRMS. This impact would be less-than-significant.

Table 2.3-1. Waste Diversion, American River Contract 3B

Waste Type	Amount	Able to Divert?	Total Percentage
Vegetation (green waste)	13,295 CY	Yes. Compostable county wide.	6%
Earth/soil	192,405 CY	Yes. Some facilities accept soil/earth for recycling.	92%
Concrete	0	Yes. Concrete can be crushed into new aggregates.	0
Asphalt	3,215 CY	No. Dispose of as waste.	2%
Total Percentage able to divert			98%

Source: USACE 2023

Table 2.3-2. Waste Diversion, American River Contract 4A

Waste Type	Amount	Able to Divert?	Total Percentage
Vegetation (green waste)	4227 CY	Yes. Compostable county wide.	83%
Earth/soil	0	Yes. Some facilities accept soil/earth for recycling.	0%
Concrete	0	Yes. Concrete can be crushed into new aggregates.	0%
Asphalt	75 CY	No. Dispose of as waste.	1%
Cast Iron	800 CY	Yes. Recycle.	16%
Total Percentage able to divert			99%

Source: USACE 2023

The effects described in the ARCF GRR FEIS/EIR for impacts to utilities and public service systems due to generation of solid waste sufficiently characterize the context and intensity of impacts that would occur if the Proposed Action were constructed. Since impact conclusions for a supplemental analysis under NEPA compare the Proposed Action described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no impact under NEPA.

2.3-g Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

CEQA Significance: No Impact

NEPA Significance: No Impact

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, American River Mitigation Site, Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

All actions and activities under the Proposed Action would comply with all federal, state, and local management and reduction statutes and regulations related to solid waste. The Project would not seek any waivers or exemptions to codified laws or regulations. Since all actions would be compliant, there would be no impact under CEQA.

The effects described in the ARCF GRR FEIS/EIR for impacts to utilities and public service systems based on compliance with federal, state, and local statutes and regulations pertaining to solid waste adequately assess the context and intensity of impacts that would occur if the Proposed Action were constructed. Since impact conclusions for a supplemental analysis under NEPA compare the Project described in the original document and there are no new impacts, and no intensification of impacts previously described, there is no impact under NEPA.

Alternatives Comparison

Alternatives 3a through 3d

Alternative 3a through 3d include alternative designs for improvements to the American River Erosion Contract 4A Project component. In Alternative 3a, a landside berm would be constructed instead of a waterside berm. In Alternative 3b, the bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 3d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. None of these alternatives include changes that would affect the demand for public utilities or services relative to the Proposed Action. All other Project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 2.3-3. Alternative 3a through 3d Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	American River Erosion Contract 4A	Consistent with the Proposed Action. The alternative designs would not have any more or less impact on public services than the Proposed Action.	N/A	Less than significant	No Impact
2.3-c	American River Erosion Contract 4A	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to disruption of utility service than the Proposed Action.	UTL-1	Less than significant with mitigation	Short-term and minor effects that are Less than significant with mitigation
2.3-d	American River Erosion Contract 4A	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to water supply than the Proposed Action.	N/A	Less than significant	Short-term to medium-term and minor effects that are Less than significant

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-f	American River Erosion Contract 4A	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to waste disposal than the Proposed Action.	N/A	Less than significant	No impact
2.3-g	American River Erosion Contract 4A	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to compliance with waste disposal requirements than the Proposed Action.	N/A	No Impact	No Impact

Alternatives 4a and 4b

Alternatives 4a and 4b are alternative designs for the ARMS. Alternative 4a would retain a 30-acre portion of the existing pond, and alternative 4b would retain a 20-acre pond. Channels and habitat would be constructed on the remaining eastern portion of the site. Neither of these alternatives include changes that would affect the demand for public utilities or services relative to the Proposed Action. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and SRMS) would have the same effects as the Proposed Action.

Table 2.3-4. Alternative 4a and 4b Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
2.3-a	ARMS	Consistent with the Proposed Action. The alternative designs would not have any more or less impact on public services than the Proposed Action.	N/A	Less than significant
2.3-c	ARMS	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to disruption of utility service than the Proposed Action.	UTL-1	Less than significant with mitigation
2.3-d	ARMS	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to water supply than the Proposed Action.	N/A	Less than significant
2.3-f	ARMS	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to waste disposal than the Proposed Action. Clean graded material on mitigation sites would be redistributed onsite to the maximum extent feasible. Other bulky waste such as concrete debris and metals would be hauled offsite for disposal or recycling as those cannot be immediately reused.	N/A	Less than significant
2.3-g	ARMS	Consistent with the Proposed Action. The alternative design would not have any more or less impact related to compliance with waste disposal requirements than the Proposed Action.	N/A	No Impact

Alternative 5a

Alternative 5a would utilize mitigation bank credit purchases to compensate for unavoidable resource impacts to sensitive and protected resources in lieu of constructing a mitigation site on the Sacramento River. All other Project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and ARMS) would have the same effects as the Proposed Action. Purchases of bank credits do not have any effect on public utilities or service systems, so there would be no utilities impacts if this Alternative is implemented.

Table 2.3-5. Alternative 5a Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-c	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-d	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-f	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-g	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b proposes to construct a mitigation site on the Sacramento River at Watermark Farms in lieu of the Proposed Action. All other Project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and ARMS) would have the same effects as the Proposed Action. Consistent with other mitigation construction projects, any potentially affected utilities would be temporarily re-routed to accommodate project features. There would be temporary interruptions to utility service and some utilities could be permanently relocated. However, these effects to public services would be short-term, and through the implementation of UTL-1, effects would be less than significant.

Table 2.3-6. Alternative 5b Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	ARMS	Consistent with the Proposed Action. The alternative location would not have any more or less impact on public services than the Proposed Action. Watermark Farms is currently served by Yolo County resources for public safety, fire, and emergency services. The area is currently rural and conversion to a mitigation site would not change the rural character of the area such that these services would need to be upgraded to dedicated services. If mitigation designs result in changing the orientation or length of South River Road, response times to properties immediately south of Watermark Farms could be delayed. However, travel would still be possible along Jefferson Blvd, therefore the effect would be muted. There are no school facilities within one-mile of the site, and no residences would be built or removed that would create a shift in local populations that could affect schools.	N/A	Less than significant	Short-term and minor effects that are Less than Significant
2.3-c	ARMS	Consistent with the Proposed Action. The alternative location would not have any more or less impact related to disruption of utility service than the Proposed Action.	UTL-1	Less than significant with mitigation	Short-term and minor effects that are Less than Significant with mitigation

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-d	ARMS	<p>Consistent with the Proposed Action. The alternative location would not have any more or less impact related to water supply than the Proposed Action. The Watermark Farms side channel diversion would flow back into the Sacramento River, therefore water supply effects are anticipated to be negligible. Acquisition of the property would include water rights and exercising those rights would not interfere with other existing rights in the system. Watermark Farms includes both riparian and appropriated rights. Riparian rights are limited only to "reasonable historic use", it is unlikely that water needs for construction and plant establishment would exceed the historic water used to support agriculture on the parcel. Following plant establishment, irrigation to the parcel would cease, and water rights would no longer be exercised on the parcel. However, riparian rights are not extinguished if they are not used, rather, they go dormant. Appropriated rights are subject to the terms of the contract holding the right. Therefore, there would be no long term change to water rights or supply in the area.</p>	N/A	Less than significant	Long-term and negligible effects that are Less than significant
2.3-f	ARMS	<p>Consistent with the Proposed Action. The alternative location would not have any more or less impact related to waste disposal than the Proposed Action. Graded material on mitigation sites would be redistributed onsite to the maximum extent feasible. Other bulky waste such as concrete debris and metals are anticipated to be limited, but would be hauled offsite for disposal or recycling as those cannot be immediately reused.</p>	N/A	Less than significant	Short-term and negligible that are Less than Significant
2.3-g	ARMS	<p>Consistent with the Proposed Action. The alternative location would not have any more or less impact related to compliance with waste disposal requirements than the Proposed Action.</p>	N/A	No Impact	No Impact

Alternative 5c

Alternative 5c includes the purchase of mitigation bank credits and providing funding to a third-party habitat restoration project. All other Project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and ARMS) would have the same effects as the Proposed Action. Purchases of bank credits do not have any effect on public utilities or service systems. Funding of the third-party restoration project would potentially result in utility or service system effects, but they would be addressed in the CEQA and NEPA coverage for projects like Sunset Pumps.

Table 2.3-7. Alternative 5c Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.3-a	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-c	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-d	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-f	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact
2.3-g	SRMS	Less than the Proposed Action. This alternative would include no construction of this project element and no public services impact.	N/A	No Impact	No Impact

2.4 Land Use, Farmland, and Forestland

2.4.1 Existing Conditions/Affected Environment

Land Use

Magpie Creek

The Magpie Creek Project (MCP) is located in North Sacramento adjacent to the former McClellan Air Force Base, due north of Interstate 80 (I-80) and bisected by Raley Boulevard (Figure 3.5.1-3 of the SEIS/SEIR). The project is estimated to be approximately 8,600 feet long, including the haul road connecting bike bridge to canal work. The project will take place within the City of Sacramento near the Sacramento County unincorporated communities of North Highlands and Rio Linda (Figure 2.4-1). The Magpie Creek Diversionary Canal (MCDC) transports treated wastewater from the McClellan Business Park's water treatment plant to the MCDC termination point at Robla Creek and receives seasonal flows from rain runoff. Robla Creek flows into the Natomas East Main Drain Canal (NEMDC). The NEMDC is a tributary of the American River North Basin, one of the subbasins for the American River Watershed. The American River Watershed is a part of the overall Sacramento Basin and feeds into the Sacramento River. The existing land use in the area surrounding the project site consists of warehouses, industrial buildings, low-density residential areas, and parks. The project site includes areas designated as Employment Center Low Rise, Suburban Neighborhood Low Density, Parks and Recreation, and Open Space in the City of Sacramento 2023 General Plan (City of Sacramento General Plan) (Figure 2.4-2 [City of Sacramento 2022]).

American River Erosion Contract 3B and 4B

The American River Erosion Contract 3B is made up of three sites on both the left and right banks of the American River (Figure 3.5.2-3 of the SEIS/SEIR). Site 3-1 is located between the Howe Avenue Bridge and the Watt Avenue Bridge on the right bank of the LAR between LAR River Mile (RM) 3.8 and 8.8 (~ 4,600 linear feet). Site 4-1 is located upstream of Watt Avenue on the left bank of the LAR between LAR RM 9.1 and 10.5 (~6,100 linear feet). Site 4-2 is located on the right bank of the LAR between LAR RM 9.8 and 10.0 (~1,100 linear feet) near the Estates Drive River Access. American River Erosion Contract 4B is near RM 8.6 on the right bank and RM 9.8 on the left bank. This area is currently a mix of residential and recreational use; and partially under the jurisdiction of Sacramento County and partially under the jurisdiction of the City of Sacramento. The portion of the project site in the City of Sacramento is designated in the City of Sacramento General Plan for Parks and Recreation (Figure 2.4-4 [City of Sacramento 2022]). Sacramento County General Plan of 2005 to 2030 (Sacramento County General Plan) (County of Sacramento 2022) designates the portion of the project site in the incorporated County for Natural Preserve, Recreation, Low Density Residential, and Transit Oriented Development (Figure 2.4- 5).

American River Erosion Contract 4A

LAR Contract 4A is located on the right bank of the American River at RM 2.0 near the State Route (SR) 160 bridges and the Union Pacific Railroad (UPRR) Bridge, see Figure 2.4-1 below. Existing land use in this area is a mix of warehouse, industrial, parkway, and roadway. There is land within the project site that designated as Farmland of Local Importance by the California

Department of Conservation’s Farmland Mapping and Monitoring Program (FMMP) (DOC 2016); however, the property is owned by the County of Sacramento, is considered part of the Lower American River Parkway and has been designated park space for recreation since the 1980s. Figure 2.4- 10 illustrates this area. A trailer park is located in the vicinity, but is separated from the project by the levee and SR 160. The City of Sacramento General Plan (City of Sacramento 2022) designates the project site and nearby areas for Parks and Recreation, Employment Center Low Rise, and Suburban Center (Figure 2.4-6).

Sacramento River Erosion Contract 3

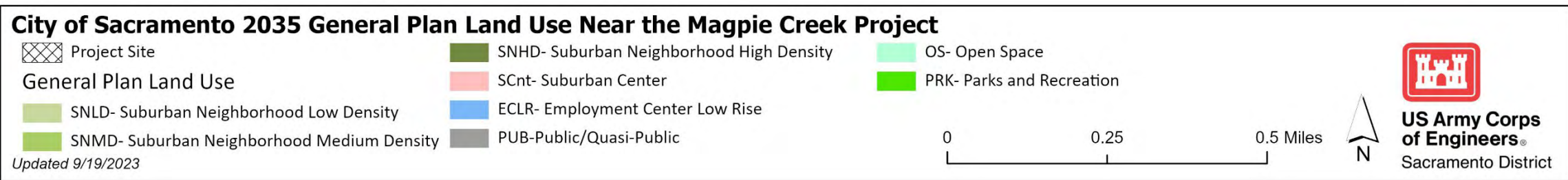
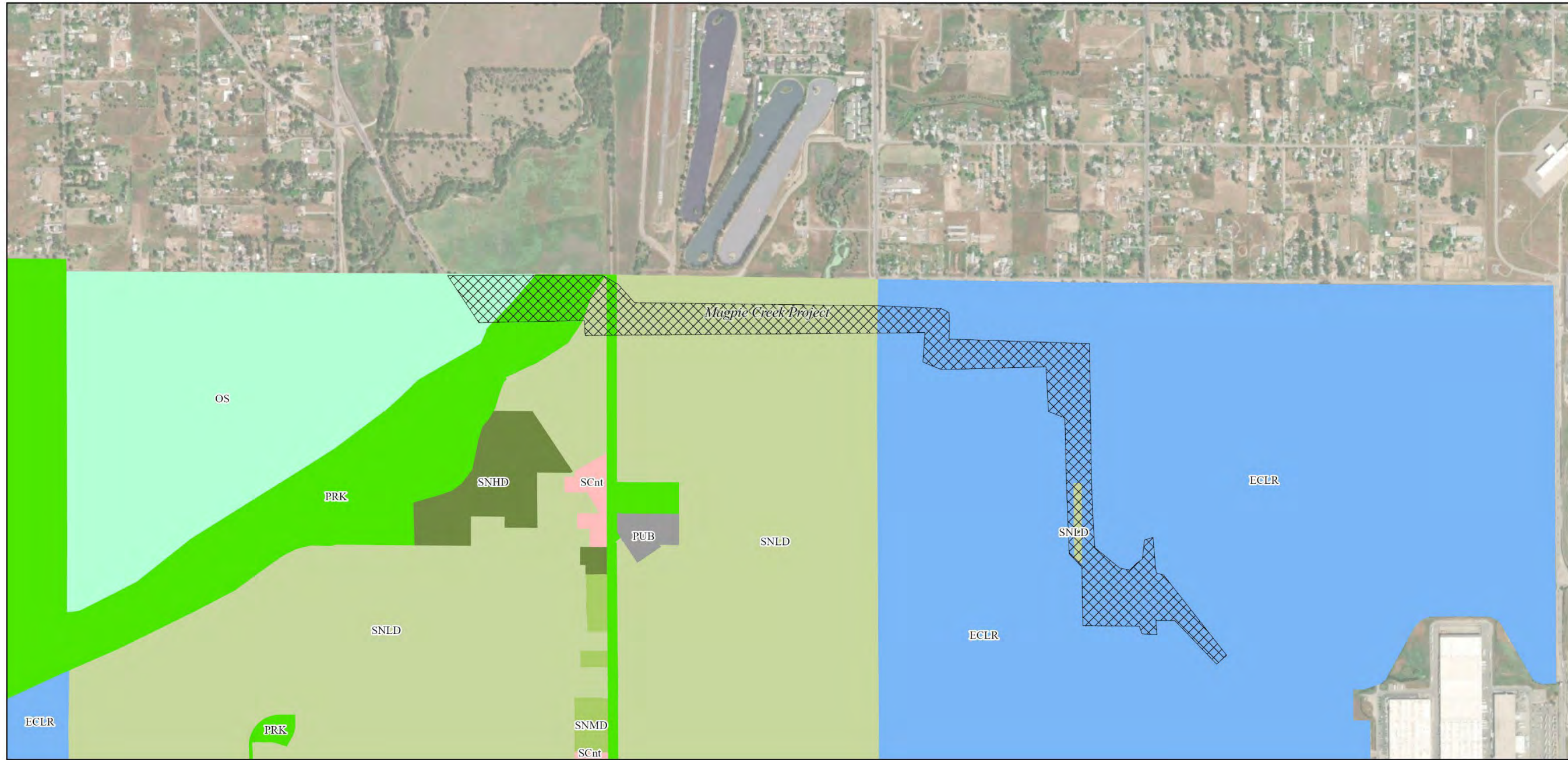
Sacramento River Erosion Contract 3 includes three segments totaling 2.8 miles between river miles 47 and 53 in the City of Sacramento’s Pocket neighborhood (Figure 2.4-1). The landside area surrounding the project area is privately owned land made up of neighborhoods known as the Pocket and the Little Pocket, both of which lie between the Sacramento River and I-5. The levee top on the project site is used for a public bike trail in some locations and is closed to public access at other locations. The City of Sacramento General Plan designates land uses in the project site vicinity as Parks and Recreation, Low-Density Residential and Public/Quasi-Public (Figures 2.4-7 and 2.4- 8).

Sacramento River Mitigation Site

The Sacramento River Mitigation Site (SRMS), (Figure 2.4-1) is in the legal Delta, at the confluence of the Sacramento River, Cache Slough and Steamboat Slough. Until approximately 1980, a portion of the site was used as a Class III solid waste landfill. The current land use is a decommissioned landfill, open space and approximately 20 acres for disposal of dredge material. The site itself is not designated as Prime Farmland, but Prime Farmland is present in the immediate vicinity (DOC 2016) (Figure 2.4-10). The Sacramento County General Plan (County of Sacramento 2022) designates lands in the vicinity of the site for Natural Preserve and Recreation (Figure 2.4- 9).

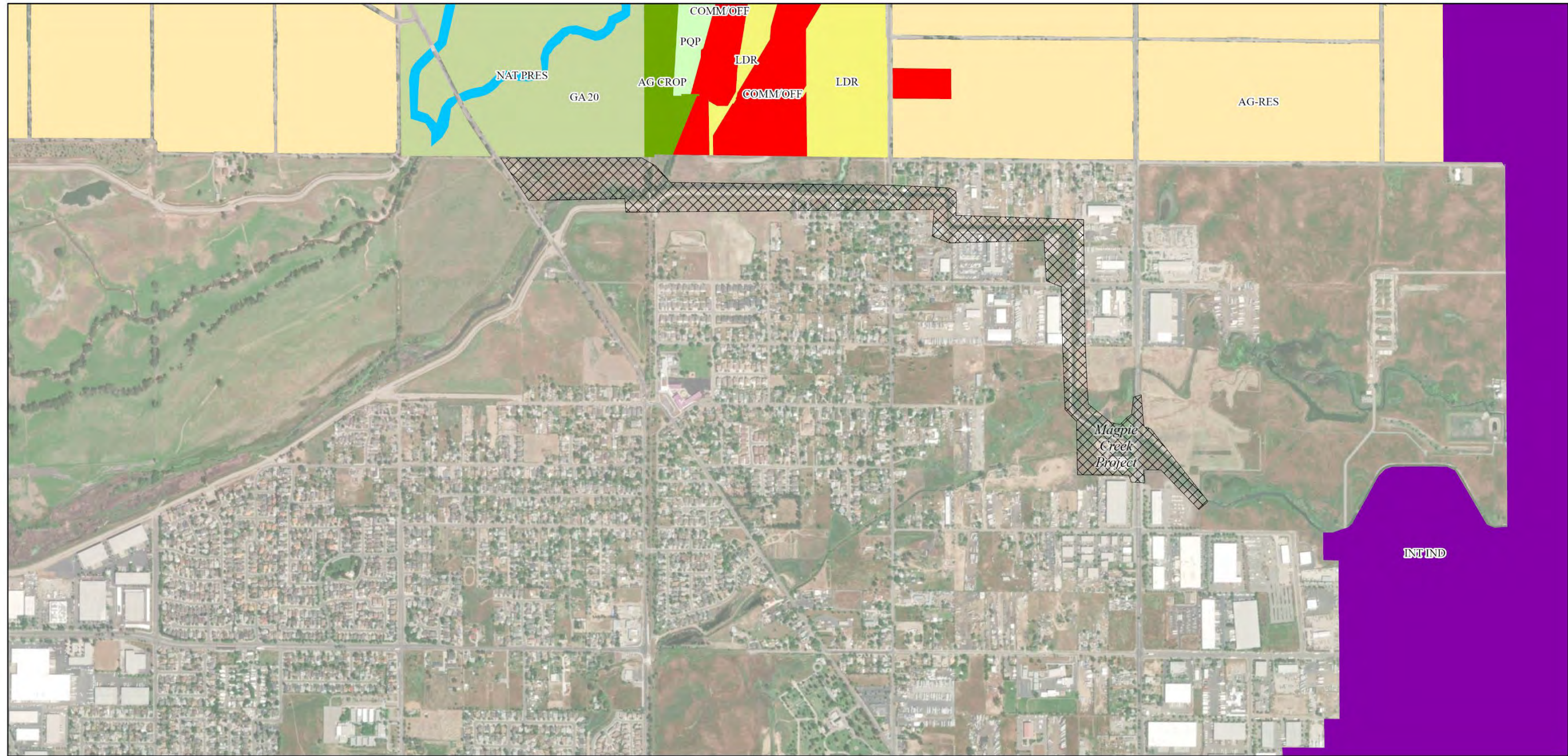
American River Mitigation Site

The American River Mitigation Site (ARMS) is located on the right bank of the American River, at approximately RM 1.3, between Discovery Park and Camp Pollock, in the American River Parkway. The existing land use at the ARMS includes a pond that was created by historic gravel and sand mining, and undeveloped or underutilized land that was historically used for mining, farming and construction debris removal. Phase I and II ESAs were conducted in 2022 and 2023 and showed elevated levels of soil contaminants including naphthalene, TPH-d, chromium, and lead in various portions of the site. See Appendix B Section 3.8 “Hazards and Hazardous Materials” for a detailed discussion. The land adjacent to the pond is designated as Farmland of Local Importance (DOC 2016) (Figure 2.4- 10). The City of Sacramento General Plan (City of Sacramento 2022) designates the ARMS for Parks and Recreation (Figure 2.4-6).



(City of Sacramento 2022)

Figure 2.4-2. City of Sacramento General Plan Land Use Near Magpie Creek.

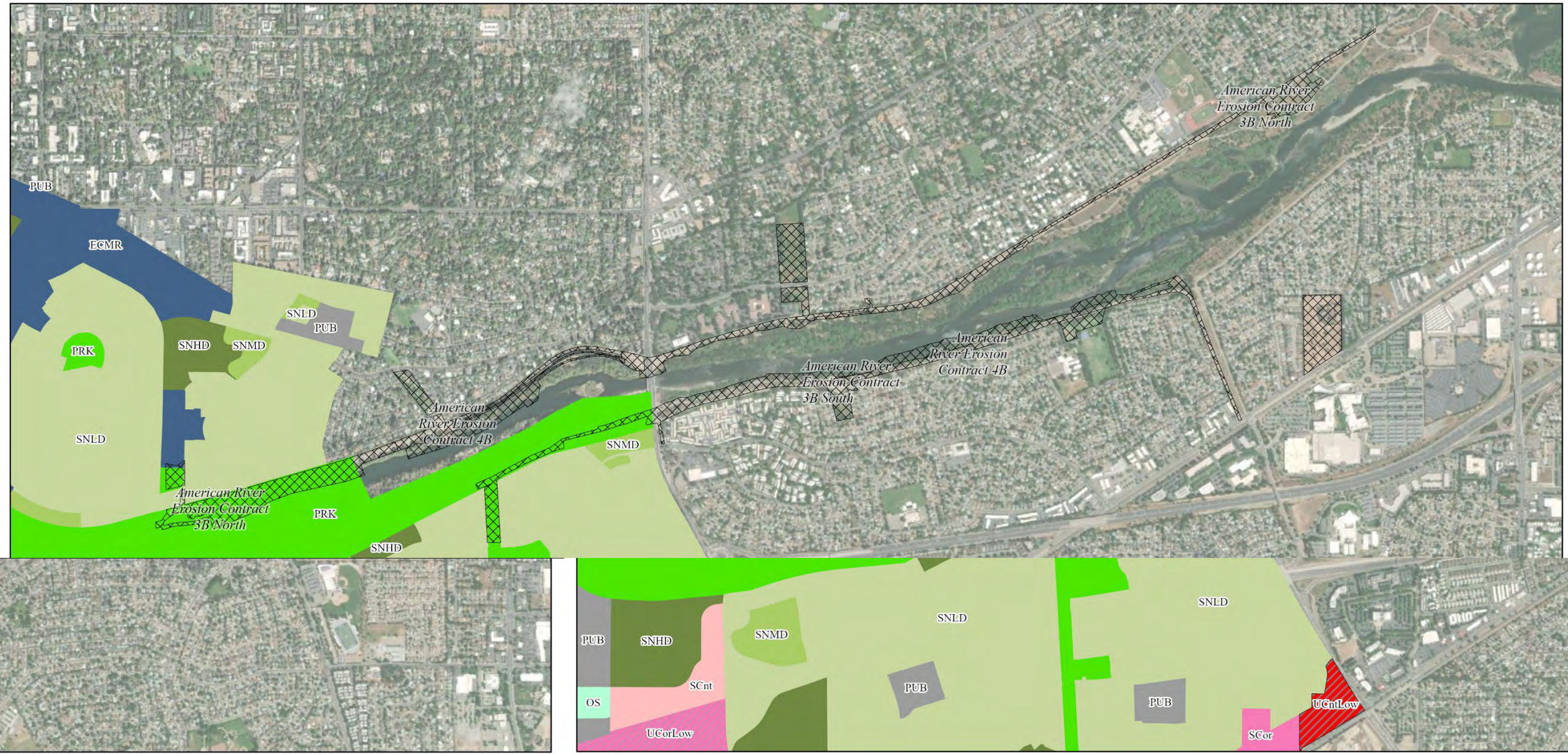


Sacramento County General Plan of 2005 to 2030 Land Use Near Magpie Creek Project

<p>Project Site</p> <p>Land Use</p> <p>AG-RES- Agricultural-Residential</p> <p>LDR- Low Density Residential</p> <p>Updated 09/19/2023</p>	<p>COMM/OFF- Commercial and Offices</p> <p>INT IND- Intensive Industrial</p> <p>PQP- Cemetery Public, and Quasi-Public</p> <p>NAT PRES- Natural Preserve</p>	<p>AG CROP- Agricultural Cropland</p> <p>GA 20- General Agriculture (20 ac)</p>	<p>0 0.25 0.5 Miles</p> <p>N</p> <p>US Army Corps of Engineers Sacramento District</p>
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(County of Sacramento 2022)

Figure 2.4-3. Sacramento County General Plan Land Use Near Magpie Creek Project.

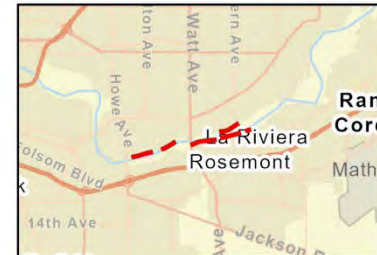


n
 for
 idor Low
 enter Mid Rise
 ublic

OS- Open Space
 PRK- Parks and Recreation

0 0.25 0.5 Miles

US Army Corps of Engineers®
 Sacramento District



City of Sacramento 2035 General Plan Land Use Near American River Erosion Contracts 3B North, 3B South and 4B.

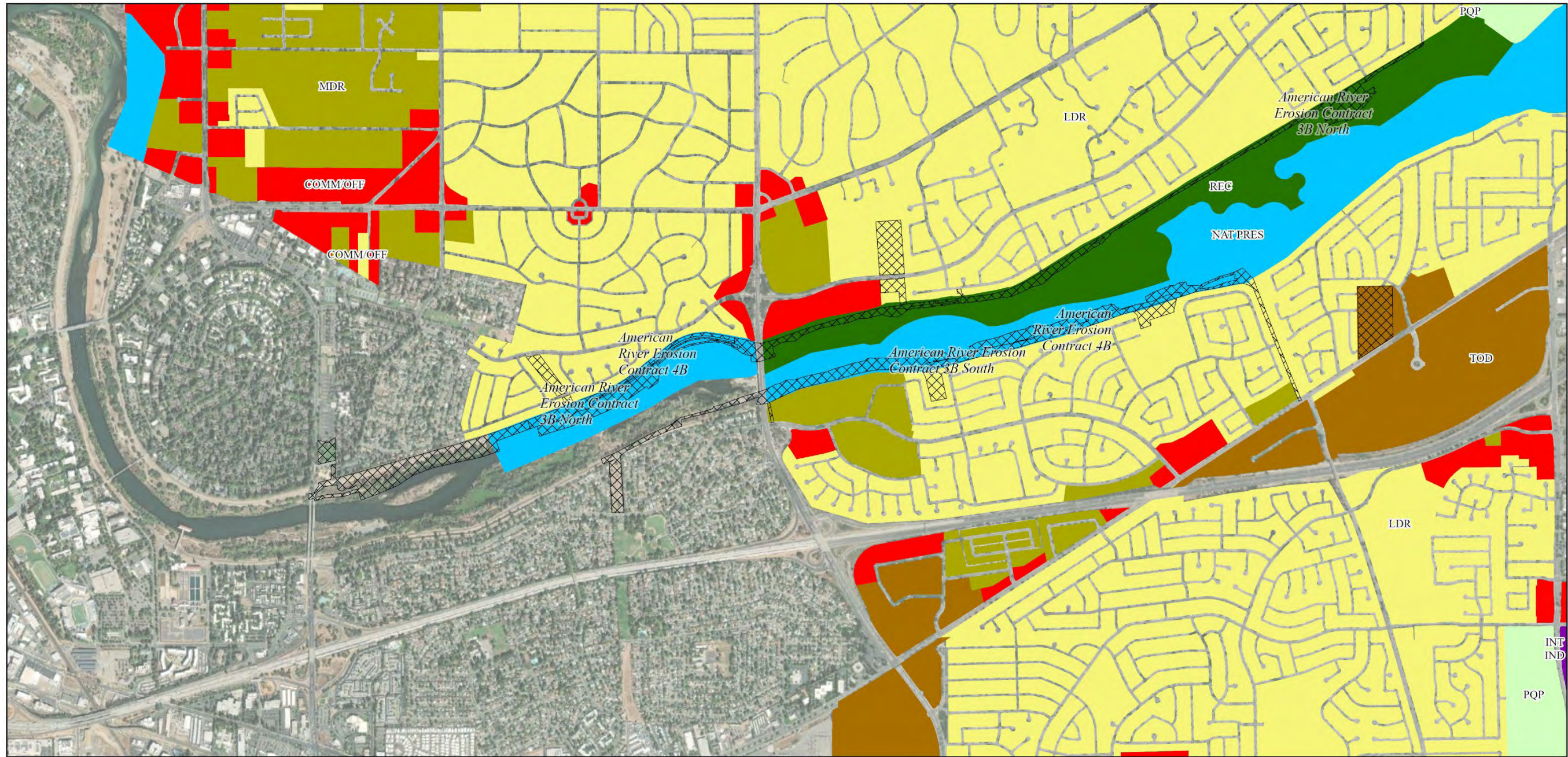
Project Site
 General Plan Land Use

SNLD- Suburban Neighborhood Low Density	SCor- Suburban Corridor
SNMD- Suburban Neighborhood Medium Density	UCorLow- Urban Corridor Low
SNHD- Suburban Neighborhood High Density	ECMR- Employment Center
SCnt- Suburban Center	PUB- Public/Quasi-Public
UCntLow- Urban Center Low	

Updated 11/14/2023

(City of Sacramento 2022)

Figure 2.4-4. City of Sacramento General Plan Land Use Near American River Erosion Contracts 3B North, 3B South, and 4B.



Sacramento County General Plan of 2005 to 2030 Land Use Near American River Erosion Contracts 3B North, 3B South and 4B.

Project Site	TOD- Transit Oriented Development	REC-Recreation
Land Use	COMM/OFF- Commercial and Offices	NAT PRES- Natural Preserve
LDR- Low Density Residential	INT IND- Intensive Industrial	
MDR- Medium Density Residential	PQP- Cemetery Public, and Quasi-Public	

Updated 11/14/2023

(County of Sacramento 2023)

Figure 2.4-5. Sacramento County General Plan Land Use Near American River Contracts 3B North, 3B South and 4B.



City of Sacramento 2035 General Plan Land Use Near American River Erosion Contract 4A and the American River Mitigation Site

 Project Site
General Plan Land Use
 SNLD- Suburban Neighborhood Low Density
 SNMD- Suburban Neighborhood Medium Density
 SNHD- Suburban Neighborhood High Density
 TNHD- Traditional Neighborhood Low Density; TNLD-Traditional Neighborhood Low Density
 TNMD- Traditional Neighborhood Medium Density
 TNHD- Traditional Neighborhood High Density
 UNLD- Urban Neighborhood Low Density
 CBD- Central Business District
 SCnt- Suburban Center
 UCntLow- Urban Center Low
 UCntHigh- Urban Center High
 SCor- Suburban Corridor
 UCorLow- Urban Corridor Low
 ECLR- Employment Center Low Rise
 PUB- Public/Quasi-Public
 PRK- Parks and Recreation

Updated 9/19/2023

0 0.1 0.2 Miles

(City of Sacramento. 2022)

Figure 2.4-6. City of Sacramento General Plan Land Use Near American River Contracts 4A and American River Mitigation Site



City of Sacramento 2035 General Plan Land Use Near Sacramento River Erosion Contract 3 (North)

Project Site	SNMD- Suburban Neighborhood Medium Density	PUB-Public/Quasi-Public
General Plan Land Use	SNHD- Suburban Neighborhood High Density	PRK- Parks and Recreation
SNLD- Suburban Neighborhood Low Density	SCnt- Suburban Center	

Updated 9/19/2023

0 0.15 0.3 Miles

US Army Corps of Engineers
Sacramento District

(City of Sacramento 2022)

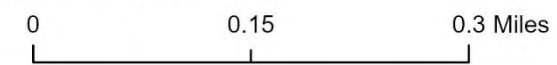
Figure 2.4-7. City of Sacramento General Plan Land Use Near Sacramento River Erosion Contract 3 (North).



City of Sacramento 2035 General Plan Land Use Near Sacramento River Erosion Contract 3 (South)

<p>Project Site</p> <p>General Plan Land Use</p> <p>SNLD- Suburban Neighborhood Low Density</p>	<p>SNMD- Suburban Neighborhood Medium Density</p> <p>SNHD- Suburban Neighborhood High Density</p> <p>SCnt- Suburban Center</p>	<p>SCor- Suburban Corridor</p> <p>PUB- Public/Quasi-Public</p> <p>PRK- Parks and Recreation</p>
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Updated 9/19/2023



(City of Sacramento 2022)

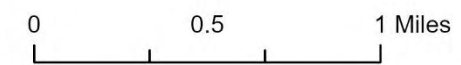
Figure 2.4-8. City of Sacramento General Plan Land Use Near Sacramento River Erosion Contract 3 (South).



Sacramento County General Plan of 2005 to 2030 Land Use Near the Sacramento River Mitigation Site

- | | | |
|----------------------------------|-------------------------------|--------------------------------|
| Project Site | INT IND- Intensive Industrial | AG CROP- Agricultural Cropland |
| Land Use | REC-Recreation | |
| AG-RES- Agricultural-Residential | NAT PRES- Natural Preserve | |

Updated 9/19/2023



(County of Sacramento 2022)

Figure 2.4-9. Sacramento County General Plan Land Use Near Sacramento River Mitigation Site.

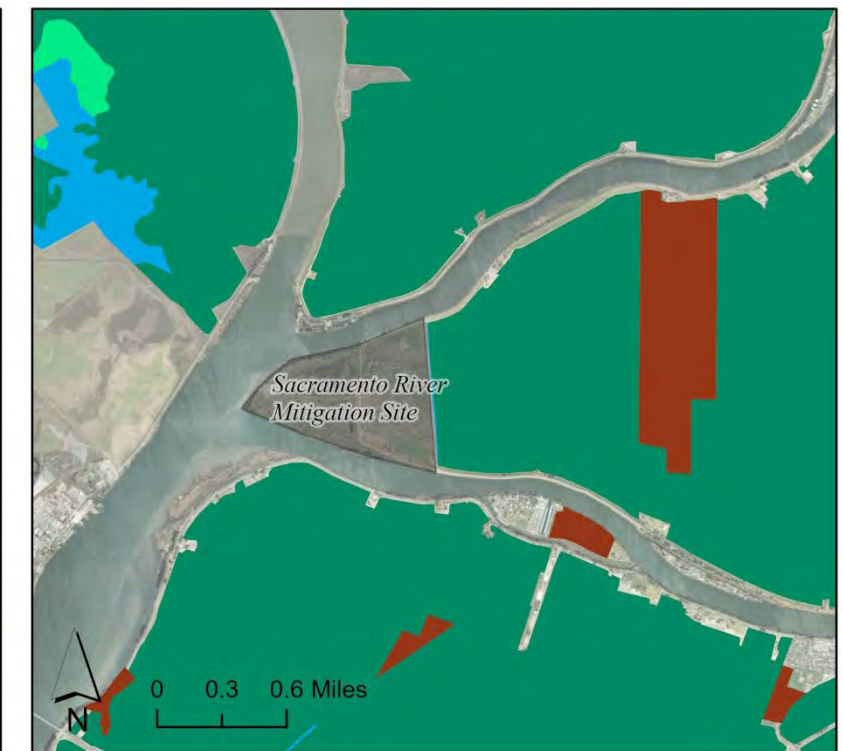
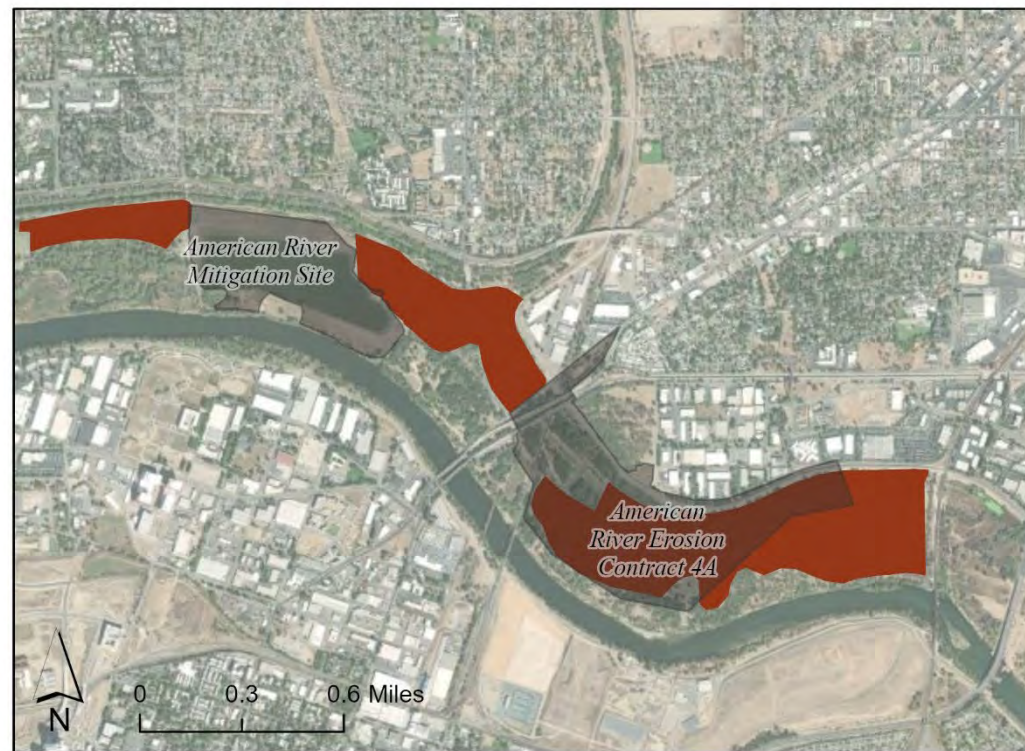
Important Farmland

California Department of Conservation

None of the components of the Proposed Action are located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance based on a review of California Department of Conservation (DOC) Important Farmland data (DOC 2016). Watermark Farms, the project mitigation site considered in Alternative 5b, includes areas of Prime Farmland. Sunset Pumps, a weir removal and pump replacement project, would have its NEPA consideration performed by the Bureau of Reclamation. There are also several areas designated as Farmland of Local Importance; three such locations are associated with the sites for American River Erosion Contract 4A and the ARMS. Four additional areas of Farmland of Local Importance are a part of the construction footprint and staging area for the MCP (See Figure 2.4-10). The SRMS is located near Prime Farmland but is designated as Urban and Built-Up Land by the FMMP (Figure 2.4- 10).

U.S. Department of Agriculture, Natural Resources Conservation Service

American River Erosion Contract 4A, ARMS, Sacramento River Erosion Contract 3, MCP, and Watermark Farms (Alternative 5b), all contain land considered as Prime Farmland by U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) (Figure 2.4-11). Additionally, the proposed site considered in Alternative 5a includes areas of Prime Farmland. There are also several areas designated as Prime Farmland if irrigated by NRCS; three such locations are associated with the sites for American River Erosion Contract 4A and the ARMS. Four additional areas of Prime Farmland, if irrigated, are a part of the construction footprint and staging area for the MCP (Figure 2.4-11). One location is also listed as Prime Farmland, if irrigated, in the southern portion of the Sacramento River Erosion Contract 3 area. All Prime Farmland located at the American River Erosion Contract 4a site, the ARMS, MCP, and the Sacramento River Erosion Contract 3 area are designated as urbanized areas by the U.S. Census Bureau (Figure 2.4-11) and are not considered Farmland under the Farmland Protection Policy Act (FPPA). The SRMS is located near Prime Farmland, but is designated as Urban and Built-Up Land by the FMMP (Figure 2.4- 11).



California Department of Conservation Important Farmland Near the Project Site

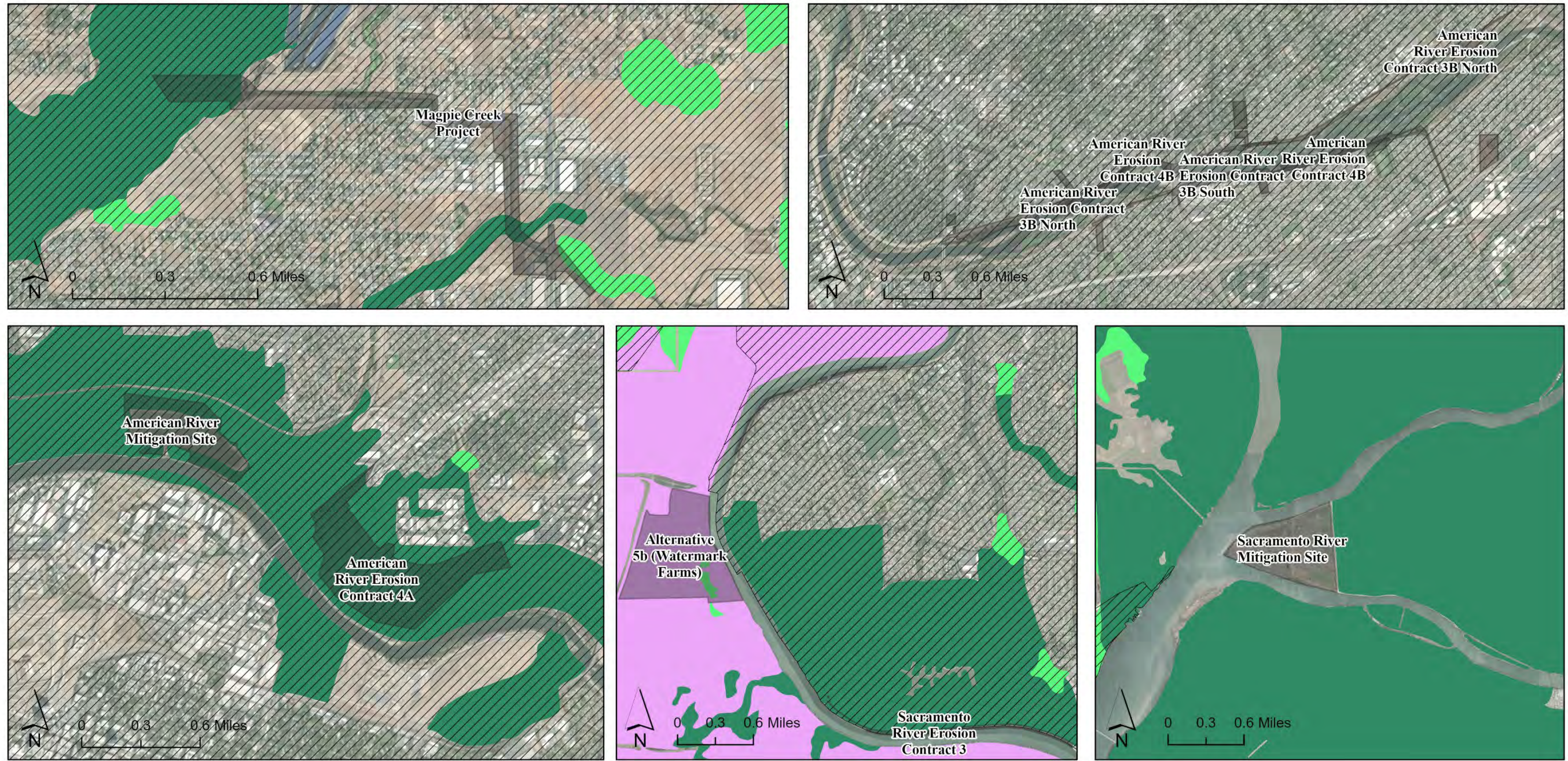
- Project Site
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance



US Army Corps of Engineers
 Sacramento District
 Updated 11/14/2023

(DOC 2016)

Figure 2.4-10 California Important Farmland



Natural Resource Conservation Service Important Farmland Near the Project Site

<ul style="list-style-type: none"> Project Site Urban Area <p>Farm Class</p> <ul style="list-style-type: none"> Farmland of local importance Farmland of statewide importance Farmland of unique importance 	<ul style="list-style-type: none"> Prime farmland if drained Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season Prime farmland if irrigated Prime farmland if irrigated and drained Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season Prime farmland if irrigated and reclaimed of excess salts and sodium Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
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US Army Corps of Engineers
Sacramento District
Updated 11/14/2023

(NRCS 2023, US Census Bureau 2020)

Figure 2.4-11. U.S. Department of Agriculture, Natural Resources Conservation Service Important Farmland

2.4.2 Applicable Laws, Regulations, Policies, and Plans

Federal

Farmland Protection Policy Act (FPPA)

The FPPA was passed by Congress in 1981 (7 USC4201 and 7CFR ch.VI part 658). The law was established to minimize the permanent conversion of farmland to nonagricultural uses by Federal programs. This act requires federal agencies to examine the impact of their programs before they approve any activity that would convert farmland. The NRCS is charged with oversight of the FPPA.

State

Delta Plan

The Sacramento-San Joaquin Delta Reform Act of 2009 established the Delta Stewardship Council to create a comprehensive, long-term, legally enforceable plan to guide how multiple federal, State, and local agencies manage the Delta's water and environmental resources. The Delta Stewardship Council prepared the Delta Plan in consultation with, and to be carried out by, all agencies within the service region of the Delta. Any public agency proposing to undertake a Covered Action, as defined in Water Code Section 85057.5 is encouraged to consult with the council at the earliest possible opportunity, before submittal of the consistency analysis for certification to the council pursuant to Water Code Section 85225. The council's staff will meet with the agency's staff to review the consistency of the proposed action and to make recommendations, as appropriate. A Consistency Certification will be prepared and provided to the Delta Stewardship Council for the components of the Proposed Action that are located in the Delta.

Williamson Act

The Williamson Act empowers local governments to establish "agricultural preserves" consisting of lands devoted to agricultural uses and other compatible uses. Upon establishment of such preserves, the locality may offer to owners of included agricultural land the opportunity to enter annually renewable contracts that restrict the land to agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax rate, based on the value of the land for agricultural/open space use only and unaffected by its development potential. There are no Williamson Act-designated parcels within the Proposed Action.

Local and Regional

American River Parkway Plan

The American River Parkway Plan is the City and County of Sacramento's management plan for the Lower American River and was adopted by the City and County of Sacramento, and by the State Legislature through the Urban American River Parkway Preservation Act, Public Resources Code Section 5840. The American River Parkway Plan is a policy document that provides guidance for land use decisions affecting the American River Parkway and identifies

how the American River Parkway should be protected, enhanced, and expanded, where appropriate. The Parkway Plan also acts as the management plan for the Federal and State Wild and Scenic Rivers Acts. Sacramento County Department of Regional Parks handles the day-to-day management from the confluence of the Sacramento River and the American River upstream to Hazel Avenue. There are portions of the American River Parkway that are managed by State and Federal land managers. Sacramento County Department of Regional Parks manages some State-owned property while other Federal land-owning managers are encouraged to administer their properties in accordance with the American River Parkway Plan. The American River Parkway Plan applies to the parts of the Proposed Action in the American River Parkway, specifically all construction work and some staging associated with American River Erosion Contract 3B, American River Erosion Contract 4A, and the ARMS. Some policies within the American River Parkway Plan related to American River Erosion Contract 3B, American River Erosion Contract 4A, and ARMS include:

- 3.1 Any development of facilities within the Parkway, including but not limited to buildings, roads, turfed areas, trails, bridges, tunnels, pipelines, overhead electrical lines, levees and parking areas, shall be designed and located such that any impact upon native vegetation is minimized and appropriate mitigation measures are incorporated into the project. (Sacramento County 2008, Page 16)
- 3.3 The Parkway shall be managed to create habitat connectivity and wildlife travel corridors that provide for the habitat needs of the endangered Valley Elderberry Longhorn Beetle (VELB) and other important native wildlife species, without compromising the integrity of flood control facilities, the flood conveyance capacity of the Parkway, or other Parkway management goals. (Sacramento County 2008, Page 17).
- 3.6 Excavation of aggregate/soil material should not be permitted except as a part of a flood control, environmental restoration or recreation improvement project approved in accordance with the provisions of this Plan. Objectives of the project will:
 - result in a net improvement to the health of the Parkway ecosystems
 - not cause ‘harm’ to the Parkway
 - utilize material within the Parkway, where feasible, prior to being transferred out of the Parkway (Sacramento County 2008, Page 17)
- 3.7 The Parkway shall be managed to preserve, protect and/or restore riparian and in-channel habitat necessary for spawning and rearing of fish species, including native Chinook salmon (fall-run), steelhead, and Sacramento splittail, and recreational non-native striped bass and American shad. Priority shall be on providing diversity and complexity of habitat, consistent with recreational safety needs” (Sacramento County 2008, Page 18). “3.10 In-stream woody material shall be managed to provide fish habitat in the lower American River consistent with recreational safety needs (Sacramento County 2008, Page 18).
- 4.4 Water quality in the lower American River shall be maintained to provide for beneficial uses of the river, including: municipal and domestic water supply; industrial service water supply; irrigation; water contact and non-contact recreation; freshwater habitat; migration of

aquatic organisms; spawning, reproduction, and/or early development of fish; and wildlife habitat (Sacramento County 2008, Page 20).

- 4.10 Flood control projects, including levee protection projects and vegetation removal for flood control purposes, shall be designed to avoid or minimize adverse impacts on the Parkway, including impacts to wildlife and wildlife corridors. To the extent that adverse impacts are unavoidable, appropriate feasible compensatory mitigation shall be part of the project. Such mitigation should be close to the site of the adverse impact, unless such mitigation creates other undesirable impacts (Sacramento County 2008, Page 20).
- 4.12 Vegetation in the Parkway should be appropriately managed to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River and in a manner that preserves the environmental, aesthetic, and recreational quality of the Parkway (Sacramento County 2008, Page 21).
- 4.13 Flood control berms, levees and other facilities should be, to the extent consistent with proper operation and maintenance of these facilities, open to the public for approved uses, such as hiking, biking, and other recreational activities (Sacramento County 2008, Page 21).
- 4.16 Bank scour and erosion shall be proactively managed to protect public levees and infrastructure, such as bridges, piers, power lines, habitat, and recreational resources. These erosion control projects, which may include efforts to anchor berms and banks with rock revetment, shall be designed to minimize damage to riparian vegetation and wildlife habitat, and should include a revegetation program that screens the project from public view, provides for a naturalistic appearance to the site, and restores affected habitat values (Sacramento County 2008, Page 21).
- 7.17 Habitat restoration, local drainage, public utilities, and public flood control facilities, as determined to be appropriate, to and permitted within, a Wild and Scenic Rivers corridor, are permitted in all land use categories (Sacramento County 2008, Page 30).
- 10.5 Acquire the Gardenland Sand and Gravel Mine (ARMS) (Sacramento County 2008, Page 38)
- 10.6 Following acquisition, reclaim and restore the ARMS to enhance its fish and wildlife habitat value, accommodate historical and cultural interpretive activities, with related minor interpretive facilities in Limited and Developed Recreation areas, including demonstrations of California Native American culture, and support picnicking, hiking, and wildlife viewing. (Sacramento County 2008, Page 39)
 - 10.6.1 Create a trailhead with an unsurfaced parking area, restrooms, and directional signage onsite. Trails may be realigned to reduce user conflict at the access road. (Sacramento County 2009, Page 39)
 - 10.6.2 Create an unsurfaced parking area at the eastern end of the site, accessible from Northgate Boulevard. (Sacramento County 2009, Page 39)

- 10.6.3 Permit non-motorized boating in the pond for interpretive purposes only and in a manner consistent with the protection of restored habitat and wildlife use. Non-motorized boats shall only be allowed by permit at the discretion of the Parkway Manager. (Sacramento County 2009, Page 39)
- 10.6.4 Fishing in the pond shall only be allowed by permit for interpretive purposes at the discretion of the Parkway Manager. (Sacramento County 2009, Page 39)

American River Parkway Natural Resources Management Plan

The American River Parkway Natural Resources Plan is to be used in conjunction with the American River Parkway Plan to manage natural resources in the American River Parkway (County of Sacramento 2023a, Chapter 1). A final draft of this document was adopted on February 28, 2023 (County of Sacramento 2023a). The American River Parkway Natural Resources Plan is applicable to the parts of the Proposed Action in the American River Parkway, specifically all construction work and some staging associated with American River Erosion Contract 3B, American River Erosion Contract 4A, and the ARMS. The NRMP sets out the following policies and actions relevant to the ARMS:

- 1.4 Naturalize¹ habitats that have been altered by human activity (County of Sacramento 2023a, Page 2-12)
- 1.6 Expand corridors that connect disparate native vegetation communities and wildlife habitat (County of Sacramento 2023a, Page 2-12)
- 1.7 Reduce the prevalence of invasive, non-native species (County of Sacramento 2023a, Page 2-12)
- 3.1 Protect archaeological and historical resources (County of Sacramento 2023a, Page 2-13)
- 5.2 Reduce wildfire fuel and hazards in the Parkway (County of Sacramento 2023a, Page 2-15)
- Site-Specific Potential Resource Management Action 2: (Sacramento County Department of Regional Parks) Purchase and naturalize Urrutia (ARMS) property: Develop a Conceptual Naturalization Plan for the Urrutia Property if it is brought into public ownership. This should include the removal of rubble and restoration of the bank line in consideration of current and future conditions. Refer to the Parkway Plan. (County of Sacramento 2023a, Page 8-28).
- Site-Specific Potential Resource Management Action 4: Establish native riparian species/remove non-natives: Improve and expand riparian forest habitat along Bannon Slough and Steelhead Creek, including managing for growth and retention of tall overstory trees. Actions may include removal of nonnative invasive species, managing the density of wild grape, expanding the riparian corridor along the southern edge of Bannon Slough where conditions allow, and enhancing the understory with appropriate native species. Particular

¹ The NRMP defines naturalization as: modifying areas that were substantially altered in past in order to improve existing natural resource conditions or otherwise modified to meet the management objectives of the Parkway Plan, NRMP, and Wild and Scenic Rivers policies. This applies to areas previously altered and outcomes that are generally native habitat types that would typically be expected to occur in the Parkway.

attention should be given to the point where Steelhead Creek enters the Parkway at El Camino Avenue; encampments and associated degradation are hampering wildlife connectivity to the stream corridors and associated wildlife habitat to the north. (County of Sacramento 2023a, Page 8-29).

City of Sacramento 2035 General Plan

The General Plan is a document that is adopted in compliance with the State of California's Government Code Section 65300 et seq. The 2035 General plan was adopted in 2015 to replace the previous 2030 General Plan.

Conservation:

Goal LU 2.2: City of Rivers. Preserve and enhance Sacramento's riverfronts as signature features and destinations within the city and maximize riverfront access from adjoining neighborhoods to facilitate public enjoyment of this unique open space resource.

Policy LU 2.2.2: Waterway Conservation. The city shall encourage the conservation and restoration of rivers and creeks within the urbanized area as multi-functional open space corridors that complement adjoining development and connect the city's parks and recreation system to the Sacramento and American Rivers.

Education, Recreation, and Culture:

Goal ERC 2.4: Rivers, Creeks, and Natural Resource Areas. Provide positive recreational experiences and enjoyment of nature through the development, maintenance, patrol, and preservation of the rivers, creeks, and natural resource areas, while maximizing the use of these areas through partnerships with other agencies.

Policy ERC 2.4.3: Connections to Other Trails. The City shall maintain existing and pursue new connections to local, regional, and state trails.

Environmental Resources:

Goal ER 2.1: Natural and Open Space Protection. Protect and enhance open space, natural areas, and significant wildlife and vegetation in the city as integral parts of a sustainable environment within a larger regional ecosystem.

Policy ER 2.1.4: Retain Habitat Areas. The City shall retain plant and wildlife habitat areas where there are known sensitive resources (e.g., sensitive habitats, special-status, threatened, endangered, candidate species, and species of concern). Particular attention shall be focused on retaining habitat areas that are contiguous with other existing natural areas and/or wildlife movement corridors.

Goal ER 7.1: Visual Resource Preservation. Maintain and protect significant visual resources and that define Sacramento.

Goal ER 4.2: Growth and Agriculture. Support preservation and protection of agricultural lands and operations outside of the city for their value for open space, habitat, flood protection, aesthetics, and food security by working with surrounding jurisdictions.

- **Policy ER 4.2.2: Permanent Preservation.** The City shall work with the County, Natomas Basin Conservancy, and other entities to protect and permanently preserve a 1-mile buffer outside of the current city limits as of adoption of the General Plan to preserve viable agricultural activities and as a community separator between Sutter and Sacramento Counties and along the Sacramento River.
- **Policy ER 4.2.3: Coordinate to Protect Farmland.** The City shall continue to work with County and other adjacent jurisdictions to implement existing conservation plans to preserve prime farmland and inside and outside the city.

Sacramento County General Plan of 2005 to 2030, Land Use Element and Agricultural Element

The Sacramento County General Plan (County of Sacramento 2019) contains several objectives and policies related to the analysis of agricultural resources.

Objective: Encroachment by Natural Resource Preserves. Prime farmland, farmland of statewide importance, unique farmland and farmland of local importance, and farmlands with intensive agricultural investments are to be protected from encroachment by natural resource preserves without compromising biological diversity and habitat values.

Policy AG-10. The County shall balance the protection of prime, statewide importance, unique and local importance farmlands and farmlands with intensive agricultural investments with the preservation of natural habitat so that the protection of farmland can also serve to protect habitat.

Policy AG-12. The County will cooperate with landowners of agriculturally zoned properties to promote the placing of natural resource preserve/mitigation amenities on land, such as trees and other biota enhancing improvement, by making sure amenities are assets to both the natural preserve/mitigation areas and agricultural practices.

Objective: Encroachment by Recreational Facilities. Farmlands are to be protected from encroachments by recreational facilities and unlawful activities associated with the use of recreational facilities.

Policy AG-19. Recreational trails shall be designed in cooperation with adjacent property owners to minimize adverse impacts on farming practices.

County of Yolo 2030 Countywide General Plan, Agricultural and Economic Development Element

The County of Yolo 2030 Countywide General Plan (Yolo General Plan) (County of Yolo 2009) includes several policies related to Alternative 5a:

Policy AG-1.5 Strongly discourage the conversion of agricultural land for other uses. No lands shall be considered for redesignation from Agricultural or Open Space to another land use designation unless all of the following findings can be made:

- A. There is a public need or net community benefit derived from the conversion of the land that outweighs the need to protect the land for long-term agricultural use.
- B. There are no feasible alternative locations for the proposed project that are either designated for non-agricultural land uses or are less productive agricultural lands.
- C. The use would not have a significant adverse effect on existing or potential agricultural activities on surrounding lands designated Agriculture.

Policy AG-2.8 Facilitate partnerships between agricultural operations and habitat conservation efforts to create mutually beneficial outcomes.

Policy AG-2.10 Encourage habitat protection and management that does not preclude or unreasonably restrict on-site agricultural production.

Zoning Codes

The City and County of Sacramento zoning designations for the Proposed Action were obtained using the City and County Open Data website platforms (City of Sacramento 2022, County of Sacramento 2023b). Yolo County's GIS viewer (County of Yolo 2023) was used to determine zoning of Alternative 5b. Yolo County's Agricultural Conservation and Mitigation Program (County of Yolo 2022, 8-2.404) identifies requirements for mitigation when converting farmland for development purposes.

2.4.3 Analysis of Environmental Effects

2.4.3.1 Analysis Methodology

The Proposed Action was evaluated in the context of adopted land use plans and policies. State, regional, and local land use plans and policies contained in adopted planning documents pertaining to the ARCF project sites were reviewed, including the Sacramento County General Plan (County of Sacramento 2019) and zoning code, City of Sacramento General Plan (City of Sacramento 2015), American River Parkway Plan (County of Sacramento 2008), American River Parkway Natural Resources Plan 2023, and field review and consultation with appropriate agencies. Land use data associated with the City of Sacramento General Plan and Sacramento County General Plan was downloaded from the City of Sacramento Open Data website and Parkway Plan from Sacramento County GIS Open Data Site. This spatial data was compared to the project site spatial data. In addition, the most up to date California Department of Conservation Important Farmland data downloaded from the California State Geoportal was used to identify Important Farmland in and near the project sites.

Scoping Comments

The Sacramento Regional Parks Department submitted comments during the public scoping period on December 30, 2022. The letter advises USACE that public use of the ARMS property is governed by the goals and policies of the American River Parkway Plan, which calls for

acquiring and restoring the property to enhance fish and wildlife habitat, providing historical and cultural interpretive activities, and supporting recreational benefits. The letter further provides support for a habitat enhancement alternative at the ARMS that maintains a portion of the man-made pond on site to ensure consistency with the American River Parkway Plan policies. By retaining a portion of the 30-acre pond, the Regional Parks Department advises this alternative would preserve most of the wildlife habitat, interpretive and wildlife viewing values associated with this feature of the American Parkway and align more closely with the policies of the American River Parkway Plan that are applicable to the ARMS. The letter further explains the benefits of this alternative from a reduction of the fill material volumes needed, which would lessen impacts related to noise, transportation, and air quality.

2.4.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). 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, as amended. The alternatives under consideration were determined to result in a significant impact related to land use and prime and unique farmland if they would do any of the following:

- a. divide an established community.
- b. cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.
- c. convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. result in inadequate emergency service.
- d. conflict with existing zoning for agricultural use, or a Williamson Act contract.
- e. conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- f. result in the loss of forest land or conversion of forest land to non-forest use; or
- g. involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

2.4.3.3 Effects Not Addressed in Detail

2.4-e Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code

Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))- The Proposed Action does not include areas zoned for forest land, timberland, or Timberland Production. There would be no impact on timberland zoning.

2.4-f Result in the loss of forest land or conversion of forest land to non-forest use- Appendices B 2.2, 3.1 and 4.1 provide detailed analysis of possible impacts associated with tree removal.

2.4-g Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use- Other than what is already discussed under 2.4 c, d, e, and f, the Proposed Action does not include changes that would cause conversion of farmland or forest land to different uses. There would be no impact on conversion of agriculture and forest land use.

2.4.3.4 Effects Analysis

No Action Alternative

The ARCF GRR Final EIS/EIR concluded that the authorized project would have a less than significant impact on Land Use and Farmland after implementing mitigation measures including restoring the impacted construction footprint and establishing habitat mitigation, restoring recreational facilities within the American River Parkway to pre-project conditions, and providing compensation to landowners under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1960. Although some land would be acquired and converted to flood risk reduction use as a part of the No Action Alternative, the ARCF GRR Final EIS/EIR determined that these parcels would be acquired and negotiated at a fair market price. USACE and the Project Partners would identify lands to be used for project purposes, in order to prevent land use impacts such as dividing established communities, removing Prime or Unique Farmland from production, or converting Forest lands.

Proposed Action Alternative

2.4-a Divide an established community.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-term and Moderate effects that are Less than Significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant.

While portions of several parcels will need to be purchased and converted to flood system use as a part of the MCP improvements, none of the private parcels will lose home living space already in existence on the private parcel. Several outbuildings (some that may have utilities) and

concrete block walls will need to be removed because of the required slope flattening along the canal from Vinci Avenue to Dry Creek Road. The residential neighborhood would remain intact as the canal was present prior to any of the homes and business that make up the neighborhood in question were built.

Because staging areas and haul routes would be in use only temporarily during construction, there would be a less than significant impact on community connectivity.

Sacramento River Erosion Contract 3, American River Erosion Contract 3B North and South, American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

Work for Sacramento River Erosion Contract 3 and American River Erosion Contract 3B and American River Erosion Contract 4B would all occur on existing levee systems. These levee systems are already in place, and the proposed alterations would not create new barriers for established communities. Because the work is occurring on existing levee systems, there would be a less than significant impact.

All staging areas associated with Sacramento River Erosion Contract 3 and American River Erosion Contract 3B and American River Erosion Contract 4B would be temporary and would be returned to their original state after work. In addition, use of haul routes for American River Erosion Contract 3B and American River Erosion Contract 4B would be use temporarily. Because staging areas and haul routes would be temporary, there would be a less than significant impact on community connectivity.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant.

The ARCF GRR Final EIS/EIR programmatically analyzed land use impacts for erosion work for the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3 work. The ARCF GRR Final EIS/EIR previously determined that erosion protection work in these general locations would not divide an established community. The locations and new erosion protection methods are in the same general area to the No Action Alternative, which was concluded to not result in a divide of an established community in the ARCF GRR Final EIS/EIR. The Proposed Action would have no new impact on community connectivity.

All staging areas associated with Sacramento River Erosion Contract 3 and American River Erosion Contract 3B would be temporary and would be returned to their original state after work. In addition, haul routes for American River Erosion Contract 3B and American River Erosion Contract 4B would be use temporarily. Because staging areas and haul routes would be temporary, there would be a less than significant impact on community connectivity.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-Term and Negligible effects that are Less than Significant.

Work for American River Erosion Contract 4A would all occur on existing levee systems. These levee systems are already in place and the proposed alterations would not create new barriers for established communities. Because the work is occurring on existing levee systems, there would be a less than significant impact.

The discussion on staging areas and haul routes under Sacramento River Erosion Contract 3 and American River Erosion Contract 3B are applicable for American River Erosion Contract 4A as well. Because staging areas and haul routes would be temporary, there would be a less than significant impact on community connectivity.

Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

The SRMS is an existing dredge disposal site located at the edge of Grand Island, surrounded by agricultural land with no adjacent existing communities. Therefore, this project component would not create any division of an established community.

The ARMS is a former gravel and sand mining site, surrounded by the American River Parkway, with existing community areas present only outside the Parkway on the north side of Garden Highway. Implementing the ARMS would therefore not divide an established community.

Because neither mitigation site is located in an established community, there would be no impact.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Generally, the Piezometer Network consists of small infrastructure within the Proposed Action footprint. Both because of the small size of the piezometers and their locations along existing flood control infrastructure, installing the piezometers would not divide any communities. and this impact would be less than significant.

2.4-b Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Moderate with Mitigation Incorporated, Medium-Term to Long-term and Minor effects that are Less than Significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

The MCP site is designated for Employment Mixed Use. The MCP would improve water conveyance in the MCDC improving flood risk protection allowing for businesses, schools, and residents to continue the normal activities of the area. Because the area is designated Employment Mixed Use under the City of Sacramento General Plan, there would not be an impact on a parcel designated for mitigation or avoidance.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects with Mitigation Incorporated

The American River Parkway Plan lists several policies to minimize impacts from flood risk reduction projects on the American River Parkway. Specific policies are listed in section 2.4.2. American River Parkway Plan policy 3.6 allows for excavation of flood risk reduction projects. To address American River Parkway Plan policies 3.1, 3.3, 4.10, 4.12, and 4.16 American River Erosion Contract 3B and American River Erosion Contract 4B has been designed to minimize impacts to vegetation as much as possible to reduce impacts to native vegetation and wildlife corridors. Trees that can be saved would be saved where feasible to maintain as much onsite vegetation as possible. In addition, there would be onsite revegetation of most of the site to reestablish native vegetation and maintain wildlife corridors. To address American River Parkway Plan policy 3.7 planting benches and instream woody material have been included in the designs to provide habitat to fish. Mitigation Measures GEO-1 (listed in Appendix B, Section 3.2 “Geologic Resources”), and WQ-1 (Appendix B, Section 3.4 “Water Quality”) would be implemented to comply with American River Parkway Plan policy 4.4. Trails within the Proposed Action project site have been considered and incorporated into the designs to address American River Parkway Plan policy 4.13. Overall, the Proposed Action designs, construction actions, and mitigation actions would comply with policies of the American River Parkway Plan adopted for the purpose of avoiding or mitigating an environmental effect.

The American River Parkway Natural Resources Management Plan identifies existing mitigation sites in the American River Parkway and categorizes mitigation areas as conservation areas under the document’s management categories. There are some areas within the American River Erosion Contract 3B site that are identified as conservation areas in the 2023 American River Parkway Natural Resources Management Plan (County of Sacramento 2023a, pages 8-61, 8-67, and 8-73). These areas would be temporarily impacted during construction of the erosion protection improvements. This impact would be significant. Implementing Mitigation Measures

VEG-1 and VEG-2, which were previously adopted for the 2016 ARCF Project, would replant the conservation areas following the completion of project construction. After construction is completed, the sites would be managed consistent with the requirements to categories in the American River Parkway Natural Resources Management Plan. Because most habitat within conservation areas being impacted by the Proposed Action would become mitigation once work is complete, there would be a less than significant impact on these conservation areas.

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

Please refer to Appendix B, Section 4.1 “Vegetation and Wildlife” for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1 “Vegetation and Wildlife” for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Medium-Term to Long-term and Minor effects that are Less than Significant.

The American River Parkway Plan lists several policies to minimize impacts from flood risk reduction projects on the American River Parkway. Like American River Erosion Contract 3B policies 3.1, 3.3, 4.10, 4.12, and 4.16 are applicable to American River Erosion Contract 4A since the design was created to minimize impacts to vegetation as much as feasible. However, unlike American River Erosion Contract 3B, onsite revegetation of anything other than grasses or herbaceous plants may not be possible given the site’s distance from the wetted shore of the American River. Offsite mitigation within the American River Parkway would be implemented to address the native vegetation lost. In addition, the area dedicated for erosion protection within the project footprint is small and therefore, is not expected to block wildlife corridors. The bike trail reroute is along existing dirt roads, so even though the Jedediah Smith Memorial Trail reroute would add a paved surface to the area, the existing condition consists of dirt roads that prevent habitat from growing in the area. Because the existing area is dirt roads that prevent habitat from growing, the work is also not anticipated to change the wildlife corridors in the area. As mentioned under American River Erosion Contract 3B, Mitigation Measures GEO-1 (listed in Appendix B, Section 3.2 “Geologic Resources”), and WQ-1 (Appendix B, Section 3.4 “Water Quality”) would be implemented to reduce impacts to water quality. Overall, the Proposed

Action designs, construction actions, and mitigation actions would comply with policies of the American River Parkway Plan adopted for the purpose of avoiding or mitigating an environmental effect.

The American River Parkway Natural Resources Management Plan identifies existing mitigation sites in the American River Parkway with natural resource management categories (i.e., preservation, conservation, and naturalizations). The American River Erosion Contract 4A project site is not identified as a conservation area in the American River Parkway Natural Resources Management Plan. This impact would be less than significant.

Sacramento River Erosion Contract 3, Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): No Impact

The Sacramento River Erosion Contract 3 project component and the SRMS project component are flood control projects located in the legal Delta and are therefore Covered Actions subject to the Delta Plan. The Delta Plan identifies several requirements for on-site and off-site mitigation, related to elevation, climate adaptation, and adaptive management, all of which have been considered in the design of the on- and off-site mitigation. The Proposed Action will include filing a consistency certification documenting in detail the compliance with the Delta Plan. This impact would be less than significant.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): No Impact

The American River Parkway Plan lists several policies to minimize impacts from flood risk reduction projects on the American River Parkway. Specific policies are listed in section 2.4.2. American River Parkway policy 3.6 allows for excavation as part of restoration projects. To address American River Parkway Plan policies 3.1, 3.3, 4.10, 4.12, and 4.16, the Proposed Action for the ARMS project component has been designed to minimize impacts on vegetation as much as possible to reduce impacts on native vegetation and wildlife corridors. Additional policies specific to the ARMS (10.5 and 10.6) include acquiring the ARMS, enhancing fish and wildlife habitat, accommodating historical and cultural interpretive activities, establishing an unsurfaced trailhead and parking area, and allowing non-motorized boating as well as fishing in the pond for interpretive purposes at the discretion of the Park Manager. The alignment between the Proposed Action and these policies is presented in Table 2.4-1.

Table 2.4-1. Parkway Plan Policy Alignment

Parkway Plan Policy	Alignment
10.5. Acquire the Gardenland Sand and Gravel Mine (ARMS).	SAFCA closed on the property in May 2023.
10.6. Following acquisition, reclaim and restore the ARMS to enhance its fish and wildlife habitat value, accommodate historical and cultural interpretive activities, with related minor interpretive facilities in Limited and Developed Recreation areas, including demonstrations of California Native American culture, and support picnicking, hiking, and wildlife viewing.	The overarching goal of the project is to restore and reclaim the ARMS to enhance fish and wildlife habitat value. The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway.
10.6.1. Create a trailhead with an unsurfaced parking area, restrooms, and directional signage onsite. Trails may be realigned to reduce user conflict at the access road.	The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway.
10.6.2. Create an unsurfaced parking area at the eastern end of the site, accessible from Northgate Boulevard.	The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway.
10.6.3. Permit non-motorized boating in the pond for interpretive purposes only and in a manner consistent with the protection of restored habitat and wildlife use. Non-motorized boats shall only be allowed by permit at the discretion of the Parkway Manager.	The habitat zones from open water/wetland transition, through upper riparian, would inundate to a depth and acreage sufficient to allow non-motorized boat access to the site, post-project, should the Parkway Manager approve.
10.6.4. Fishing in the pond shall only be allowed by permit for interpretive purposes at the discretion of the Parkway Manager.	The habitat zones from open water/wetland transition, through upper riparian, would inundate to a depth and acreage sufficient to allow fishing onsite, post-project, should the Parkway Manager approve.

The ARMS is a former gravel and sand mining location and includes a manmade pond. The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway. In addition, the habitat zones from open water/wetland transition, through upper riparian, would inundate to a depth and acreage sufficient to allow non-motorized boat access to the site and allow fishing onsite, post-project, should the Parkway Manager approve. Lastly, American River Parkway policy states that restoration projects can occur in all land use categories. As mentioned under American River Erosion Contract 3B, Mitigation Measures GEO-1 and WQ-1, which were previously adopted for the 2016 ARCF Project, would be implemented to reduce impacts to water quality. Overall, the Proposed Action designs, construction actions, and mitigation actions would comply with policies of the American River Parkway Plan adopted for the purpose of avoiding or mitigating an environmental effect.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Appendix B, Section 3.4, “Water Quality,” for the full text of this mitigation measure.

Timing: Before and during construction.

Responsibility: USACE

The American River Parkway Natural Resources Management Plan identifies existing mitigation sites in the American River Parkway and includes mitigation sites under the “conservation” resource management category, which is the land use category with the lowest level of management intensity. The American River Parkway Natural Resources Management Plan identifies the ARMS and its immediately surrounding area under the “naturalization” resource management category. (Sacramento County 2023b, page 8-31). The naturalization category includes areas that were substantially altered in the past and should be modified in order to improve existing natural resource conditions. Examples of management actions that may be required in “naturalization” areas include “Substantial earthwork to restore or create more natural hydrology and site features, Material removal (e.g., cobble and dredge tailings), replacement/amendment/modification of substrate, Removal of material (e.g., channel bed and bank), Addition of material (e.g., gravel)” (County of Sacramento 2023b, page 8-23). Activities that would be implemented under the Proposed Action, including regrading the area around ARMS, bringing in new fill, and replanting the site, are consistent with the management actions for “naturalization” areas in the American River Parkway Natural Resources Management Plan. Policies in the American River Parkway Natural Resources Management Plan that pertain to the ARMS are presented in Table 2.4-2, along with an assessment of how the Proposed Action would align with those policies.

As described in the preceding paragraphs, the Proposed Action would be consistent with policies of American River Parkway Plan that were adopted to avoid or mitigate environmental effects. In addition, constructing habitat mitigation in the area and removing the ARMS from private ownership would align with the long-term goal of protecting the American River Parkway from degradation from development. Because the activities associated with the ARMS are in compliance with local planning documents (such as the American River Parkway Natural Resources Management Plan and the American River Parkway Plan), there is a less than significant impact to local planning documents. The proposed use of the ARMS site for habitat

mitigation is consistent with the expectations for restoring sites to open space in the American River Parkway Plan.

Table 2.4-2. American River Parkway Natural Resources Management Plan Alignment

NRMP Potential Resource Management Actions	Alignment
<p>Establish low-growing native vegetation under powerlines: Develop a formal vegetation management agreement with electrical utilities for transmission line Right of Ways, including establishment of appropriate and compatible forbs, grasses and shrubs to maximize potential habitat for wildlife (including pollinators).</p>	<p>Coordination with the appropriate utilities will be completed prior to project implementation.</p>
<p>Purchase and naturalize ARMS property: Develop a conceptual naturalization plan for the ARMS Property if it is brought into public ownership.</p>	<p>The proposed project will develop a habitat enhancement and restoration plan in the next design phase that will fulfill these requirements.</p>
<p>Establish native riparian species/remove non-natives: Improve and expand riparian forest habitat along Steelhead Creek, including managing for growth and retention of tall overstory trees. Actions may include removal of non-native invasive species, managing the density of wild grape, expanding the riparian corridor along the southern edge of Steelhead Creek where conditions allow, and enhancing the understory with appropriate native species. Particular attention should be given to the point where Steelhead Creek enters the Parkway, east of Northgate Boulevard; encampments and associated degradation are hampering wildlife connectivity to the substantial stream corridors and associated wildlife habitat to the north.</p>	<p>Steelhead Creek is not within the property boundaries; therefore, this policy is not applicable to the proposed project.</p>
<p>Develop conceptual restoration plans for burned areas and prioritize implementation: Develop a wildfire rehabilitation strategy for vulnerable mature vegetation to ensure a timely response for minimizing undesirable wildfire impacts.</p>	<p>The habitat enhancement and restoration plan will include management strategies for wildlife response and rehabilitation.</p>
<p>Invasive Plant Management Plan Update: Update the 2000 Invasive Plant Management Plan (IPMP), including the invasive non-native plant inventory, management strategies, and target species for priority removals. The update should incorporate the success of Phase I and Phase II IPMP removals, changes to the Parkway plant communities, and new technologies for eradication and control measures.</p>	<p>Updates to the IPMP are the responsibility of Regional Parks; however, spatial and quantitative data on invasive plant populations onsite will be available to Regional Parks, as needed. In addition, the habitat enhancement and restoration plan will be developed in manner to provide consistency in management strategies with the broader LAR Parkway IPMP.</p>
<p>Manage invasive vegetation: High priority weeds in the Discovery Area should include efforts to continue to remove red sesbania and giant reed, as well as other noxious weeds prioritized in the upcoming IPMP update. Treated areas should be planted with native species, if necessary, to prevent re-invasion of noxious weeds.</p>	<p>The habitat enhancement and restoration plan will include management strategies for invasive vegetation management.</p>

NRMP Potential Resource Management Actions	Alignment
<p>Trail mapping and habitat management: Map the multiuse trail and trail spurs, equestrian/hiking trail, pedestrian trail, maintenance roads, and current social trails. After mapping is complete, determine which social trails should be actively closed and restored vs. actively monitored.</p>	<p>The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway. Spatial data on these project features will be available to the appropriate natural resource agencies upon request.</p>
<p>Remediate social trail impacts and promote native vegetation growth: Manage social trails in a manner that consolidates trails and allows rehabilitation of vegetation understory.</p>	<p>The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway. Therefore, development and management of social trails will be the responsibility of the long-term managing entity.</p>
<p>Hydraulic impact modeling: Determine the scope and design of desirable vegetation and habitat improvements on floodplain surfaces by using 2-D hydraulic modeling for x-sectional roughness values needed to maintain acceptable levee freeboard.</p>	<p>All required hydraulic modeling and coordination with Central Valley Flood Protection Board (CVFPB) will be completed as required prior to project implementation.</p>
<p>Rehabilitate homeless encampment impacts: In accordance with and in support of regional and countywide efforts to reduce homelessness, as appropriate remove encampments in the Parkway and rehabilitate those areas where the understory has been damaged. Rehabilitation should include clean-up, soil preparation and planting of appropriate native species.</p>	<p>The habitat enhancement and restoration plan will include management and rehabilitation strategies for homeless encampments.</p>
<p>Suppress fire in mature vegetation stands: Develop a wildfire prevention, response, and rehabilitation strategy for vulnerable mature vegetation to ensure a timely response for minimizing wildfire impacts. This includes evaluating the effectiveness of existing firebreaks and if necessary, designating new and/or improved firebreaks.</p>	<p>The habitat enhancement and restoration plan will include wildfire prevention, response, and rehabilitation strategies.</p>
<p>Recreational facilities management and habitat: Identify opportunities to manage recreation improvement areas to protect or enhance wildlife habitat. This may include specifying types of vegetation and/or timing of maintenance activities.</p>	<p>The USACE authorization limits the development of recreational and interpretive facilities in association with the project; however, access, staging, and laydown areas will be sited and constructed in a manner to facilitate future development of these facilities for incorporation into the LAR Parkway.</p>
<p>Maintain tall tree over-story in parking and picnic area for nesting birds: To maintain tall trees a phased approach should be taken to plant native trees that can mature prior to the decline the existing mature trees.</p>	<p>The proposed project would expand treed riparian and woodland habitats by over 40 acres and include a range of habitat structure from early to late successional.</p>

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Long-term and Negligible effects that are Less than Significant.

The Piezometer Network consists of small infrastructure scattered throughout the project area. Because the infrastructure is small, it would not impact the function or use of any mitigation or avoidance area but would require the installation of permanent measurement equipment that would not detract from the visual and functional resources in the project area. There is anticipated to be less than significant impact on existing land use plan, policy or regulation established for mitigation or avoidance from the installation and operation of the piezometer network.

2.4-c Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

CEQA Significance Conclusion: No Impact

NEPA Significance Conclusion: No Impact

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): No Impact

The MCP does not affect Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) designated by the California Department of Conservation (DOC). Although there are several large gardens that run along the MCDC, and portions of these gardens would be acquired and used for the construction of the expanded MCDC channel, none of these parcels qualify as designated Farmland.

Some of the staging areas and access routes for the site are designated as Farmland of Local Importance by the DOC (Figure 2.4-10). However, these areas would be used only temporarily and returned to their pre-construction condition once completed. The location where the culvert would be installed under the Northern Sacramento Bike Trail is also considered Farmland of Local Importance by the DOC. The area surrounding the culvert is not currently in agricultural use (most of the area is fenced to provide a barrier between the bike trail, the nearby creek, and neighboring parcels), and would be returned to its pre-construction condition following construction. Finally a small portion of the area where the levee would be extended and widened is listed as farmland of local importance (Figure 2.4-10). This area is already an existing levee with a maintenance road and could not be used for agricultural purposes. There could be a small area of the Farmland of Local Importance used for the levee expansion or widening but the area would be small. Because none of the MCP project site includes Farmland as defined in CEQA, there would be no impact.

NEPA Impact Conclusion (Design Refinements): No Impact

Prime Farmland near the MCDC was not discussed in the ARCF GRR Final EIS/EIR. NRCS has designated Prime Farmland if irrigated (Figure 2.4-11) in areas where there are access routes and staging areas. Similarly, to what was discussed under CEQA, these areas would be restored to their pre-project condition once construction is completed. The culvert under the bike trail and a portion of the area where the levee would be extended and widened are on land considered Prime Farmland if irrigated by NRCS. As described in the previous paragraph under CEQA, these areas generally could not currently be used for agriculture due to the closeness to the creek and levee system. This area is considered an urbanized area by the U.S. Census Bureau (Figure 2.4-11), so the area is not considered farmland under the FPPA. Overall, the impact on Prime Farmland would be short-term and moderate. The project would not result in any irreversible or irretrievable effects to Prime Farmland.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): No Impact

There is area within the American River Erosion Contract 4A footprint that is listed as Farmland of Local Importance by DOC (Figure-2.4-10; Farmland of Local Importance is not included in the CEQA definition of Farmland). Specifically, the location of the bike trail reroute is listed as Farmland of Local Importance. There is an existing bike trail (Jedediah Smith Memorial Trail) in this area along the maintenance road. Also, this land is managed by Sacramento County Regional Parks and Recreation under the American River Parkway Plan and associated American River Parkway Natural Resources Management Plan. The American River Parkway Natural Resources Management Plan lists the land as a former agricultural area and under the “naturalization” natural resources management category (County of Sacramento 2023b). The American River Parkway Natural Resources Management Plan does not include agricultural activities as management actions within the naturalization category (County of Sacramento 2023b). Even though the area is listed as Farmland of Local Importance, management activities indicate that there is no plan to use the area for farmland. There would be no impact.

NEPA Impact Conclusion (Design Refinements): No Impact

The Jedediah Smith Memorial Trail reroute was not considered under the ARCF GRR Final EIS/EIR. NRCS has also designated the American River Erosion Contract 4A project area as Prime Farmland if irrigated (Figure 2.4-11). The description in the CEQA impact analysis above applies here as well. In addition, the area is listed as an urbanized area by the U.S. Census Bureau, and thus not considered Prime Farmland under FPPA, so there is no impact to Prime Farmland.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

The project sites for these project components (American River Erosion Contract 3B, American River Erosion Contract 4B, and SRMS) do not include areas designated by DOC or NRCS as Prime Farmland, Unique Farmland or Farmland of Statewide Importance. There would be no impact.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

An area of the ARMS project site has been designated as Farmland of Local Importance (Figure 2.4-10; Farmland of Local Importance is not included in the CEQA definition of Farmland) by DOC. There has not been farming in the area recently. Although the ARMS site has historically been in private ownership, it is included in the American River Parkway Plan and American River Parkway Natural Resources Plan. Neither plan identifies agricultural activities for the area. There would be no impact.

NEPA Impact Conclusion (Design Refinements): No Impact

An area of the project sites for ARMS has been designated as Prime Farmland if irrigated (Figure 2.4-11) by NRCS. As discussed under CEQA Neither American River Parkway Plan nor the American River Parkway Natural Resources Plan includes agricultural activities for the area. In addition, the area is listed as an urbanized area by the U.S. Census Bureau, so it is not considered farmland under the FPPA. Because the area has not been farmed and is in an urbanized area and has no federal farmland designation, there would be no impact.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): No Impact

The project sites for Sacramento River Erosion Contract 3 do not include areas designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance by DOC. There would be no impact.

NEPA Impact Conclusion (Design Refinements): No Impact

The project sites for Sacramento River Erosion Contract 3 includes land designated as Prime Farmland if irrigated by NRCS (Figure 2.4-11). Those areas are currently a developed neighborhood and could not be used for agricultural purposes. The area is also designated as an urbanized area by the U.S. Census Bureau so the area is not considered farmland under the FPPA. There would be no impact.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

The Piezometer Network consists of small, permanent instrumentation infrastructure. Because the infrastructure is small, it would not impede the function or use of any location for agriculture. There would be no impact.

NEPA Impact Conclusion (Design Refinements): No Impact

The Piezometer Network consists of small infrastructure. Because the infrastructure is small, it would not impact the function or use of any location for agriculture. There would be no impact.

2.4-d Conflict with existing zoning for agricultural use, or a Williamson Act contract.

CEQA Significance: Less than Significant

NEPA Significance: Short-term and Moderate effects that are Less than Significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant.

The MCP would not be constructed on land zoned for agricultural purposes or for land within a Williamson Act contract (County of Sacramento 2023b). However, some of the staging areas are zoned as Agricultural by the City of Sacramento and Agricultural-80 by Sacramento County. After the temporary use of these parcels for staging during construction, the land would be returned to its original condition; therefore, there would be a less than significant impact on agricultural uses specified by zoning. Two staging areas have land that was once in Williamson Act contract 77-AP-023. This Williamson Act contract has since been canceled, so there would be no impact on Williamson Act contracts.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B Sacramento River Erosion Contract 3, American River Mitigation, Sacramento River Mitigation, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

The project sites associated with American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, SRMS, and the Piezometer Network are not zoned for agricultural use or under a Williamson Act Contract (County of Sacramento 2023c). The parcel adjacent to the SRMS is under Williamson Act Contract 73-AP-057 (County of Sacramento 2023c); however, this area would not be impacted by the work associated with Grand the SRMS. There would be no impact.

Alternatives Comparison

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include an alternative design for improvements to the American River 4A Project Component. In Alternative 3a, a landside berm would be constructed instead of

a waterside berm. In Alternative 3b, the bike detour would follow parallel to the railroad to the existing location of the bike trail (Jedediah Smith Memorial Trail) instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 3d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. All other project components (American River Erosion Contract 3B North and South, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action in these Alternatives.

Table 2.4-1. Alternative 3a, 3b, 3c, and 3d Effects

Impact Number	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.4 a	American River 4A	Consistent with the proposed action. The alternative design would not have any more or less impact on land use than the Proposed Action.	N/A	Less than Significant	Short-term and negligible effects that are Less than Significant
2.4-b	American River 4A	Consistent with the proposed action. The alternative design would not have any more or less impact on land use than the Proposed Action.	N/A	Less than Significant	Medium-Term to Long-term and Minor effects that are Less than Significant
2.4-c	American River 4A	Consistent with the proposed action. The alternative design would not have any more or less impact on land use than the Proposed Action.	N/A	No Impact	No Effect
2.4-d	American River 4A	Consistent with the proposed action. The alternative design would not have any more or less impact on land use than the Proposed Action.	N/A	No Impact	No Effect

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include designs for the ARMS area that retain a 30-acre and a 20-acre portion of the existing pond, respectively, while channels would be constructed on 54 acres of floodplain on the eastern portion of the site. Because these alternatives retain a portion of the existing pond, they would be consistent with the American River Parkway Plan without requiring interpretation or approval by the County Board of Supervisors. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and SRMS) would have the same effects as the Proposed Action.

Table 2.4-2. Alternative 4a and 4b Effects (CEQA-Only)

Impact Number	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
2.4 a	ARMS	Consistent with the Proposed Action. The project site is outside an established community.	N/A	No Impact
2.4-b	ARMS	Lesser than the Proposed Action. Although the Proposed Action is in alignment with policies of the ARPP and NRMP that would reduce or avoid environmental effects, Alternatives 4a and 4b both include retention of a portion of the existing manmade pond, enabling these alternatives to more closely align with the future conditions for the Discovery Park Area identified in these plans. Like the Proposed Action, the impact would be less than significant with mitigation incorporated.	GEO-1, WQ-1	Less than Significant with Mitigation Incorporated
2.4-c	ARMS	Consistent with the Proposed Action. The project site is not designated as Farmland.	N/A	No Impact
2.4-d	ARMS	Consistent with the Proposed Action. The project site is zoned for agricultural use or under a Williamson Act contract.	N/A	No Impact

Alternative 5a

Alternative 5a includes an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Conservation Bank Credits would be used for mitigation.

There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used. Consequently, there would be no impacts to land use and related areas of concern in the significance thresholds.

Table 2.4-4. Alternative 5a Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.4 a -g	SRMS	Alternative 5a would include purchase of mitigation credits and so there would be no land use impacts associated with the SRMS.	VEG-1, VEG-2	No Impact	No Impact

Alternative 5b

Alternative 5b includes an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, MCP, ARMS and the Piezometer Network) would have the same effects as the Proposed Action. Watermark Farms, located on the right bank of the Sacramento River between RM 50.5 and 51.25 would be used as the mitigation site for Sacramento River-related habitat impacts.

The Watermark Farms site includes areas designated as Prime Farmland, and use of this site would convert Farmland to non-agricultural use. Alternative 5b would have a significant impact related to the conversion of agricultural land to non-agricultural use. Mitigation Measure AG-1 would be implemented to reduce this effect.

Mitigation Measure AG-1: Purchase Conservation Easements to Offset Conversion of Prime Farmland {Flag: Update once FPPA complete.}

USACE will require purchase or establishment of property interests in agricultural land (i.e., conservation easements) requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to offset conversion of prime farmland to construct project facilities. These easements may include but are not limited to establishing agricultural conservation easements, paying in-lieu fees toward agricultural conservation easements, supporting agricultural land trusts, and participating in habitat conservation plans or natural community conservation plans that include conservation of agricultural lands. Conservation easements will be purchased at a 1:1 ratio. Where feasible, the agricultural conservation easements should be acquired in the county in which the conversion would take place, Yolo County. If there is not a sufficient supply of similar prime farmland where the conversions would occur, the agricultural conservation easements may be obtained in a different county. Where conservation easements are established by USACE, they may be held by land trusts, local governments, or other appropriate agencies that are responsible for ensuring that these lands will be maintained in agricultural use. Where easements are considered for other resources such as terrestrial biological resources, purchase of easements will be coordinated where possible so that agricultural resources are also addressed.

Timing: Prior to Construction

Responsibility: USACE and Project Partners

Implementing Mitigation Measure AG-1 would reduce the impact by protecting a similar area of prime farmland in perpetuity. However, implementing Alternative 5b would nevertheless remove 340.3 acres of Important Farmland from agricultural use and the impact would remain significant and unavoidable.

Table 2.4-5. Alternative 5b Effects on Land Use and Prime and Unique Farmlands

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.4 a	SRMS	Existing homes would be removed to implement Alternative 5b. However, there is already an existing levee system and the movement of the levee would only cut off the homes that would already need to be removed for the work. Consequently, there would not be a new division in a community from Alternative 5b. There would be a less than significant impact on communities from Alternative 5b.	N/A	Less than Significant	Long-term and negligible effects that are Less than Significant
2.4 b	SRMS	The Yolo General Plan lists to incorporate agricultural activities and habitat protection (County of Yolo 2009, page AG-25). Because the levee would be moved around the land, agricultural activities would have to be cut off from the area, so these policies could not be met. In addition, the Yolo General Plan discourages conversion of agricultural land unless there is a benefit that outweighs the agricultural loss, there is no feasible alternative, and there would not be an impact on agricultural activities on surrounding properties (County of Yolo 2009, page AG-22). Other mitigation options are listed under the Proposed Action, Alternative 5a and Alternative 5c. Since there are other options for mitigation, this act, Alternative 5a would not meet this policy. Mitigation measure AG-1 would be implemented to reduce the impact of not meeting these policies to less than significant. Project partners would comply with Yolo County Ordinance Section 8-2.404 (County of Yolo 2022) to meet requirements associated with changing agricultural land into non-agricultural purposes.	AG-1	Less than Significant with Mitigation	Long-Term and Major effects that are Less than Significant
2.4 c	SRMS	Alternative 5b includes land that is considered by both NRCS and the California Department of Conservation as Prime Farmland and land that is considered Farmland of Statewide Significance (NRCS 2023, DOC 2016). Completion of Alternative 5b would convert the land from agricultural use to a natural riparian forest mitigation site. The Farmland Protection Policy Act would be followed.	AG-1	No Impact	No Effect

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.4 d	SRMS	Alternative 5b includes land that is zoned as Agricultural Intensive by Yolo County. Under Yolo County Code Title 8 Section 8-2.304, habitat mitigation projects over 40 acres mitigating for projects outside Yolo County are allowed in areas zoned as Agricultural Intensive but require a Major Use Permit. Project Partners would work with Yolo County to get a Major Use Permit and would comply with the zoning code. Consequently, there would be a less than significant impact on the uses specified in the zoning code. Land associated with Alternative 5b is not under a Williamson Act contract. The parcels just south of the property are under contract 72-013 (Yolo County 2023), but these properties would not be impacted by the Alternative 5b.	N/A	Less than Significant	Short-term and minor effects that are Less than Significant
2.4 e	SRMS	Similar to the Proposed Action, this area is not zoned for forest land or timberland, so there would be no impact on areas zoned for forestland or timberland.	N/A	No Impact	No Impact
2.4 f	SRMS	This area would be considered forest. However, since the area would be replanted for mitigation, there would not be a significant impact on forests.	N/A	Less than Significant	Short-term and minor effects that are Less than Significant
2.4 g	SRMS	Similar to the Proposed Action, other than what is already discussed under 2.4 c, d, e, and f there are no anticipated actions that would cause conversion of farmland or forest land to different uses. There would be no impact on conversion of agriculture and forest land use other than what has been described under effect 2.4 c-f..	N/A	No Impact	No Impact

Alternative 5c

Alternative 5c includes an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B North and South, American River 4A, Sacramento River Erosion Contract 3, MCP, ARMS and the Piezometer Network) would have the same effects as the Proposed Action. Delta Smelt Conservation Bank Credits would be used for mitigation. There will be no new activities done corresponding to the purchased of Delta Smelt Conservation Bank Credits, so there would be no additional land use impacts associated.

In addition, credits will be purchased, or funds would be provided for the Sunset Pumps Project. Sunset pumps is being implemented by BOR, DWR and USFWS and consequently BOR, DWR

and USFWS will complete a corresponding CEQA and NEPA document. There would be no additional activities outside of BOR and USFWS NEPA document or DWR's CEQA document, so there would be no additional impacts from Alternative 5c on land use.

Table 2.4-4. Alternative 5c Effects on Land Use and Prime and Unique Farmlands

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.4 a -g	SRMS (bank credits or Sunset Pumps)	Alternative 5c would include purchase of mitigation credits and financial support of other projects subject to separate NEPA and CEQA review. There would be no land use impacts associated with the SRMS under Alternative 5c.	N/A	No Impact	No Impact

2.5 Environmental Justice

2.5.1 Existing Conditions/Affected Environment

The EPA has defined environmental justice (EJ) as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.¹”

USACE and other federal agencies are required to take EJ concerns into consideration pursuant to the NEPA and Executive Orders 12898 (1994), 13985 (2021), 14008 (2021) and the Justice40 (2022) initiative. Note that the same EJ compliance has not been previously conducted for the ARCF 2016 Project. At the time that the General Reevaluation Report (GRR), FEIS/EIR was completed in 2016, neither Justice40 nor EOs 13985 and 14008 had been signed by the President. Therefore, EJ analyses from the ARCF GRR FEIS/EIR do not address current requirements.

EO 12898, passed in 1994, emphasized identification of disproportionately high and adverse environmental impacts to minority and low-income populations. EO 14008, 13985, and Justice40 added EJ considerations beyond identification and assessment required by EO 12898. These additional considerations are detailed in 2.5.2.

To comply with federal EJ initiatives, USACE must first identify communities that have been marginalized, underserved, and overburdened by environmental hazards. To implement the Justice40 Initiative, agencies must identify communities impacted by EJ concerns. The Justice40 Initiative as well as Executive Order No. 14008 and the Council on Environmental Quality (CEQ) identify “disadvantaged communities” as those that are marginalized, underserved, and overburdened by environmental hazards. The term “disadvantaged communities” as defined in the Justice40 Initiative is used throughout the document. Further definition of EJ impacts is available on the Climate and Economic Justice Screening Tool from the Council on Environmental Quality (<https://screeningtool.geoplatform.gov/en>). The tool, developed under Executive Order No. 14008 (2021), was created to provide a consistent government-wide method to identify communities with EJ concerns.

In accordance with guidelines presented in the U.S. EPA 2016 “Promising Practices for EJ Methodologies in NEPA Reviews: Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee” (EPA 2016), USACE is identifying and assessing

¹ **Fair Treatment:** the principle that no group of people, including a racial, ethnic or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies.

Meaningful Involvement: Potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; the public's contribution can influence the regulatory agency's decision; the concerns of all participants involved will be considered in the decision-making process; the decision makers seek out and facilitate the involvement of those potentially affected.

potential impacts to disadvantaged communities through demographic analysis, assessment of impacts, and public outreach.

The CEQ Climate and Economic Justice Screening Tool (CEJST) identifies disadvantaged communities by census tracts that meet the thresholds for at least one of the tool’s categories of socioeconomic or environmental burdens, or if they are on land within the boundaries of Federally Recognized Tribes (see Table 2.5-1). A census tract that is surrounded by disadvantaged communities and is at or above the 50th percentile for low income is also considered disadvantaged.

Table 2.5-1. Categories of burden used in the CEJST’s analysis

Category of Burden	Communities are identified as disadvantaged if they are in census tracts that:
Climate Change	ARE at or above the 90th percentile for expected agricultural loss rate OR expected building loss rate OR expected population loss rate OR projected flood risk OR projected wildfire risk AND are at or above the 65th percentile for low income
Energy	ARE at or above the 90th percentile for energy cost OR inhalable particulate matter 2.5 or smaller micrometer diameter AND are at or above the 65th percentile for low income
Health	ARE at or above the 90th percentile for asthma OR diabetes OR heart disease OR low life expectancy AND are at or above the 65th percentile for low income
Housing	Experienced historic underinvestment OR are at or above the 90th percentile for housing cost OR lack of green space OR lack of indoor plumbing OR lead paint AND are at or above the 65th percentile for low income
Legacy Pollution	Have at least one abandoned mine land OR Formerly Used Defense Sites OR at or above the 90th percentile for proximity to hazardous waste facilities OR proximity to Superfund sites OR proximity to Risk Management Plan facilities AND are at or above the 65th percentile for low income
Transportation	ARE at or above the 90th percentile for diesel particulate matter exposure OR transportation barriers OR traffic proximity and volume AND are at or above the 65th percentile for low income
Water and Wastewater	ARE at or above the 90th percentile for underground storage tanks and releases OR wastewater discharge AND are at or above the 65th percentile for low income
Workforce Development	ARE at or above the 90th percentile for linguistic isolation OR low median income OR poverty OR unemployment AND more than 10% of people ages 25 or older do not have a high school education (i.e., graduated with a high school diploma)

Federally Recognized Tribes, including Alaska Native Villages, are considered disadvantaged communities.

There are EJ concerns associated with the American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, MCP, Sacramento River Erosion Contract 3, and the ARMS and the SRMS. USACE made these determinations based on data from the CEJST and by contacting community centers, particularly schools and non-profit advocacy groups, pertinent to the affected areas.

American River Erosion Contract 3B North and South and American River Erosion Contract 4B

The American River Erosion Contract 3B North and South and American River Erosion Contract 4B includes levee and floodplain areas on the north and south banks of the American River near the neighborhoods of Arden-Arcade and La Riviera. Construction and piezometer installation would occur primarily on the levee, including levee roads, and isolated areas of the American River bike trail. Staging areas would be located near the levee within public parks, existing river

access routes, and on private property (Figure 2.5-1). All real estate acquisition would be conducted by the Project Partners prior to the start of construction.

The area is densely populated with residential, public, and commercial districts distributed near the project site. The CEJST shows that no communities adjacent to the project site are considered disadvantaged. During routine site visits, however, USACE has observed a well-established community of unhoused individuals living along portions of the south bank of American River Erosion Contract 3B and American River Erosion Contract 4B. Apart from the unhoused community, no additional disadvantaged communities were identified within the American River Erosion Contract 3B, and American River Erosion Contract 4B.

Haul routes for American River Erosion Contract 3B and American River Erosion Contract 4B would link I-80 and U.S. 50 with the project site and staging areas via several local roads. Sections of I-80, U.S. 50 and Arden Way, Howe Avenue, Watt Avenue, La Rivera Drive, Folsom Boulevard, and Bradshaw Road, which would be haul routes, pass through disadvantaged communities, although these roadways already accommodate heavy traffic volumes.

The majority of the construction work for American River Erosion Contract 3B and American River Erosion Contract 4B would occur on the levee roads and in areas on the periphery of surrounding neighborhoods. USACE and the Non-Federal sponsor are developing a comprehensive outreach plan to inform the community of upcoming work. A full analysis of impacts and proposed mitigation measures is presented in appendices 2.1 “Traffic,” 2.2 “Recreation,” and 2.6 “Socioeconomic Conditions.”

American River Erosion Contract 4A

The American River Erosion Contract 4A project site is located near the State Route (SR) 160 overpass and the American River Parkway in a transportation corridor that includes the state highway, the American River Bike Trail, and the Union Pacific Railroad. Construction and Piezometer Network installation would occur primarily on the levee and levee road. Staging for American River Erosion Contract 4A would occur at Alpha Brother's Towing (796 Del Paso Boulevard), a vacant parcel on Lathrop Way, within the American River Parkway near Costco, and adjacent to the railroad (Figure 2.5-2).

Transportation infrastructure and greenways create barriers between the site and surrounding residential and commercial areas. The CEJST shows that the site is located within a census tract that is considered disadvantaged, meeting more than 1 burden threshold and the associated socioeconomic threshold. During routine site visits, USACE also observed a well-established community of unhoused individuals living along and beneath the SR 160 overpass. There are no legal residences within the project footprint.

Haul routes for this project component cross into additional census tracts identified as disadvantaged. Haul traffic would proceed from SR 160, Interstate 80 (I-80) Business, and I-5 to the project site via local roads including Del Paso Boulevard, Arden Way, Richards Boulevard, Expo Parkway, Leisure Lane, Commerce Circle, and Lathrop Way. The main access points to the levee would be at Lathrop Way and Expo Parkway. A road closure at Del Paso Boulevard may be needed during reconstruction of the bike path. A full analysis of impacts and proposed mitigation measures are presented in Appendices 2.1 "Traffic" and 2.2 "Recreation."

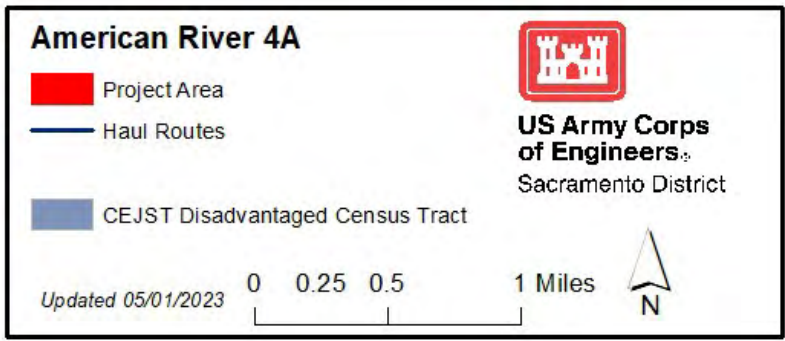
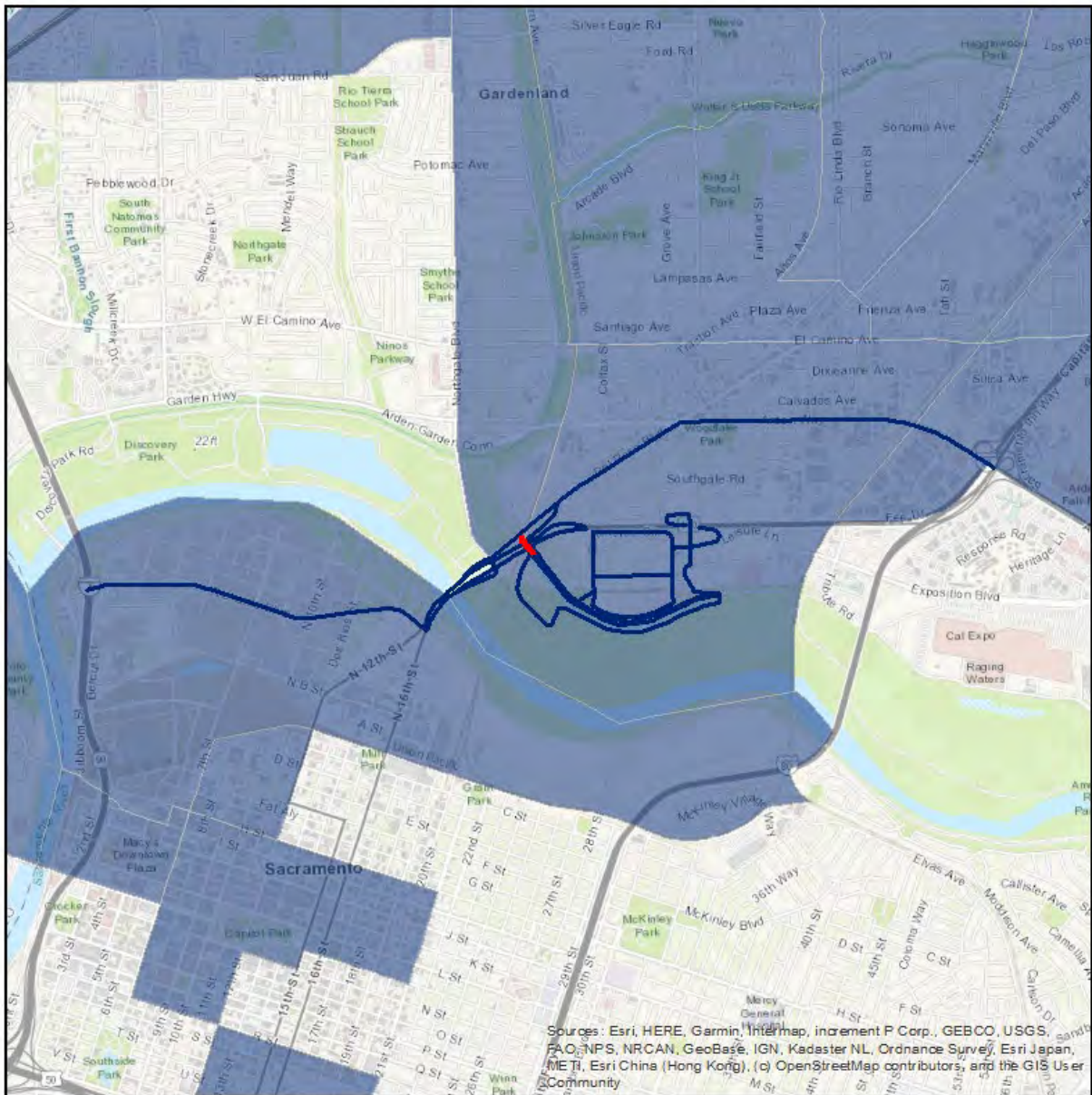


Figure 2.5-2. CEJST Disadvantaged Census Tracts near American River Erosion Contract 4A

American River Mitigation Site

The ARMS is located in the City of Sacramento, east of Discovery Park, near the north bank of the American River. The ARMS is separated from the River Gardens neighborhood by portions of the American River Parkway and Garden Highway. Proposed activities at the ARMS would include construction of naturally occurring riparian habitation to mitigate for habitat impacts of other ARCF 2016 Project improvements along the American River. Construction would consist of adding fill to the existing pond, creating side channels, and breaching the existing levee to inundate portions of the restoration area. Staging areas would be located within the ARMS , or adjacent undeveloped areas of the American River Parkway. The CEJST shows that the adjacent community to the north of the ARMS is not considered disadvantaged. During routine site visits; however, USACE has observed a well-established community of unhoused individuals living in the vicinity of the project site, particularly to the north of the project site (Figure 2.5-3).

Haul routes for the ARMS would follow SR-160, I-5, I-80 Business, Garden Highway, and Northgate Boulevard as well as existing local service roads. Sections of these roadways traverse or border disadvantaged communities; however, these are large roadways that already accommodate heavy traffic. Local roads to the ARMS would include existing service roads through Discovery Park or the Riverdale Mobile Home Park access. The Riverdale Mobile Home Park has not been in operation for several years. A full analysis of impacts and proposed mitigation measures are presented in Appendices 2.1 “Traffic” and 2.2 “Recreation.”

Magpie Creek Project

The MCP is located in the Robla and Raley Industrial Park neighborhood of North Sacramento, on levees between Dry Creek Road, Vinci Avenue, and Raley Boulevard. The MCP also includes improvements to the Sacramento Northern Bike Trail crossing of the MCP in the Robla neighborhood. The levees are primarily located in a light industrial area bordered by residential areas. Construction and Piezometer Network installation would occur primarily on the levee, within the existing channel and levee road.

Haul routes would follow Elkhorn Boulevard or I-80 to Raley Boulevard. From Raley Boulevard, haul trucks would travel along Vinci Avenue, Main Avenue, and Bell Avenue to reach Rio Linda Boulevard, Rose Street, and Maryville Boulevard.

The CEJST shows that no communities within MCP are considered disadvantaged. During routine site visits, however, USACE has observed a well-established community of unhoused individuals living along Vinci Avenue. Similarly, haul routes for the MCP would cross into disadvantaged communities and would disrupt local traffic, primarily bus routes to schools, that are located within the vicinity (Figure 2.5-4).

Sacramento River Erosion Contract 3

The Sacramento River Erosion Contract 3 is located within the Pocket neighborhood of Sacramento along the east bank of the Sacramento River. Most of the work would occur on the waterside of the levee with landside staging areas, resulting in minimal impacts to the surrounding community. The CEJST shows that no communities within the site are considered disadvantaged. USACE pedestrian surveys have supported this determination.

Sacramento River Mitigation Site

The SRMS is located north of Grand Island Road at the tip of the island along the Sacramento River near Cache Slough. The surrounding area is primarily agricultural. The CEJST shows that the area is considered disadvantaged, meeting more than 1 burden threshold and the associated socioeconomic threshold.

Although the CEJST shows several burdens, the census tract used for analysis encompasses a much larger area and is not representative of the project site. The project site contains a decommissioned landfill, a federal levee, and a dredge material disposal site. No residences or public areas are present within a 0.25-mile radius on the landside.

Piezometer Network

In order to better evaluate the performance of flood control projects and provide real time data to system managers for the ARCF 2016 Project, USACE is proposing to install Piezometers along the existing levees within the authorized footprint of the 2016 GRR FEIS/EIR. The purpose of this action is to construct the Piezometer Network that would provide telemetric data gathering on water levels throughout the Proposed Action Area. Approximately 100 Piezometers would be installed at various locations along each levee with Piezometers on both the levee crown and near the landside levee toe. The precise number of Piezometer installations at a specific site is not known; however, they would be distributed between all the ARCF 2016 Project reaches, and some areas may have higher concentrations of Piezometers than other areas. The Piezometers would be installed in 2-inch diameter well casings. The range of boring size is expected to be between 6 to 12 inches in diameter, installed to a depth between 40 – 100 feet. The installation of Piezometers would not require haul routes or staging areas outside of existing Proposed Action Area. Given the nature of the Piezometer Network installation, EJ impacts from the Piezometers are considered as part of the project components listed above (e.g. American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, MCP, Sacramento River Erosion Contract 3, ARMS, and SRMS).

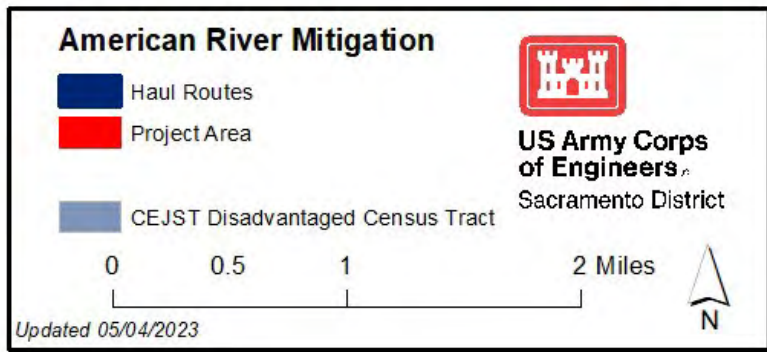
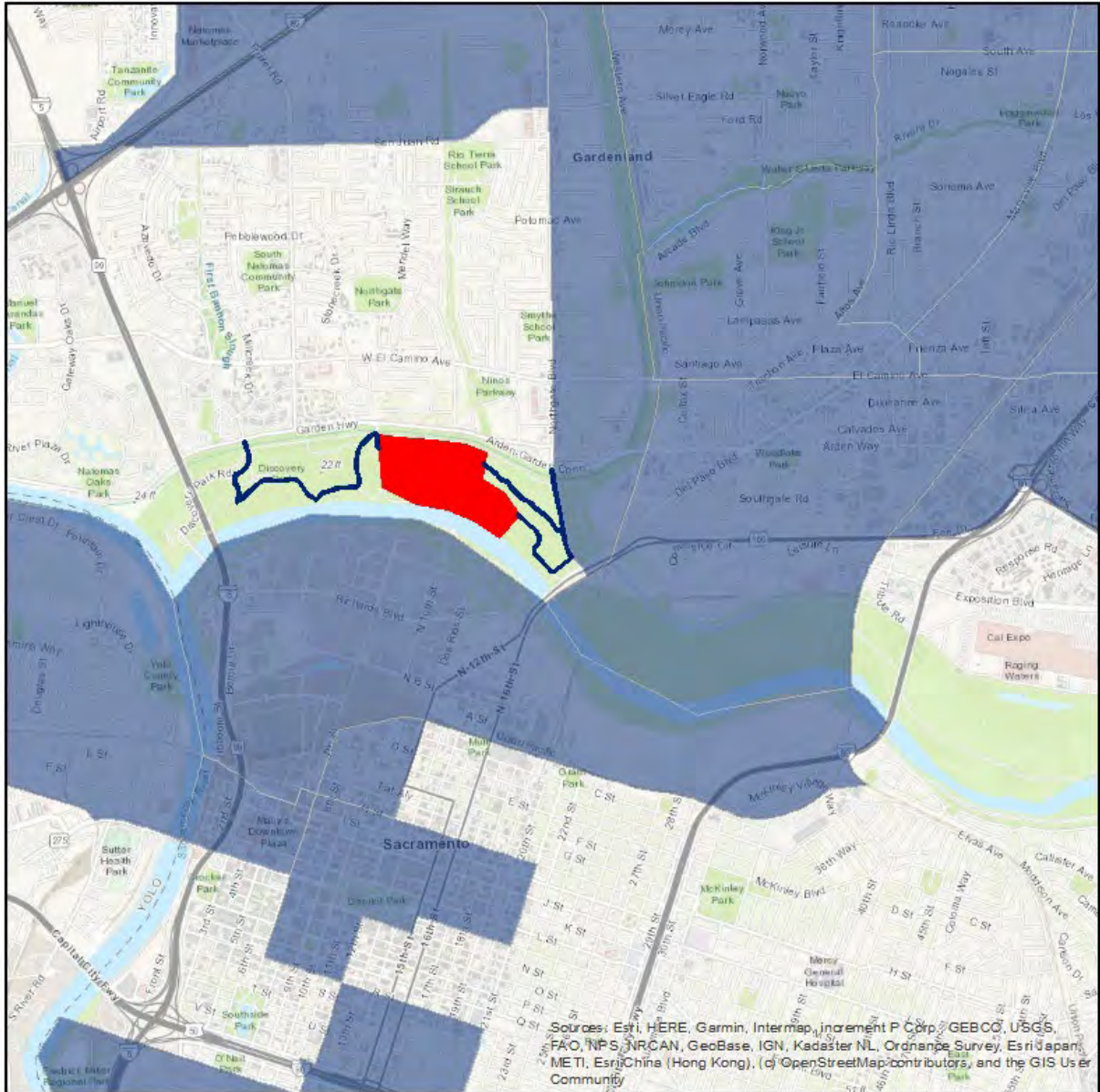


Figure 2.5-3. CEJST Disadvantaged Census Tracts near American River Mitigation

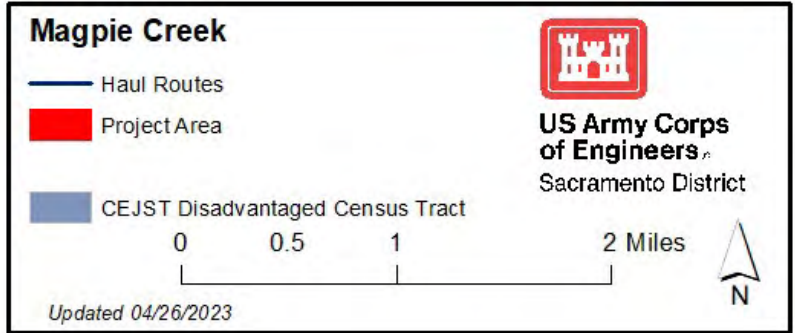
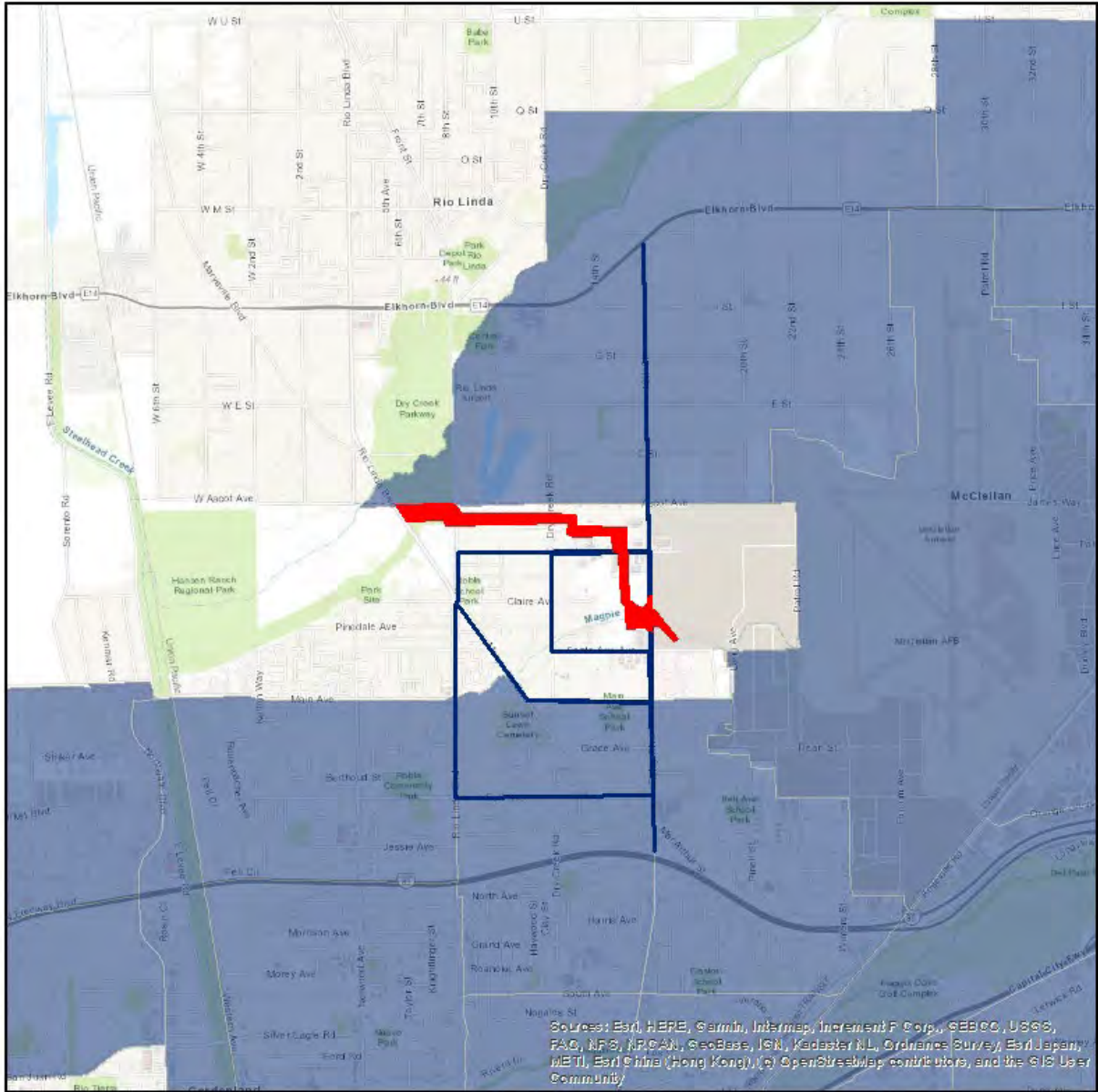


Figure 2.5-4. CEJST Disadvantaged Census Tracts near Magpie Creek

2.5.2 Applicable Laws, Regulations, Policies, and Plans

2.5.2.1 Federal

National Environmental Policy Act

NEPA is a procedural statute requiring that prior to funding, authorizing, or implementing an action, Federal agencies consider the effects that their Proposed Action may have on the environment and the related social and economic effects. Public involvement is key to the environmental review process under NEPA, and EJ must be considered when conducting public outreach to ensure fair and meaningful involvement of all communities with the potential to be affected by a Proposed Action. With this SEIS/SEIR and the associated public outreach processes, USACE is considering and analyzing the effects of the Proposed Action on EJ communities.

Water Resources Development Act (WRDA) of 2020

Section 160 of the WRDA of 2020 directed the Secretary of the Army to define the term “economically disadvantaged community” for the purposes of the Act and amendments made by the Act. To the maximum extent practicable, the Secretary was to use the criteria in paragraphs (1) and (2) of section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3161), which reference low per capita income and unemployment rate above the national average, in the development of the definition.

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

Executive Order (EO) 12898, issued February 11, 1994, focused Federal attention on the environmental and human health effects of Federal actions on minority and low-income populations, with the goal of achieving environmental protection for all communities. The EO directs Federal agencies to (1) identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations to the greatest extent practicable, (2) develop a strategy for implementing EJ, and (3) promote nondiscrimination in Federal programs that affect human health and the environment and provide minority and low-income communities access to public information and public participation. In scoping for this SEIS/SEIR, potential adverse effects to EJ communities have been identified, along with strategies to minimize or mitigate for these effects. Coordination with organizations representing EJ communities in the area (*e.g.*, school districts, homeless advocacy groups) before and during construction of the Proposed Action would ensure that these communities have access to public information and the opportunity to participate in the public review process.

Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

EO 13985, issued on January 20, 2021, directed Federal government to revise agency policies to account for racial inequities in their implementation. This EO advises that advancing equity requires a systematic approach to embedding fairness in decision-making processes and that agencies must recognize and work to rectify inequities in their policies or programs that may hinder equal opportunity. By deliberately conducting outreach to organizations representing

communities that have been historically underrepresented in the Government and underserved by Federal policies and programs, in particular low income and unhoused communities in the Proposed Action area, the project is facilitating communication and engagement with these communities in accordance with this EO.

Executive Order 14008: Tackling the Climate Crisis at Home and Abroad

Signed January 27, 2021, EO 14008 requires that climate change considerations be an essential element of U.S. foreign policy and national security and lays out a government-wide approach to the climate crisis. Sections 219 through 223 of the EO, titled “Spurring Environmental Justice and Spurring Economic Opportunity,” discuss the delivery of EJ through addressing the disproportionately high and adverse human health, environmental, climate-related, and other cumulative impacts on disadvantaged communities. These sections also establish the requirement for the creation of the CEJST as well as defined the Justice40 Initiative. For the Proposed Action, the CEJST was used to identify disadvantaged communities with the potential to be adversely affected by the Proposed Action, and the types and magnitudes of potential effects are evaluated in this SEIS/SEIR.

Executive Order 14901: Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

This EO, signed February 16, 2023, builds upon previous equity related EOs by extending and strengthening equity advancing requirements for agencies. Under this EO, Federal agencies are directed to increase engagement with underserved communities by applying innovative approaches to improve the quality, frequency, and accessibility of engagement. The Proposed Action complies with this EO through purposeful outreach to underserved communities in the area, providing them access and opportunity to engage in the environmental review process.

Executive Order on Revitalizing Our Nation’s Commitment to Environmental Justice for All, April 21, 2023

This EO requires each Federal agency to make achieving EJ part of its mission, and expands the definition of “environmental justice” to mean “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people: (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.”

Agencies are required to identify disproportionate and adverse effects and hazards of Federal activities on communities with EJ concerns and identify barriers related to Federal activities that impair the ability of EJ communities to receive equitable access to human health or environmental benefits, including those related to natural disaster recovery and climate mitigation, adaptation, and resilience. Agencies must take steps to address these effects or barriers as appropriate.

Additionally, Federal agencies must seek out and encourage the engagement of communities with EJ concerns, provide timely opportunities for members of the public to participate in decision-making processes, and fully consider their input. This EO specifically requires that NEPA reviews are conducted in a manner that fully analyzes effects to communities with EJ concerns.

Compliant with this EO, this section of the SEIS/SEIR fully considers the effects of the Proposed Action on nearby communities with EJ concerns and includes mitigation measures to address adverse impacts. In addition, USACE has reached out to organizations representing EJ communities, initiating contact and encouraging engagement from these organizations and their respective communities.

Office of Management and Budget Memorandum M-21-28, Interim Implementation Guidance for the Justice40 Initiative, July 20, 2021

This M-21-28 guidance memo provides further direction to Federal agencies on the Justice40 initiative, introduced under EO 14008. The interim guidance includes actions required of agencies that manage covered Justice40 programs, such as identifying the benefits of covered programs, determining how covered programs distribute benefits, and calculating and reporting the 40-percent goal of the initiative. The interim guidance lists potentially covered programs across various agencies, which include the USACE Civil Works program.

In accordance with this memo, benefits of the Proposed Action to EJ communities would contribute toward the accrual of total EJ benefits reported for the District's Civil Works program.

Assistant Secretary of the Army, Civil Works Memorandum, Implementation of Environmental Justice and the Justice40 Initiative, March 15, 2022

The memo provides interim guidance and direction to the USACE Civil Works program related to the implementation of EJ and the Justice40 Initiative. This memo requires EJ to be considered in all aspects of Civil Works projects, including studying, planning, designing, constructing, and operating. For projects that have already been authorized, as long as the overall project will result in benefits towards disadvantaged communities the project will count towards an investment in EJ. Although projects initiated prior to this memo may not have been specifically designed to benefit disadvantaged communities, if they provide such benefits, they should be considered in the contribution towards EJ objectives. This EO also establishes the CEJST as the default tool for the purpose of identifying disadvantaged communities to implement the memo.

Compliant with this memo, CEJST was the primary tool used in identifying disadvantaged communities that have the potential to be affected by the Proposed Action. The Proposed Action, which is part of the already-authorized ARCF 2016 Project, is currently in the Preconstruction and Engineering Design phase and if constructed, would result in an overall benefit to EJ communities by reducing their flood risk. This would be counted as an EJ investment by the USACE, Sacramento District.

Executive Office of the President, Office of Science and Technology Policy, Council on Environmental Quality, Guidance for Federal Departments and Agencies on Indigenous Knowledge, November 30, 2022

Indigenous knowledge includes observations, oral, and written knowledge, innovations, practices, and beliefs developed by Tribes and indigenous peoples through interaction with the environment. This guidance assists Federal agencies in understanding indigenous knowledge, building and nurturing relationships with Tribal Nations and Indigenous Peoples, and recognizing and applying indigenous knowledge in research, policy, and decision making. Under this guidance, agencies should consult and collaborate with Tribal Nations and Indigenous Peoples to recognize and apply indigenous knowledge in decision making.

Pursuant to this guidance and to the ARCF 2016 Project's Programmatic Agreement under Section 106 of the National Historic Preservation Act, USACE would continue to consult on all ARCF design refinements and proposed project changes with interested Tribes (see Appendix B, Section 5.1).

Assistant Secretary of the Army, Civil Works, Memorandum, Implementation Guidance for Section 160 of the Water Resources Development Act of 2020, Definition of Economically Disadvantaged Communities, March 14, 2023

Pursuant to Section 160 of WRDA 2020, the memo defines an economically disadvantaged community as meeting one or more of: (a) low per capita income (80% or less of the national average); (b) unemployment rate above national average (at least 1% greater than the national average unemployment rate for the most recent 24-month period for which data are available); (c) Indian country as defined in 18 U.S.C. 1151 or in the proximity of an Alaska native village; (d) U.S. territories; or (e) communities identified as disadvantaged by the CEQ's CEJST. For this environmental review, disadvantaged communities were identified in accordance with this memorandum.

USACE Civil Works Planning and Policy Division Memorandum, Implementation of the Interim Environmental Justice Strategic Plan, December 16, 2022

This memorandum transmits the USACE Interim Environmental Justice Strategic Plan for immediate implementation across the Civil Works enterprise and requirements for development of District strategic plans and identification of a District EJ coordinator. Pursuant to this memo, the Sacramento District has appointed an EJ coordinator and drafted a District EJ Strategic Plan, which has been endorsed by the South Pacific Division Commander.

State

SB 1000 - Environmental Justice in Local Land Use Planning

SB 1000, also known as the Planning for Healthy Communities Act, requires that jurisdictions with disadvantaged communities either include an EJ element in their general plan or incorporate EJ goals, policies, and objectives throughout other general plan elements. State law defines EJ as "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and

national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (CA Govt. Code 65040.12(e)). At a minimum, EJ requires meaningful consideration of input from those most impacted by pollution into environmental and land use decisions.

Local

Sacramento County General Plan Environmental Justice Element

The Sacramento County General Plan EJ Element was adopted in December 2019 and contains numerous objectives, polices, and implementation measures in accordance with SB 1000. The Proposed Action would be consistent with all directives or requirements contained in the EJ Element.

City of Sacramento 2040 General Plan Update

The City of Sacramento is in the process of developing its 2040 General Plan Update. The draft General Plan Update was released for public review in April 2023 and contains an EJ element with five key goals: clean air, water, and soil; access to healthy food; safe and sanitary housing, active engagement in civic life; and public and private investments that address long-standing inequities, empower disadvantaged residents, and build neighborhood resilience. The Plan comprises polices to achieve these goals. The City of Sacramento is expected to adopt the General Plan Update in the winter of 2023/2024. The Proposed Action would be consistent with all directives or requirements contained in the EJ Element.

2.5.3 Analysis of Environmental Effects

2.5.3.1 Analysis Methodology

The thresholds for determining the significance of impacts for this analysis are based on *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA 2016). Although no quantitative thresholds are provided, the document suggests guidelines for two methods of analysis: “Balancing Approach” and “Impact Focus Approach.” USACE has elected to follow the guidelines for an “Impact Focus Approach.” This analysis is guided exclusively by federal direction. Under CEQA, there are no requirements or procedures to evaluate potential EJ impacts. Therefore, no EJ impact conclusions are made under CEQA.

Impact Focus Approach

- a. Beneficial impacts are considered in the analysis of the distribution of adverse and beneficial impacts between the general population and minority populations and low-income populations in the affected environment.
- b. Consider (as appropriate) relevant mitigation measures (including avoidance and minimization) developed prior to the commencement of the disproportionately high and adverse impact assessment that reduce adverse impacts to minority populations and low-income populations.

- c. If an adverse impact to minority populations and low-income populations remains after accounting for the mitigation measures developed prior to the commencement of the disproportionately high and adverse impact assessment, an agency should continue to consider whether the remaining adverse impact(s) is/are disproportionately high and adverse.

2.5.3.2 Basis of Significance

No quantitative thresholds have been established in *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA 2016) and therefore, a thoughtful qualitative analysis was performed in accordance with the most up to date regulations and guidance.

In accordance with EO 14008, EO13985, and Justice40, USACE has identified disadvantaged communities using the CEJST. The designation of “disadvantaged” on the CEJST serves as the first step in determining potential EJ impacts. Additional analysis identifying real-world conditions was conducted through demographic analysis, routine site visits, and public outreach. Based on this analysis, communities with both EJ concerns and potential to be affected by the Proposed Action include schools serving area disadvantaged communities and the unhoused. Using the CEJST data as well as knowledge of real-world conditions, criteria were developed to assess the significance of the Proposed Action’s impacts. The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the Proposed Action; short- and long-term effects of the Proposed Action; both beneficial and adverse effects; direct and indirect effects of the Proposed Action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)) The alternatives under consideration were determined to result in a significant impact related to EJ if they would do any of the following:

- a. Result in substantial adverse impacts to unhoused populations residing in the project area, through displacements or other means;
- b. Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST;
- c. Result in substantial adverse impacts to tribal communities; or,
- d. Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST within the communities.

2.5.3.3 Effects Not Addressed in Detail

Sacramento River Erosion Contract 3

The CEJST shows that no communities within the Sacramento River Erosion Contract 3 area are considered disadvantaged. USACE pedestrian surveys have supported this determination. There are no affected tribal communities in the area, and unhoused individuals do not typically reside nearby. There are no public institutions that may serve disadvantaged communities located within the Proposed Action. Therefore, EJ impacts for the Sacramento River Erosion Contract 3 are not addressed further in the SEIS/SEIR.

Sacramento River Mitigation Site

The CEJST shows that the SRMS is considered disadvantaged, meeting more than 1 burden threshold and the associated socioeconomic threshold. However, the census tract used for analysis encompasses a much greater spatial expanse and is not representative of the project site. The Proposed Action would not impact the existing burdens within the census tract and may ameliorate risks stemming from wastewater discharge and projected flood risk. Given that the SRMS component would not result in significant EJ impacts or benefits, the project component is not addressed further in the SEIS/SEIR for EJ impact analysis.

Piezometer Network

A network of approximately 100 Piezometers would be installed within the levee footprint of the Proposed Action following construction of levee improvements. Piezometers are geotechnical sensors that would provide levee performance data to evaluate the performance of the Proposed Action. Installation consists of drilling a monitoring well and placing the Piezometer sensor near the aquifer, with above-ground, permanent telemetry technology, a solar panel, and security features. The Piezometer Network would have a minimal footprint contained within the existing Proposed Action. Installation would not necessitate additional heavy equipment, additional staging areas or prolong the project timeline. Similarly, once installed, operation of the Piezometers would consist primarily of reading data generated by the network. The Piezometer Network, as part of the larger project components, would have no effect on disadvantaged communities or other EJ resources, and therefore is not considered in detail.

Effect 2.5-c. Result in substantial adverse impacts to tribal communities

Members of tribal communities would not be disproportionately affected by the Proposed Action. There are no tribals lands (e.g., reservations or rancherias) within the Proposed Action. For more detail on how the proposed project may affect tribal resources (excluding communities and individuals), see Appendix B Section 5.1.

2.5.3.4 Effects Analysis

No Action Alternative

Under the No Action NEPA alternative, only the components described in the ARCF GRR FEIS/EIR (and previously prepared supplemental NEPA documents) would be built. The ARMS and SRMS would not be constructed, and site conditions in those locations would remain as they are now. The proposed refinements to the MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS and SRMS would not be constructed under this Alternative.

EJ impacts to unhoused communities would remain similar under the No Action Alternative as they are to the Proposed Action. Local ordinances that prevent critical infrastructural damage to levees are designed to prevent camping on or within 25 feet of the levee (Sacramento City Code Chapter 8.140). While these communities would be temporarily displaced during construction of the No Action, displacement is an outcome of the ongoing regulatory requirement to ensure levee safety that would occur with and without the Project. Impacts to area schools near the MCP

would be lessened. Refinements to the MCP have resulted in a larger footprint, longer duration and more extensive haul routes that disrupt local traffic flow.

Under the No Action NEPA alternative, however, known disadvantaged communities in the Proposed Action would remain at risk of damage from flooding and subsequent cleanup and restoration activities. Vulnerable communities along the river would be more susceptible to long-term impacts, especially those in low-income households and the unhoused population.

Proposed Action Alternative

2.5-a. Result in substantial impacts to unhoused populations residing in the project area, through displacement or other means

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, and ARMS

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Construction activities would potentially displace unhoused communities and individuals for the duration of construction. Although project activities could displace individuals, this displacement would also occur under local ordinances that prevent critical infrastructural damage to levees by preventing camping on or within 25 feet of the levee (Sacramento City Code Chapter 8.140). While these communities would be temporarily displaced for their own safety during construction, displacement is an outcome of the ongoing regulatory requirement to ensure levee safety that would occur with and without the Project.

Mitigation Measure EJ-1: Conduct Outreach with Local Advocacy Groups

Contact advocacy groups and local organizations in the Sacramento area through plain-language letters to request input on potential mitigation measures. Additional outreach via telephone calls, meetings, and social media is anticipated. A range of solutions including early warning and relocation may be applicable to each project component.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure EJ-2: Prepare a Transient Population Safety Plan

USACE would require its construction contractor to prepare and implement a Transient Population Safety Plan as a requirement in Project specifications for American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, MCP, and ARMS. The plan would detail proposed phasing, signage, fencing, and other protective measures to provide for the safety of the public and transient communities.

Timing: Prepared prior to construction and implemented during construction mobilization.

Responsibility: Construction Contractor

Implementing Mitigation Measures EJ-1 and EJ-2 would reduce EJ impacts through outreach and consultation with local advocacy groups and organizations and by requiring Transient Population Safety Plans to be prepared and implemented to reduce and avoid safety hazards related to project activities conducted in proximity to unhoused communities.

2.5-b. Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST

Magpie Creek Project, American River Erosion Contract 3B North and South, and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Short-term and Major effects that are Less than Significant with Mitigation Incorporated

Proposed activities at MCP, American River Erosion Contract 3B North and South, and American River Erosion Contract 4B would potentially cause disruptions to transportation to area schools that serve students from surrounding disadvantaged communities. Near the MCP, there are limited options for haul routes, therefore it is not possible to avoid impacts to area schools through detours. These access routes are situated between Bell Avenue Elementary, Main Avenue START Program (Students Today Achieving Results for Tomorrow), Robla Preschool, Dry Creek Elementary, Futures High School, Rio Linda Preparatory Academy, and Rio Linda High School. Additionally, there are four public schools within ½-mile of the American River Erosion Contract 3B North and South, and American River Erosion Contract 4B: Rio Americano High School, Sierra Oaks K-8 School, Isador Cohen Elementary School, and O.W. Erlewine Elementary School. Construction haul traffic would occur on surface roads around these schools. Rio Americano High School, Sierra Oaks K-8 School, and O.W. Erlewine Elementary School are not within disadvantaged communities, therefore, disruption to these schools or school traffic would not be an EJ consideration. However, Isador Cohen Elementary is within a disadvantaged community as defined by the CEJST. Although the proposed haul route does not directly pass by the school, it may interfere with traffic access to the school, especially along La Riviera Drive.

In addition to the schools, the Sacramento Food Bank and Family Services, which provides services such as neighborhood distribution, food for seniors, diapers, health and nutrition classes, immigration legal services, and more, as well as Manna Food Bank, which provides free groceries to the surrounding community, are located on or near the proposed haul route for the MCP. Sacramento Food Bank and Family Services is open daily during the week, while Manna Food Bank is open for food distribution on Friday mornings. Shelby's Way, which provides free groceries to the surrounding community, is located on the proposed haul route for American

River Erosion Contract 3B South, and American River Erosion Contract 4B. Shelby's Way is open for food distribution on Friday afternoons. Though the hauls routes will pass these organizations, haul traffic is not expected to interfere with public access to any of the locations.

Mitigation Measure EJ-3: Consult with School Districts

Contact local school districts to request input on potential mitigation measures. Specific measures applied at each project site may vary based on feedback received from each school district, and could include early notification, scheduling construction/road closures during the summer or during timeframes when traffic to and from school is at a minimum.

Timing: Incorporate school districts into the notification list during the public review period. Measures agreed upon with the local school districts would be incorporated into the Final project design.

Responsibility: USACE

Implementing Mitigation Measure EJ-3, which was previously adopted for the ARCF 2016 Project, would reduce the significant impact related to EJ because USACE would coordinate with local school districts to minimize the impact of construction traffic on school-related traffic in the surrounding communities.

American River Erosion Contract 4A, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): No Effect

No public schools or institutions are located within the immediate vicinity of the American River Erosion Contract 4A site or the ARMS. Therefore, no impacts to such institutions would result from construction of American River Erosion Contract 4A or ARMS.

2.5-d. Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST within the communities

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

The project site for MCP is not located within a disadvantaged community. Segments of the associated haul routes, however, traverse or border disadvantaged communities. Haul routes for the MCP would follow Elkhorn Boulevard or I-80 to Raley Boulevard. From Raley Boulevard,

haul trucks would travel along Vinci Avenue, Main Avenue, and Bell Avenue to reach Rio Linda Boulevard, Rose Street, and Maryville Boulevard.

According to the CEJST, all surrounding disadvantaged communities are burdened by airborne PM2.5 levels. Haul trucks carrying materials through these communities during the construction of the MCP would produce emissions adding additional PM2.5 into the air, but at negligible levels. Mitigation measures AIR-1 and AIR-2 would be implemented to minimize generation of PM fugitive dust. The maximum daily mitigated PM2.5 emissions generated during construction are estimated to be 7.14 lbs (0.08 tons annually). Because the level of PM2.5 emissions is so minor, the resulting impact is less than significant.

Portions of the haul route south of Main Avenue and east of Rio Linda Boulevard also experience burdens with traffic proximity and volume. Areas north of Ascot Avenue are burdened by transportation barriers, which is determined by the average of relative cost and time spent on transportation. During construction, an average of 37 truck trips per workday is estimated (actual daily trips range from 1 to 360). Over at least 50 non-consecutive days, heavy truck traffic would exceed the 50 truck trips per day threshold established in Appendix 2.1, “Transportation;” however. The increased heavy truck traffic through the haul routes could alter normal traffic flows, potentially slowing traffic down and making it more challenging for other drivers to navigate around. This would result in a significant impact. Implementing Mitigation Measure TRANS-1, which was previously adopted for the 2016 ARCF Project, would include traffic control plans, signage, and notification of trips. However, there is no feasible mitigation available to reduce the total number of truck trips required to transport the required materials to the project sites. This impact would therefore remain significant and unavoidable.

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 2.1, “Transportation” for the full text of this mitigation measure.

Timing:	Before and during construction
Responsibility:	Project Partners

American River Erosion Contract 3B North and South, and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

American River Erosion Contract 3B North and South, and American River Erosion Contract 4B is not located within a disadvantaged community. However, segments of the associated haul routes traverse and border disadvantaged communities. Haul routes for American River Erosion Contract 3B North and South, and American River Erosion Contract 4B would follow I-80 and U.S. 50 in addition to several local roads and parks. Sections of I-80, U.S. 50 and Arden Way, Howe Avenue, Watt Avenue, La Rivera Drive, Folsom Boulevard and Bradshaw Road pass through disadvantaged communities. All these major roadways already accommodate heavy traffic.

The majority of the construction work for American River Erosion Contract 3B North and South, and American River Erosion Contract 4B would occur on the levee roads and impacts to the surrounding community would not be significant. Further outreach to local community centers is being conducted by the non-federal sponsor. Further outreach to local community centers is being conducted by the non-federal sponsor.

Burdens experienced by neighboring disadvantaged communities which could be affected by project activities at American River Erosion Contract 3B North and South and American River Erosion Contract 4B include PM2.5 in the air and traffic proximity and volume (defined as the count of vehicles at major roads within 500 meters). Emissions from haul trucks during construction would add additional PM2.5 into the air. Mitigation measures AIR-1 and AIR-2 would be implemented to minimize generation of PM fugitive dust. The maximum mitigated daily PM2.5 emissions generated during construction of American River Erosion Contract 3B North and South, and American River Erosion Contract 4B are estimated to be 172.4 lbs (6.78 tons annually). PM2.5 emissions at these levels would result in moderate impacts to the overall air quality to the area, and to the surrounding disadvantaged communities.

The area bounded by Watt Avenue, Folsom Boulevard, and La Riviera Drive is burdened by traffic proximity and volume. Each of these roadways would be used for hauling during construction of American River Erosion Contract 3B South Site 4-1, and American River Erosion Contract 4B, which would introduce additional traffic to the area. During construction, an average of 172 truck trips per workday is estimated (actual daily trips range from 3 to 312).

Most days, heavy truck traffic would exceed the 50 truck trips per day threshold established in Appendix 2.1, “Transportation.” The increased heavy truck traffic through the haul routes would alter normal traffic flows, potentially slowing traffic down and making it more challenging for other drivers to navigate around. This would be a significant impact. Implementing Mitigation Measure TRANS-1, which was previously adopted for the 2016 ARCF Project, would include traffic control plans, signage, and notification of trips. However, there is no feasible mitigation available to reduce the total number of truck trips required to transport the required materials to the project sites. This impact would therefore remain significant and unavoidable. For the full analysis of impacts to transportation and proposed mitigation measures, see Appendix 2.1, “Transportation.”

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 2.1, “Transportation” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate Effects that are Less than Significant with Mitigation Incorporated

The project site for American River Erosion Contract 4A and associated haul routes are located within a disadvantaged community. Access routes consist primarily of major roadways that already accommodate heavy traffic: SR-160, I-80 Business, or I-5. Local roads used to access the project site from these major roadways would include Del Paso Boulevard, Arden Way, Richards Boulevard, Expo Parkway, Leisure Lane, Commerce Circle, and Lathrop Way. The main access points to the levee would be at Lathrop Way, Del Paso Boulevard, and Expo Parkway. A road closure at Del Paso Boulevard may be needed during reconstruction of the bike path.

Communities surrounding the American River Erosion Contract 4A are burdened by airborne levels of PM_{2.5}, as identified by the CEJST. Construction of and hauling materials for American River Erosion Contract 4A would produce emissions adding additional PM_{2.5} into the air, but at low levels. Mitigation measures AIR-1 and AIR-2 would be implemented to minimize generation of PM fugitive dust. The maximum mitigated daily PM_{2.5} emissions generated during construction of American River Erosion Contract 4A are estimated to be 61 lbs (0.76 tons annually). Because the level of PM_{2.5} emissions is minor, the resulting impact is less than significant.

Some portions of the proposed haul route, specifically Richards Boulevard, are burdened by traffic proximity and volume. During construction, an average of 28 truck trips per workday is estimated (actual daily trips range from 1 to 192). Over 36 non-consecutive days, heavy truck traffic would exceed the 50 truck trips per day threshold established in Appendix 2.1, “Transportation;” however, most days the number of trucks would be below this limit. The increased heavy truck traffic through the haul routes could alter normal traffic flows, potentially slowing traffic down and making it more challenging for other drivers to navigate around. Because this would happen infrequently during construction, the resulting effect is moderate and less than significant with the implementation of Mitigation Measure TRANS-1. The potential road closure at Del Paso Boulevard and bike path detour would not be considered a significant EJ impact, since the surrounding area is not considered by the CEJST to be burdened under the transportation category.

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 2.1, “Transportation” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): N/A

NEPA Impact Conclusion (Design Refinements): Short-term and Minor Effects that are Less than Significant with Mitigation Incorporated

The ARMS is not located within a disadvantaged community. However, segments of the associated haul routes traverse or border disadvantaged communities. Haul routes would follow SR-160, I-5, I-80 Business, Garden Highway and Northgate Boulevard as well as existing local service roads. Haul routes that cross into disadvantaged communities, are major roadways that already accommodate heavy traffic. Local roads to the project site would be existing service roads through Discovery Park or the Riverdale Mobile Home Park access. The Riverdale Mobile Home Park has not been in operation for several years.

Burdens experienced by neighboring disadvantaged communities which could be affected by the ARMS include energy, specifically, PM_{2.5} in the air. Emissions from haul trucks during construction would add additional PM_{2.5} into the air, but at negligible levels. Mitigation measures AIR-1 and AIR-2 would be implemented to minimize generation of PM fugitive dust. The maximum mitigated daily PM_{2.5} emissions generated during construction of the ARMS are estimated to be 8.75 lbs (0.48 tons annually). Because the level of PM_{2.5} emissions is so minor, the resulting impact is less than significant.

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction.

Responsibility: USACE and construction contractor(s)

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

Please refer to Appendix B, Section 3.5, “Air Quality” for the full text of this mitigation measure.

Timing: Before and during construction.

Responsibility: USACE and construction contractor(s)

Alternatives Comparison

Alternative 3A through 3D

Alternatives 3A through 3D consist of alternative designs for improvements to the American River Erosion Contract 4A. All alternatives would be constrained within the construction buffer limits of American River Erosion Contract 4A. Spatial constraints for these alternatives include the SR 160 bridge to the northwest, the existing levee to the north and the American River to the south. None of these alternatives would increase EJ impacts to unhoused communities, Tribal communities, access to schools or other institutions providing services to disadvantaged communities, or burdens identified by the CEJST when compared to the Proposed Action. Therefore, impacts would remain the same as the Proposed Action.

Table 2.5-2: Alternative 3a, 3b, 3c, and 3d Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	NEPA Effects Conclusion
2.5-a: Result in substantial impacts to unhoused populations residing in the project area, through displacement or other means	American River Erosion Contract 4A	Similar to Proposed Action with no increase of EJ impacts to unhoused communities, Tribal communities, access to schools or other institutions providing services to disadvantaged communities, or burdens identified by the CEJST when compared to the Proposed Action.	EJ-1 EJ-2	Short-term and Moderate Effects that are Less than Significant with Mitigation
2.5-b: Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST	American River Erosion Contract 4A	Similar to Proposed Action with no increase of EJ impacts to unhoused communities, Tribal communities, access to schools or other institutions providing services to disadvantaged communities, or burdens identified by the CEJST when compared to the Proposed Action.	None	No Effect
2.5-d: Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST within the communities	American River 4A	Similar to Proposed Action with no increased of EJ impacts to unhoused communities, Tribal communities, access to schools or other institutions providing services to disadvantaged communities, or burdens identified by the CEJST when compared to the Proposed Action.	TRANS-1	Short-term and Moderate Effects that are Less than Significant with Mitigation

Alternative 4a and 4b

Alternative 4a and 4b are only being considered under CEQA, and so is not analyzed in this NEPA-only section.

Alternative 5a

This alternative would eliminate the need to construct the SRMS. This alternative includes the purchase of all remaining, required mitigation credits from Service Approved Conservation Banks, whose service areas cover the ARCF project impacts. There would be no additional EJ impacts. Therefore, impacts would remain the same as the Proposed Action.

Table 2.5-3: Alternative 5a Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	NEPA Effects Conclusion
2.5-a: Result in substantial impacts to unhoused populations residing in the project area, through displacement or other means.	SRMS	Similar to the Proposed Action.	None	No Effect
2.5-b: Interfere substantially with access to schools or other public institutions providing services to disadvantaged communities as identified by the CEJST.	SRMS	Similar to the Proposed Action.	None	No Effect
2.5-d: Result in a substantial impact to disadvantaged communities, particularly impacts related to the burdens identified by the CEJST within the communities.	SRMS	Similar to the Proposed Action.	None	No Effect

Alternative 5b

This alternative would complete the SRMS needs by constructing a mitigation site at Watermark Farms. This alternative would replace the Proposed Action SRMS alternative for Grand Island.

Watermark Farms is privately owned and located from Sacramento River Mile 50.5 to River Mile 51.25 (Figure 2.5-5). The project site for this alternative includes the waterside of the levee to landside toe, and adjacent existing farmland. Watermark Farms is on the right bank of the Sacramento River across from the Pocket neighborhood and can be accessed from South River Road. This alternative has not been designed beyond a conceptual level but could involve restoring approximately 227 acres of riverine and floodplain habitat by breaching the existing levee and creating a new setback levee and secondary channel.

Watermark Farms is outside of the previously established ARCF Proposed Action Area. The alternative mitigation site is not identified as a disadvantaged area on the CEJST. If Alternative 5b were to move beyond the conceptual stage, USACE would follow similar efforts that were carried out in other project elements to identify EJ concerns through site visits and outreach to local community organizations and work to mitigate any impacts, as needed.

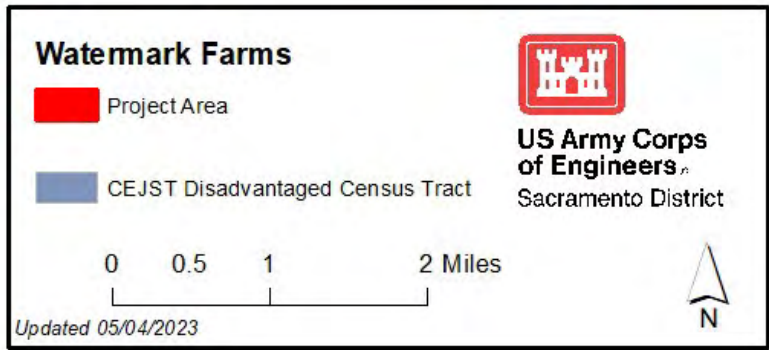
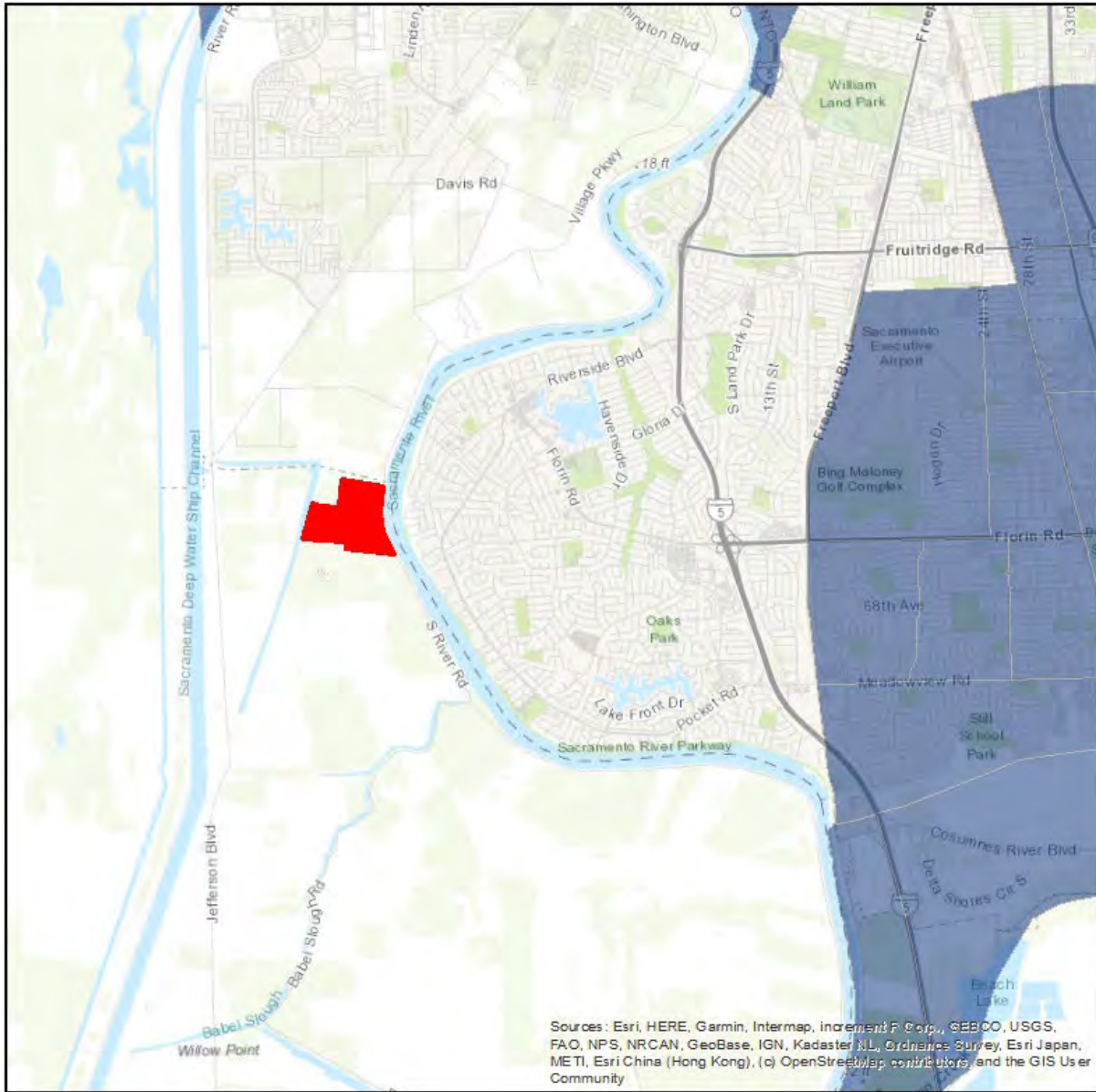


Figure 2.5-5 Watermark Farms

Alternative 5c

This alternative combines three approaches to complete the construction of the SRMS. The SRMS would not be constructed. Impacts would remain the same as the Proposed Action.

The three components would be completed as follows:

1. Purchasing Delta Smelt Conservation Bank Credits from USFWS approved banks.
2. Providing funding for the Sunset Pumps Project to remove an existing rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon and steelhead.
3. Providing funding for the Sunset Pumps Project riparian mitigation requirements.

Purchasing mitigation credits would have no EJ impacts. The Sunset Pumps Project will be evaluated under NEPA and CEQA by the Project Proponents, including DWR, USFWS and BOR. Therefore, no analysis for the partial to full funding of construction of the Sunset Pumps Project is needed in this SEIS/SEIR.

2.6 Socioeconomic Conditions

This section describes the regulatory and environmental setting for socioeconomic conditions within the project footprint. Each project component varies in its impact to population, housing, and employment due to location within Sacramento County and the diversity of surrounding land uses and local economies.

2.6.1 Existing Conditions/Affected Environment

The environmental setting described in Section 3.18.1 of the 2016 American River Common Features, General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report (ARCF GRR FEIS/EIR) covering socioeconomic resources is generally applicable to the current conditions of population, housing, and local economy. This section describes that while the Sacramento County population continues to grow, the project footprint itself is located in areas that are generally built out, and therefore, growth would occur outside the project area where vacant land is available for development.

Sacramento County

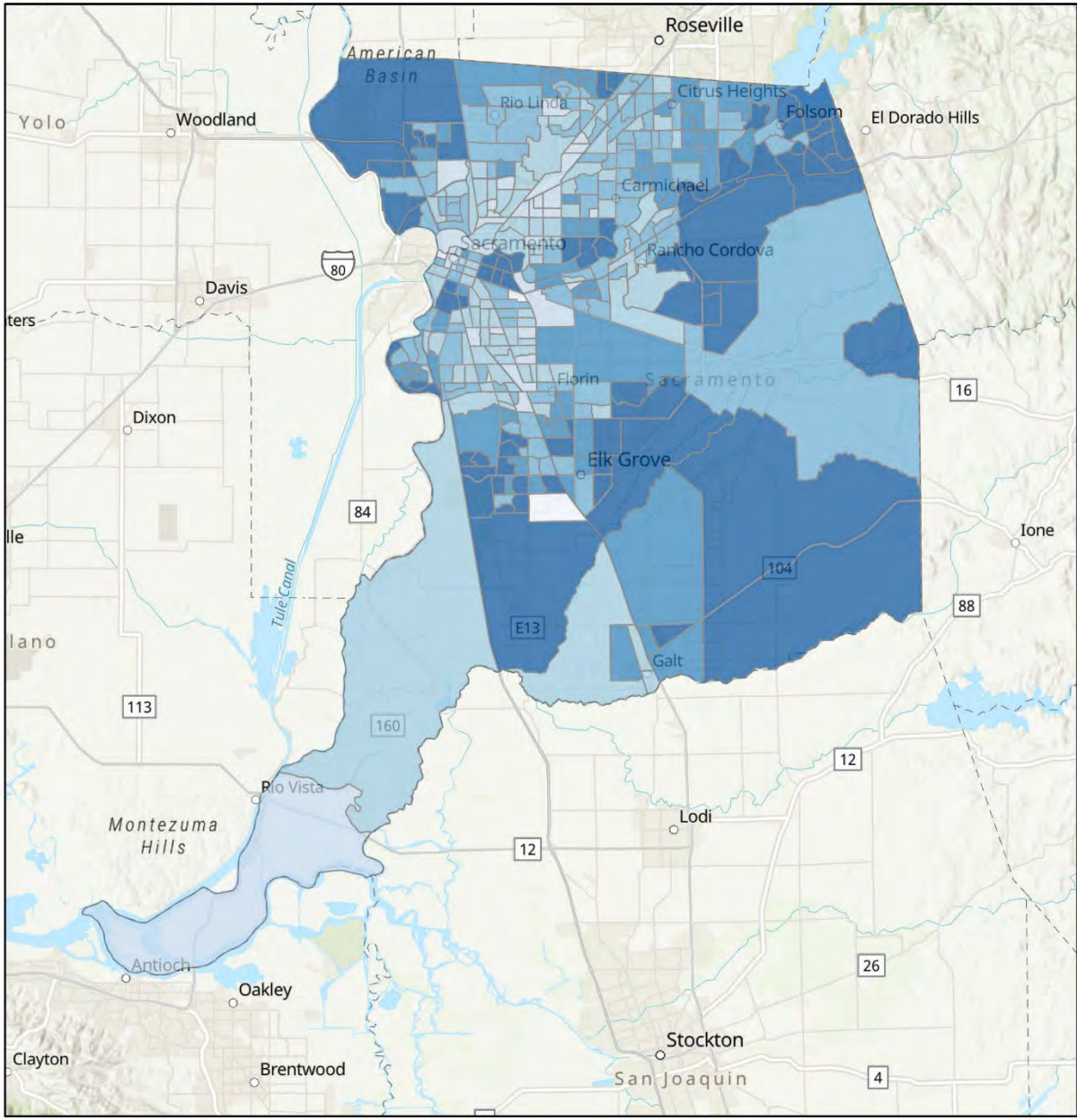
According to the Sacramento County General Plan of 2005 to 2030 (Sacramento County General Plan), 2021-2029 Housing Element (Sacramento County, 2022), the population of Sacramento County in 2019 was 1,546,174 people. The 2020 Decennial Census reported the population at 1,585,055 (U.S. Census Bureau, 2020). The general population trend in the county is growth at a rate of 4.6% from 2010-2015, and 4.2% from 2015-2019.

Sacramento County contains the cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and Sacramento, and the County provides municipal services to suburban portions of unincorporated Sacramento County. The cities of Rancho Cordova and Elk Grove experienced the highest percentage of growth between 2010-2019, and the City of Sacramento and unincorporated County population were the highest numerically. Most of the County is Non-Hispanic White (53 percent); however, there are significant populations of Hispanic (21 percent), Asian (11 percent) and Black (8) residents. The Cities of Sacramento and Elk Grove have the greatest racial and ethnical diversity, while Folsom and Citrus Heights have the highest proportions of Non-Hispanic White residents. The median age of the entire County is 36. The age group with the most expected growth through 2029, is the 65 and over age group, which is anticipated to increase 29 percent from 2021-2029 (Sacramento County, 2022).

In 2021, the employment rate in Sacramento County was 58.2 percent with a median household income of \$80,063. The unemployment rate was 7.6 percent. In the same year, the State of California had a population of about 39.5 million people with an employment rate of 57.6%. The unemployment rate for the State as a whole was 8.3 percent. The median household income in California in 2021 was \$84,907 (U.S. Census Bureau, 2021).

The County does have income disparity with lowest income groups generally concentrated in and around the City of Sacramento (Figure 2.6-1). These areas include the Arden Arcade, South Sacramento, Rio Linda and North Highlands communities in unincorporated Sacramento County. Higher income groups mostly live outside incorporated cities in the more rural parts of the county. Areas along the American River, like Carmichael, Fair Oaks, Orangevale, the East

Sacramento neighborhood of the City of Sacramento, the planned community of Rancho Murieta to the south, and Natomas in the northern portion of the City of Sacramento are also higher income regions.



Median Household Income (By Census Tract) Within Sacramento County of Those Over 15 Years Old Who Worked.

US Army Corps of Engineers® Sacramento District

<p>Median Income</p> <ul style="list-style-type: none"> < \$20,000 \$20,000 - \$40,000 \$40,000 - \$60,000 \$60,000 - \$80,000 \$80,000 - \$100,000 > \$100,000 	<p>Updated 3/29/2023</p>
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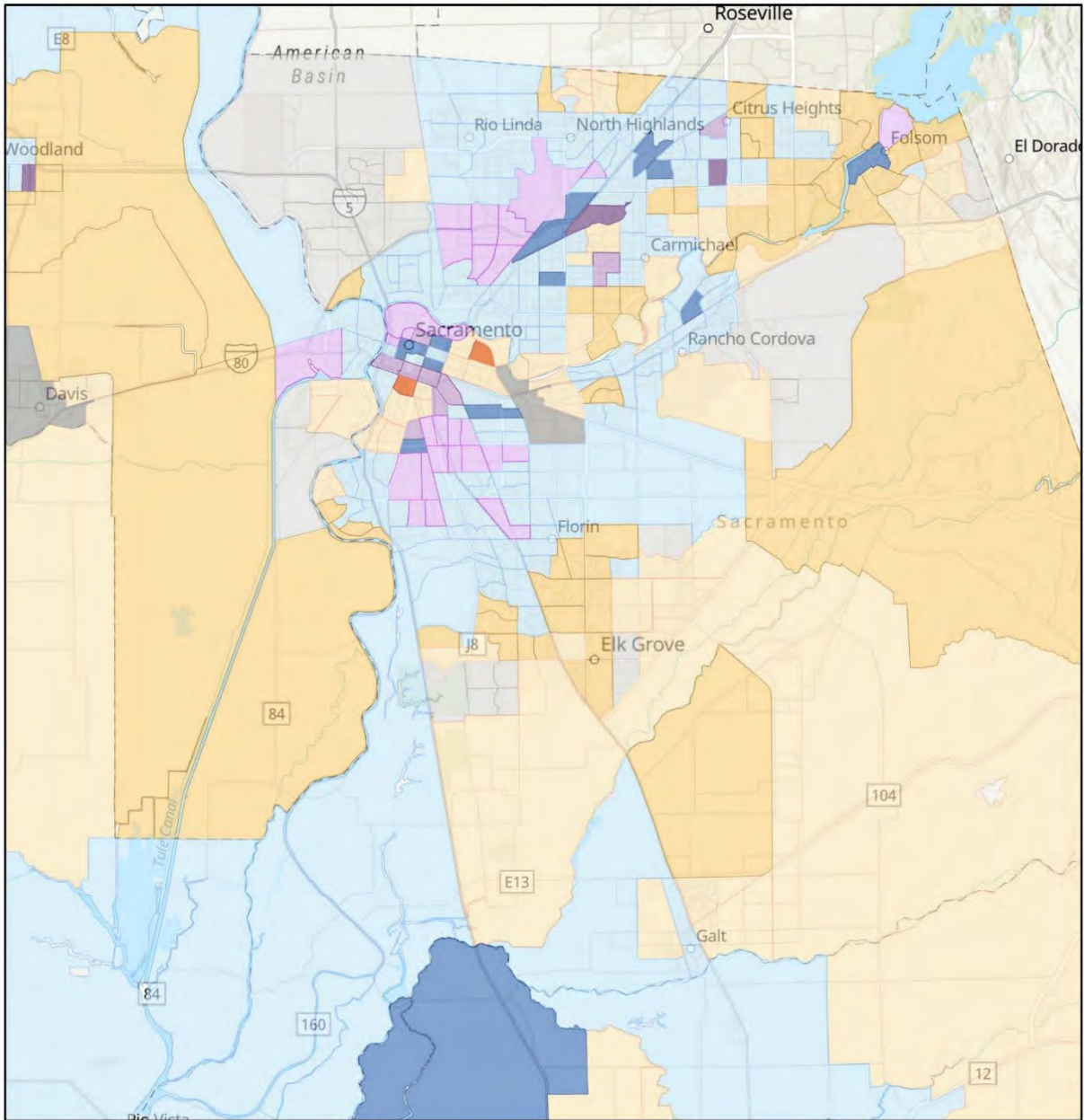
Figure 2.6-1. Median Household Income (United States Census Bureau, 2020)

The purpose of the Sacramento County Housing Element is to guide the development of the unincorporated areas of the County and to analyze existing and project housing needs for all income groups. Under the Sacramento County General Plan, the 2021-2029 Housing Element plans for 21,200 new housing units to meet the estimated need for housing in the County. Of this estimated need, approximately 2,200 units are needed for extremely low-income households, 2,200 for very low-income, 2,700 for low-income, and 4,200 for moderate-income households. The remaining need (10,000 units) would be above-moderate-income households (Sacramento County, 2022). All income groups are affected by the housing shortage in Sacramento County.

Rising costs of housing particularly affects renters in the Greater Sacramento region. Gentrification, or the influx of capital and higher-income residents into working class neighborhoods, is a negative outcome of rising housing costs. Gentrification can cause displacement of lower-income people. African American, Hispanic, and Native American people, large families, households with children, and families with a disabled member all experienced higher displacement rates when polled for the Analysis of Impediments to Fair Housing Choice in 2020; 28 percent of unincorporated Sacramento County reported they had been displaced from a housing situation in the Sacramento Valley in the last 5 years. Approximately 14 percent of renter households (or 33,000 households) were impacted by a COVID-related job loss in Sacramento County. Additionally, 70 percent of the impacted renter households contain at least one person of color. (Sacramento County, 2022).

There are several groups that may be discriminated against while seeking housing. These groups have been identified by the County as seniors, large households, female-headed households, people with disabilities, farmworkers, immigrants, refugees, and people experiencing homelessness (Sacramento County, 2022). These vulnerable groups are also susceptible to displacement. Susceptible census tracts are located along the Interstate-80 corridor, around the North Highlands areas, and south of the City of Sacramento (South Sacramento, Arden Arcade, Carmichael, and the Delta communities) (Figure 2.6-2) These areas generally have high concentrations of poverty and reduced access to opportunity. Poverty prevalence is shown in Figure 2.6-3.

Access to opportunity includes educational opportunities, proximity to jobs, environmental health, and access to transportation. Affordable housing has been difficult to approve and disproportionately sited in minority neighborhoods with high poverty rates in the County. The lack of affordable housing in in-come diverse communities reinforces poverty levels and racial segregation, concentrating these conditions in low opportunity and resources areas. Areas in the northern unincorporated county are considered low or moderate resources areas for economic, educational, and environmental opportunities; this includes Rio Linda/Elverta, Antelope, and North Highlands communities. Areas in the southern and eastern portions of the unincorporated county have high resources and opportunities such as Elk Grove and Folsom (Sacramento County, 2022).



Urban Displacement and Gentrification in Sacramento County

- Low-Income/Susceptible to Displacement
- Ongoing Displacement
- At Risk of Gentrification
- Early/Ongoing Gentrification
- Advanced Gentrification
- Stable Moderate/Mixed Income
- At Risk of Becoming Exclusive
- Becoming Exclusive
- Stable/Advanced Exclusive
- High Student Population
- Unavailable or Unreliable Data

US Army Corps of Engineers®
Sacramento District

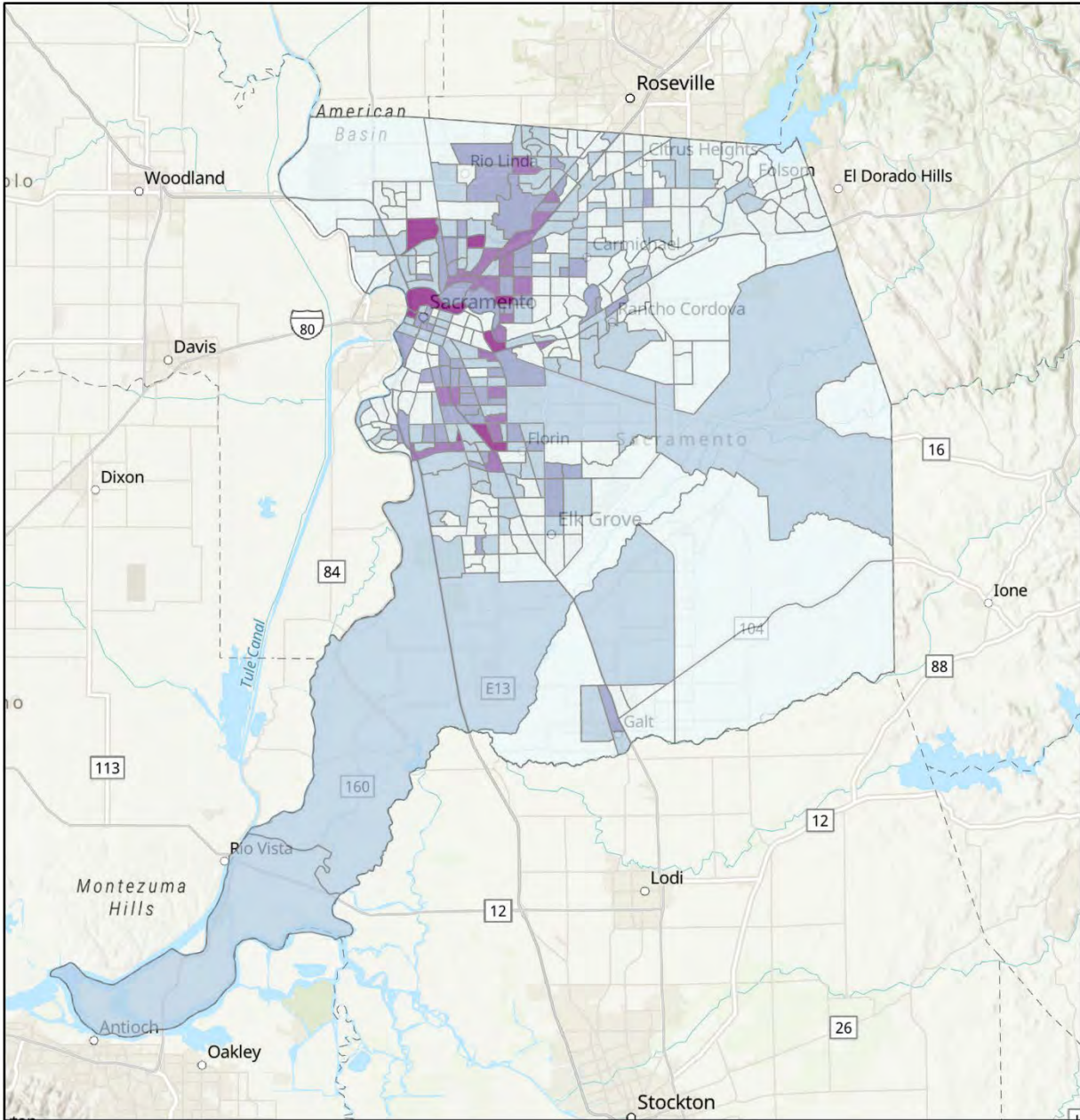
Updated 3/29/2023

0 2.25 4.5 Miles

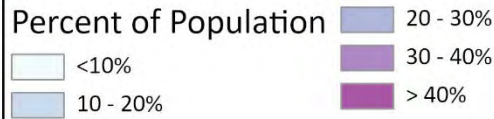
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Source: (Urban Displacement Project, 2018)

Figure 2.6-2. Communities Sensitive to Displacement



Percent of Population (By Census Tract) Whose Income in the Last 12 Months Were at or Below the Poverty Level



US Army Corps of Engineers®
Sacramento District

0 3.5 7 Miles



Updated 3/29/2023

Source: (U.S. Census Bureau, 2021)

Figure 2.6-3. Percent of Population Below the Poverty Level

Every 2 years in January, Sacramento County and the incorporated cities partner with Sacramento Steps Forward (SSF) to conduct a “Point-in-Time Homeless Count,” which attempts to document every person experiencing homelessness during a 24-hour period. The 2019 Homeless Count report estimated that 5,570 individuals were homeless either staying at emergency/transitional shelters as well as those sleeping outside. The 2022 Homeless Count found that homelessness had increased 67 percent to a total of 9,278 individuals experiencing homelessness in the County. Seventy-two percent of those were unsheltered, sleeping in tents or vehicles. Fifteen percent of homeless were families with children. Black residents were 3-4 times more likely to experience homelessness and 58 percent of unsheltered adults reported at least one disability (California State University, Sacramento, 2022).

City of Sacramento

The Sacramento County General Plan Housing Element reported the City of Sacramento population in 2019 at 508,172 people, with a 3.6 percent growth from 2010-2015 and a 5.1 percent growth from 2015-2019 (Sacramento County, 2022). The 2020 Decennial Census reported the population at 524,943 (U.S. Census Bureau, 2020). According to the City of Sacramento 2035 General Plan (City of Sacramento General Plan), the population is expected to reach 640,381 people by the year 2035 (City of Sacramento, 2015).

The City of Sacramento is divided into the following Community Plan Areas (CPAs): Arden Arcade, Central City, East Sacramento, Fruitridge/Broadway, Land Park, North Natomas, North Sacramento, Pocket, South Area, and South Natomas. Arden Arcade is not within City limits and is considered a Study Area (City of Sacramento, 2021).

The City of Sacramento is racially and ethnically diverse. In 2018, people of color made up 67.5 percent of the total population, compared to 55 percent in Sacramento County. Areas within City limits with above average concentrations of people of color include Fruitridge/Broadway, North Sacramento, and North and South Natomas. Areas with lowest concentrations of people of color generally include East Sacramento, the Central City, Land Park, and the Pocket.

In 2017, there were 302,111 jobs in the City of Sacramento. The largest industry sector in which both City and County residents are employed is ‘educational services and health care and social assistance’ (22.7 percent and 22.2 percent respectively). The second largest industry sector is ‘professional, scientific, and management, and administrative and waste management services’ with the third largest sector being ‘arts, entertainment, and recreation, and accommodation and food services’ (City of Sacramento, 2021). The employment rate in the City is 58 percent with a median household income of \$75,311. The unemployment rate is 7.5 percent (U.S. Census Bureau, 2021).

There are three major colleges located within the City boundaries: California State University Sacramento (CSUS), Sacramento City College, and Consumes River College; the latter are two-year colleges. Enrollment at these three colleges was 67,500 students in the fall of 2019, which was roughly 14 percent of the City’s population. Enrollment declined about 7 percent nationwide during the COVID-19 pandemic. Enrollment for Fall 2022 at CSUS was approximately 31,000 students (Cynthia Hubert, 2022); 19,000 students were enrolled at Sacramento City College (Sacramento City College, 2023); and 12,000 at Consumes River College (Consumes River

College, 2022). The University of California, Davis Medical Center is also located in the City of Sacramento with approximately 500 students.

Most components of the Proposed Action are located within the City of Sacramento jurisdiction. Table 2.6-1 depicts relevant socioeconomic conditions and indicators at projects within the City of Sacramento General Plan limits. Some of these projects extend into the Unincorporated County area, like American River Erosion Contract 3B North and South, and American River Erosion Contract 4B, and the Magpie Creek Project. The Sacramento River Mitigation Site (SRMS) is solely located in the Unincorporated County area. Table 2.6-2 depicts relevant socioeconomic conditions and indicators at projects in Unincorporated County areas.

Table 2.6-1. Socioeconomic Conditions of Proposed Action Components within the City of Sacramento Community Planning Area

Project Area Jurisdiction	Population	Median Income 1	People of Color 2	Displacement And Gentrification Potential Within Project Area
American River Erosion, Contract 3B North and Contract 4B				
Arden Arcade Study CPA	101,071	\$53,949	43.1%	Stable Moderate/Mixed Income; At Risk of Becoming Exclusive
American River Erosion, Contract 3B South and Contract 4B				
East Sacramento CPA	32,659	\$74,408	33.4%	Low-Income/Susceptible to Displacement
American River Erosion Contract 4A				
South Natomas CPA	46,012	\$54,673	73.1%	Low-Income/Susceptible to Displacement
North Sacramento CPA	60,574	\$39,892	75.0%	Low-Income/Susceptible to Displacement
American River Mitigation Site (ARMS)				
South Natomas CPA	46,012	\$54,673	73.1%	Low-Income/Susceptible to Displacement
Magpie Creek Project				
North Sacramento CPA	60,574	\$39,892	75.0%	Low-Income/Susceptible to Displacement
Sacramento River Erosion Contract 3				
Pocket CPA	45,706	\$74,133	66.8%	Low-Income/Susceptible to Displacement; Stable Moderate/Mixed Income; At Risk of Becoming Exclusive

Source: (City of Sacramento, 2021), (Thomas, et al., 2020)

¹ The median household income of the Sacramento Planning Area is \$54,914.

² Of the entire population of the Sacramento Planning Area, 67.4% are people of color.

Table 2.6-2 Socioeconomic Conditions of Proposed Action Components within Unincorporated Sacramento County

Project Area Jurisdiction	Population	Median Income	People of Color ³	Poverty ⁴	Displacement And Gentrification Potential Within Project Area
American River Erosion, Contract 3B South and Contract 4B					
La Riviera CDP	11, 252	\$77,493	44.7 % ⁵	10.8%	Low-Income/Susceptible to Displacement
Magpie Creek Project					
Rio Linda CDP	15,944	\$80,364	36.8 % ⁶	15.5%	Low-Income/Susceptible to Displacement
Sacramento River Mitigation Site (SRMS)⁷					
Walnut Grove CDP	1,452	\$56,833	54.0% ⁸	12.7%	Low-Income/Susceptible to Displacement
City of Isleton	794	\$42,083	52.8% ⁹	20.2%	Low-Income/Susceptible to Displacement
City of Rio Vista	10,005	\$76,423	32.4% ¹⁰	10.8%	Low-Income/Susceptible to Displacement

Source: (U.S. Census Bureau, 2021) (Thomas, et al., 2020)

³ Calculated by subtracting the population of “White” category from the total population.

⁴ Poverty at the State level is reported at 12.3%

⁵ La Riviera CDP: 6,225 people reported “White alone”

⁶ Rio Linda CDP: 10,085 people reported “White alone”

⁷ Grand Island is does not qualify to be a CDP for lack of housing and population. For comparative analysis, three neighboring jurisdictions were selected to demonstrate socioeconomic conditions of the general area (Delta).

⁸ Walnut Grove CDP: 670 people reported “White alone”

⁹ City of Isleton: 375 people reported “White alone”

¹⁰ City of Rio Vista: 6,766 people reported “White alone”

Environmental Justice

Environmental justice (EJ) issues are mandated and regulated primarily at the Federal level. The ARCF GRR FEIS/EIR, contained a simple EJ analysis that has been updated in Appendix B 2.5 of this SEIS/SEIR document to meet the requirements of several Executive Orders under the Biden administration, including EO 13985, 14008, and the Justice40 Initiative.

EJ is defined as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.” Fair treatment means that no racial, ethnic, or socioeconomic group should bear a disproportionate share of adverse effects as a result of the execution of Federal, State, local, and tribal environmental programs and policies.

Appendix B Section 2.5 of this SEIS/SEIR contains the “Impact Focus Approach” analysis to determine the significance of impacts on EJ issues resulting from the Proposed Action.

2.6.2 Applicable Laws, Regulations, Policies, and Plans

Federal

National Environmental Policy Act of 1969, as amended (42 U.S.C. § 4321, et seq.)

The National Environmental Policy Act (NEPA) requires Federal agencies to assess the environmental and related social and economic effects of their proposed actions prior to making decisions and documenting the full disclosure of the alternatives, potential mitigation, and environmental compliance procedures in a document, like an Environmental Assessment or Environmental Impact Statement.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 CFR 24)

The Uniform Relocation Act ensures the fair and equitable treatment of persons whose real property is acquired or who are displaced as a result of a Federal or Federally assisted project. The Act may provide relocation advisory services, moving costs reimbursement, replacement housing, and reimbursement for related expenses and rights of appeal.

Executive Order 11988 entitled *Floodplain Management*

The objective of Executive Order (EO) 11988 is the avoidance of long- and short-term adverse effects associated with the occupancy and modification of the base flood plain (1 percent annual event) and the avoidance of direct and indirect support of development in the flood plain wherever there is a practicable alternative. The Proposed Action is consistent with EO 11988 since there is no other practicable alternative to levee improvements.

Executive Order 12898 entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

This EO states that Federal agencies are responsible for conducting their programs, policies, and activities that substantially affect human health of the environment in a manner that would not

affect a person's ability to participate in, receive benefits from, or be discriminated against because of their race, color, or national origin.

Justice40 Initiative

This Initiative is a government effort to ensure that Federal agencies work with states and local communities to deliver at least 40 percent of the overall benefits from Federal investments in climate and clean energy to disadvantaged communities. Pertinent to the flood improvement projects, is the Department of Homeland Security Flood Mitigation Assistance Program, which provides funding to states, local communities, tribes, and territories for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that State and local agencies identify the significant environmental impacts of their actions, and avoid or mitigate those impacts, when feasible. The Central Valley Flood Protection Board (CVFPB), as the non-Federal partner, will undertake activities to ensure compliance with CEQA. Certification of the final EIR by the CVFPB would provide full compliance with CEQA.

State Government Code Sections 65580-65590 State Housing Element Law

California law (Government Code Section 65583) requires that every City and county adopt a Housing Element that contains the housing needs and inventory of resources and constraints, the community goals for achieving the needs, inventory of developable sites and an 8 year schedule of actions to implement the goals and objectives outlined in the Housing Element.

California Department of Housing and Community Development

California state law requires each City and county to adopt a general plan to guide future growth which must include a housing element. The California Department of Housing and Community Development (HCD) administers population and housing policy laws at the state level and determines the relative share of existing and projected housing needs for each county. The Sacramento Area Council of Governments (SACOG) is responsible for developing a methodology for allocating housing units by income category to each City and county in the region, which is documented in the State's Regional Housing Needs Allocation (RHNA).

Local

City of Sacramento 2035 General Plan

City of Sacramento 2021-2029 Housing Element (City of Sacramento, 2021)

The City Housing Element contains eight goals to create equitable and inclusive neighborhoods and provide opportunities for a variety of housing at all levels of affordability.

- Goal 1: Increasing Overall Housing Production

- Goal 2: Increasing Affordable Housing and Workforce Housing Production
- Goal 3: Promote Accessory Dwelling Units
- Goal 4: Advancing Equity and Inclusion
- Goal 5: Protecting Residents from Displacement
- Goal 6: Preserving the Existing Housing Stock
- Goal 7: Housing for People Experiencing Homelessness
- Goal 8. Increasing Accessible Housing

Sacramento County General Plan of 2005 to 2030

2021-2029 Housing Element (Sacramento County, 2022)

The County Housing Action Plan has seven goals to achieve affordability, condition of, and access to housing for its general population and special needs groups. Those seven goals are:

- HE1: Adequate supply of land for housing
- HE2: Reduction of constraints to housing production
- HE3: Conservation and rehabilitation of existing housing and neighborhoods
- HE4: Improvement of housing opportunities for special needs groups
- HE5: Preservation of existing affordable housing stock and provision of affordable housing
- HE6: Promote the efficient use of energy in residences and improve the air quality of Sacramento County
- HE7: Promote and affirmatively further fair housing opportunities for County residents

Economic Development Element (County of Sacramento, 2019)

The Economic Development Plan aims to formulate a strategy to ensure a healthy local economy by focusing resources on business retention, attracting new industries, supporting the tax base, and sustaining public services for current and future residents. The strategic economic objectives are outlined as follows:

- Create a Balanced Land Use Policy Providing for Adequate Commercial, Office, Industrial, and Residential Land
- Identify New Growth Areas
- Promote and Support Commercial Corridor Redevelopment
- Attract Key Regional Sales Tax Generators
- Promote Agriculture and Agri-Tourism
- Continue Redevelopment of Mather Airfield and McClellan Park

- Support County Airport Systems
- Develop Regional and Local Partnerships and Programs
- Intensify Business Retention, Attraction, Development and Business Recruitment
- Develop International Trade
- Increase Sports, Tourism, and the Arts in the Region
- Attract Institutions of Higher Education

The Sacramento Area Council of Governments (SACOG) Regional Housing Needs Plan Cycle 6 (2021-2029) (Sacramento Area Council of Governments, 2020)

The State’s RHNA methodology is the formula by which SACOG determines the allocation of housing units by City and county. SACOG consists of the following counties: Sacramento, Yolo, Sutter, Yuba, Placer, and El Dorado. The allocation of housing is determined by income category distributions:

- Very low income (less than 50 percent median family income [MFI])
- Low income (50 to 80 percent MFI)
- Moderate income (80 to 120 percent MFI)
- Above Moderate Income (above 120 percent MFI)

Table 2.6-3 RHNA Methodology Summary Table for Sacramento County

Jurisdiction	Very Low (VL) ¹	Low (L) ¹	VL + L ¹	% Total RHNA (VL+L) ¹	Moderate ²	Above Moderate ²	Total RHNA
Citrus Heights	132	79	211	30.3%	144	342	697
Elk Grove	2,661	1,604	4,265	51.6%	1,186	2,812	8,263
Folsom	2,226	1,341	3,567	56.1%	829	1,967	6,363
Galt	404	243	647	33.6%	379	900	1,926
Isleton	5	3	8	28.6%	6	14	28
Rancho Cordova	2,115	1,274	3,389	37.4%	1,684	3,994	9,067
Sacramento	10,463	6,306	16,769	36.8%	8,545	20,266	45,580
Sacramento Co. Unincorporated	4,466	2,692	7,158	33.6%	4,186	9,928	21,272

1. Lower Income Units
 2. Higher Income Units

Objectives (§65584.D) are outlined as follows:

1. Increase Housing Supply and Mix of Housing Types
2. Promote Infill, Equity and Environment
3. Ensure Jobs Housing Balance and Fit
4. Promote Regional Income Parity
5. Affirmatively Further Fair Housing

Factors (§65584.04E) focus on improving specific local issues such as preserving prime agricultural land, improving transit and transportation, reducing high housing cost burdens and the rate of overcrowding, increasing housing for farmworkers and students, preparedness for emergencies, and State Bill (SB) 375 Greenhouse Gas Reduction Targets.

2.6.3 Analysis of Environmental Effects

2.6.3.1 Analysis Methodology

NEPA requires that social and economic effects be considered if they are related to effects on the natural, physical, or human environment. Socioeconomic conditions involve population, housing, employment, and local economy. The evaluation must also consider minority and low-income populations, in conjunction with the EJ analysis. Based upon the location, magnitude, and duration of activities related to temporary construction and long-term consequences of the Proposed Action, the key effects were identified and evaluated, and mitigation was proposed if significant impacts occurred.

2.6.3.2 Basis of Significance

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, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action while providing distinction between direct and indirect effects as required under NEPA (40 CFR 1508.1(g)). The alternatives under consideration were determined to result in a significant impact related to socioeconomic conditions if they would do any of the following:

- a. induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- b. displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

2.6.3.3 Effects Not Addressed in Detail

All Project Components, except the Piezometer Network, would impact socioeconomic conditions based on the thresholds listed in section 2.6.3.2 due to the scale of project activities including construction duration, locations with sensitive receptors, and design refinements such as haul routes and staging areas.

Sacramento River Mitigation Site

The effects of **2.6-b Displace People or Housing**, on the Sacramento River Mitigation Site SRMS need not be discussed in further detail. SRMS, a former dredge material placement site located in the Delta, consists primarily of non-native herbaceous cover with stands of riparian trees and shrubs with some seasonal wetlands, completely devoid of existing housing, permanent residents or temporary populations, such as visitors, recreationists, or tourists. There are no unhoused populations or encampments within the proposed construction limits. Therefore, construction of the Proposed Action at SRMS would have no impact on people or housing.

Piezometer Network

A network of approximately 100 piezometers would be installed within the levee footprint of the Proposed Action following construction of levee improvements. Piezometers are geotechnical sensors that would provide levee performance data to evaluate the performance of the Proposed Action. Installation consists of drilling a monitoring well and placing the piezometer sensor near the aquifer, with above-ground, permanent telemetry technology, a solar panel, and security features. The piezometer network would have no effect on socioeconomic resources, such as housing, surrounding population, or the local economy, and therefore, is not considered in detail.

2.6.3.4 Effects Analysis

No Action Alternative

For the NEPA discussion in this Comprehensive SEIS/SEIR, the No Action Alternative is the “Recommended Plan” or Proposed Action (Authorized Project) from the ARCF GRR FEIS/EIR. The No Action Alternative includes all the components of the authorized ARCF GRR FEIS/EIR Proposed Action that have been constructed as well as the remaining authorized components of the Proposed Action that have not yet been constructed. The No Action Alternative in this SEIS/SEIR is called Alternative 2 – Sacramento Bypass and Improve Levees (Recommended Plan) in the ARCF GRR FEIS/EIR. Since 2016 constructed project components are described in supplemental documents listed in Section 3.5 of this Comprehensive SEIS/SEIR.

The ARCF GRR FEIS/EIR Section 3.18 analyzed impacts to socioeconomic resources. The conclusion under the ARCF GRR FEIS/EIR Section 3.18.5 “Recommended Plan” (Authorized Project), was that construction of the project activities would result in less than significant effects and no mitigation was proposed.

The No Action Alternative would result in temporary disruption to the community during construction. These disruptions to traffic, noise, recreation, and leisure activities were considered spatially limited and short-term impacts. Haul routes on existing roads would result in additional congestion and routes on levees adjacent to residences would result in truck engine noise and dust.

The majority of project activities would occur immediately adjacent to established communities within the City of Sacramento and therefore, would require acquisition of some private properties. These properties could contain residences and this potential displacement of people was considered a community disruption. All real estate transactions would comply with the Federal Relocation Act.

In terms of long-term consequences of the project activities, no additional housing or business development would be expected. Similarly, because the project construction would occur in urbanized areas, no population changes were expected. The project activities would reduce the risk of flooding to the existing communities and lands behind the existing levee system, so development in the flood plain would not be induced. The project would not result in resident or business displacement or divide an established community.

Several small, unhooded communities that reside along the American and Sacramento rivers would be temporarily impacted by construction of the remaining portions of the No Action Alternative. These vulnerable communities are already at risk of being displaced from natural disasters such as flooding, earthquakes or wildfire, as well as under local ordinances that prevent critical infrastructural damage to levees by preventing camping on or within 25 feet of the levee (Sacramento City Code Chapter 8.140). While these communities will be temporarily displaced for their own safety during construction, displacement is an outcome of the ongoing regulatory requirement to ensure levee safety that will occur with and without the Project.

Proposed Action Alternative

2.6-a Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

CEQA Significance: Less than Significant.

NEPA Significance: Long-term and Moderate effects that are Less than Significant.

Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Effects Determination (Design Refinements): No Impact

Both SRMS and the American River Mitigation Site (ARMS), are proposed Design Refinements, which means these areas were not analyzed for socioeconomic impacts in the ARCF GRR FEIS/EIR. Due to their location and nature of the Proposed Action, there will be no substantial effects to population, housing, or the local economy. Additionally, none of the project refinements would include construction of new houses or businesses that would induce population growth, nor would they require construction worker housing. The site is located within the Delta at the confluence of the Sacramento River, Cache Slough, and Steamboat Slough. Used as a former dredge material placement site, SRMS consists of riparian forest, riparian scrub-shrub, oak woodland, ruderal herbaceous/grassland, and wetlands. ARMS is located at RM 2 of the American River within the Parkway just west of Discovery Park. ARMS consists of a manmade pond with surrounding low-quality ruderal vegetation.

SRMS does not contain existing housing or permanent residents or temporary populations, such as visitors, recreationists, or tourists. SRMS is not actively utilized. Therefore, the change in land use would not negatively impact the local economy. Construction workers would be needed for 2 years to develop the site. A short-term increase in job availability would benefit the population and economy. An influx of workers in the area would place higher demand of goods and services. Since SRMS is rural and remote, construction workers may be temporarily housed at Rio Vista. Both Rio Vista and Isleton would provide essentials from grocery stores, restaurants, hardware shops, and gas stations.

ARMS does have an inhabited residence and active business adjacent to the parcel being acquired for the mitigation site. The single business would be relocated to a location determined

by the owner and in cooperation with the non-Federal partners. There may be short-term (2 year) and minor beneficial impacts to the economy and population during the construction season. A short-term increase in job availability would benefit the population and economy. An influx of workers in the area would place higher demand of goods and services. Because construction is short-term, no new housing would be required resulting from ARMS.

Since the mitigation sites do not provide any flood risk reduction and the land use in perpetuity would not be consistent with urban development, there would be no population growth within the project footprint resulting from the Proposed Action at SRMS and ARMS. Additionally, the construction work is short-term in its ability to stimulate local economy and therefore, would not induce long-term population growth. While maintenance roads to the mitigation sites will be constructed, they will not be publicly accessible, nor will they allow access to previously undeveloped sites. The Proposed Action at ARMS and SRMS would not directly or indirectly induce substantial population growth.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Effect Determination (Design Refinement): Long-term and Moderate effects that are Less than Significant

The NEPA No Action Alternative for Magpie Creek contained a culvert installation, which would have no impact on socioeconomic conditions. All other components (channel clearing and realignment, levee raise, new levee and crossing structure) of the Project are considered Design Refinements; therefore, the analysis for both the CEQA and NEPA are combined.

The project site for Magpie Creek Project is in north Sacramento, generally between Raley Boulevard and Dry Creek Road, due west of the former McClellan Air Force Base now Sacramento McClellan Airport. The Magpie Creek Diversionary Canal (MCDC) transports water from McClellan Business Park's water treatment plant to Robla Creek to the southwest. Surrounding land use includes primarily industrial/employment center with scattered, low-density residential areas with vacant lots. Between the Proposed Action and McClellan is a large property (40+ acres) designated as a wetland mitigation site.

Magpie Creek Project is designed to prevent overtopping or failure of the existing levee. Floodwaters from the existing channel during a 1 in 200 annual exceedance probability (AEP) event would flow south towards the natural riparian corridor of Robla Creek and Marysville Boulevard flooding Interstate-80. The Design Refinements would prevent hundreds of homes from flooding in the greater Robla and North Sacramento/McClellan region. Additionally, dozens of large industrial and small service businesses would no longer be at risk of flooding. The Proposed Action would have disproportionately higher beneficial impacts to a historically lower income region of Sacramento County. As shown in Figures 2.6-1 and 2.6-2, incomes in this area of Sacramento are historically lower than the County median with larger proportions of vulnerable populations in poverty and at risk of displacement. The Magpie Creek Project would reduce long-term consequences associated with irreparable damages to homes, jobs, and the local economy.

The lands south of the MCDC would no longer be susceptible to flooding and vacant areas may have increased potential for urban development. These lands are currently zoned as ECLR – Employment Center Low Rise and SNLD/SNMD – Suburban Neighborhood Low/Medium Density. The Proposed Action would not induce significant development by removing lands from the floodplain, beyond what is currently expected in the City of Sacramento General Plan. Therefore, any induced growth resulting from the Proposed Action is consistent with local economic development goals, and solely as a levee improvement project does not substantially induce population growth. Removing lands from the existing floodplain is an indirect effect of the Magpie Creek Project resulting in long-term moderate impacts to the region by spurring economic development and population growth.

Raley Boulevard would be closed for three months to allow for construction of the closure structure and detours would be required for local traffic. Business entrances may be temporarily re-routed although no businesses would need to close to the public during construction of the Proposed Action. The temporary socioeconomic impacts associated with construction would be minor, compared to the long-term beneficial impacts of reduced risk of flooding and property damage.

There may be short-term and minor beneficial impacts to the economy and population during the construction season. Construction workers will be needed for two-years to complete levee and channel improvements. A short-term increase in job availability would benefit the population and economy. An influx of workers in the area will place higher demand of goods and services, such as equipment rentals and construction supplies. Because construction is short-term, no new housing would be required resulting from the Magpie Creek Improvements.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

The project activities along the American and Sacramento River under the Proposed Action consist of levee improvements on existing levees. These levees are currently protecting Sacramento communities including the Pocket, Greenhaven, Little Pocket (Sacramento River Erosion), Sierra Oaks, Campus Commons, Arden Town, Arden Park Vista (American River Contract 3B North), Rosemont, La Riviera, (American River Contract 3B South) and the communities downstream towards the confluence of the American and Sacramento Rivers such as East Sacramento, Downtown Sacramento, South Sacramento (Oak Park and Land Park communities).

American River Erosion Contract 3B North and a portion of American River Erosion Contract 4B are located on the right bank of the river between Howe Avenue and Rio Americano High School. American River Erosion Contract 3B South and the remaining segment of American River Erosion Contract 4B are on the left bank of the American River between Watt Avenue and the Mayhew Drain (across from Mayhew Road). American River Contract 4A is located on the right bank of the American River upstream of Jediah Smith Memorial Bike Trail's undercrossing of the California State Route 160 bridge. The Sacramento River Erosion Contract 3 is located between river mile 47 and 53 in the Pocket neighborhood.

As can be seen from Figure 2.6-1, these communities in the Pocket and along the American River have higher median incomes than those within the core of the City of Sacramento. However, the communities are still at risk of flooding. With the levee improvements in the Proposed Action, construction activities only include erosion protection on existing levees. Therefore, no new lands are needed for construction, except for temporary staging areas of equipment and trailers. The U.S. Army Corps of Engineers (USACE) and the non-Federal partners will prioritize using lands that are not developed to reduce the likelihood of displacing residents or removing housing from the existing inventory. Fair market value for the property, relocation benefits and compensation would be provided by the Uniform Relocation Assistance and Real Property Acquisition Act of 1970.

The levee improvements on the American and Sacramento Rivers will reduce the risk of flooding in existing communities and will not provide any new protection to undeveloped areas in Sacramento County. The Proposed Action will not result in new development within the floodplain nor will it cause the need for additional housing.

There may be short-term and minor beneficial impacts to the economy and population during the construction season. Construction workers will be needed for 2 years to develop these sites. A short-term increase in job availability will benefit the population and economy. An influx of workers in the area will place higher demand of goods and services. The Proposed Action on the American and Sacramento River contracts are located in urban areas so current Sacramento residents will commute to the Site daily and there will not be a need to develop new housing.

NEPA Effects Determination (Design Refinements): Short-term and potentially beneficial effects that are Less than Significant

The Proposed Action as described in the ARCF GRR FEIS/EIR lacks two components that are considered a Design Refinement in this Comprehensive SEIS/SEIR. American River Erosion Contract 4A and 4B was developed to reduce the risk that high velocity flood waters could scour the levee around the State Route (SR)-160 bridge piers and destabilize the levee. American River Contract 4A consists of an armored berms on the water side of the levee near river mile 2.0, near Del Paso Boulevard in the American River Parkway. The surrounding land use consists of relatively undisturbed riparian habitat along the American River with oak woodlands, wetlands, and ruderal grasslands towards the levee and business parks along Commerce Circle. The Jedidiah Smith Memorial Bike Trail runs under SR-160 and intersect the proposed project footprint.

The Proposed Action at American River Erosion Contract 4A protects existing levees and does not provide flood risk reduction to areas previously unprotected from the risk of flooding. This levee improvement will not induce substantial development between the levee and the American River because this land is protected from development by the American River Parkway Plan (Sacramento County, 2008).

2.6-b Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

CEQA Significance Conclusion: Less than Significant.

NEPA Significance Conclusion: Long-term and Minor to Moderate effects that are Less than Significant with Mitigation.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

One residence is present on the ARMS and would be removed prior to construction of the project improvements. The removal of a single residence does not constitute a significant impact related to displacement of people or housing under CEQA, and this impact would be less than significant.

NEPA Effects Determination (Design Refinements): Long-term and Negligible effects that are Less than Significant with Mitigation

ARMS is a proposed Design Refinement, which means the area was not analyzed for socioeconomic impacts in the 2016 GRR EIS/EIR. Therefore, NEPA and CEQA analysis is identical. Due to the location and nature of the Proposed Action, there will be no substantial effects to population, housing, or the local economy.

The land being proposed for ARMS historically has an inhabited residence and active business adjacent to the parcel being acquired for the mitigation site. The non-Federal partners are responsible for these real estate transactions. The residence will remain on County of Sacramento property; however, the resident will be relocated. The single business would be relocated to a location determined by the owner. Fair market value for the property, relocation benefits and compensation would be provided by the Uniform Relocation Assistance and Real Property Acquisition Act (Uniform Act).

While the Proposed Action at ARMS would result in the displacement of a single residence, this would not be considered a substantial displacement of people or housing. Mitigation Measure SOCIO-1 would reduce the impact to Less than Significant.

Mitigation Measure SOCIO-1: Uniform Relocation Assistance and Real Property Acquisition Act

Private properties within the footprint of the Proposed Action would be acquired for project construction in compliance with the 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 may be provided upon the acquisition of real property.

Timing: Before construction

Responsibility: USACE and Project Partners

The potential long-term impacts associated with property acquisition needed for the project construction would be mitigated to less than significant with implementation of Mitigation Measure SOCIO-1, which was previously adopted for the ARCF 2016 Project.

Magpie Creek Improvements

CEQA Impact Conclusion (Entire Proposed Action): No Impact

There are no residences present within the MCP project site and there would be no impact related to displacement of residences or people under CEQA.

NEPA Effects Determination (Design Refinements): Long-term and Minor to Moderate effects that are Less than Significant with Mitigation

The NEPA No Action Alternative for Magpie Creek contained a culvert installation. The culvert installation would have no impact on socioeconomic conditions. All other components (channel clearing and realignment, levee raise, new levee and crossing structure) of the Improvements are proposed Design Refinements; therefore, the analysis for both the CEQA and NEPA are combined and resulting conclusions are similar.

The Proposed Action primarily occurs along the existing MCDC. The land surrounding the MCDC is open space to the south where channel overtopping spills west to Robla Creek. Along Vinci Avenue and Dry Creek Road, the northern portion of the project, the land is developed with larger residential properties and businesses, such as wholesalers, equipment and truck rental facilities, and small firms. Some land is in agricultural production. To widen the channel and improve the levee with slope flattening, some private land will be acquired by the non-Federal partners. No residents or businesses will be displaced. However, small outbuilding and retaining wall type structures may be removed on private properties. Additionally, parking spaces and concrete may need to be removed from local businesses. Some farmlands would be converted to levee improvements. The conversions of private property to levee improvements is a moderate impact and has the potential to reduce the ability of the homeowners or business to continue to operate when compared to the No Project or No Action Alternative.

The Proposed Action would not require substantial displacement requiring construction of replacement housing or temporary business space. USACE and the non-Federal partners would prioritize using undeveloped lands to the greatest extent practicable. Fair market value for the property and compensation would be provided by the Uniform Act with Mitigation Measure SOCIO-1, reducing the impact to Less than Significant.

American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

The levee improvements on the American and Sacramento Rivers will reduce the risk of flooding in existing communities and will not provide any new protection to undeveloped areas in Sacramento County. As can be seen from Figure 2.6-1, these urban communities in the Pocket and along the American River have higher median incomes than within the heart of the City of Sacramento. Due to higher incomes, the residents in these communities are not considered vulnerable to displacement (Figure 2.6-2).

With the levee improvements in the Proposed Action, construction activities only include erosion protection on existing levees. Therefore, no new lands are needed for construction, except for temporary staging areas of equipment and trailers. USACE and the non-Federal partners would prioritize using lands that are not developed to reduce the likelihood of displacing residents or removing housing from the existing inventory. Fair market value for the property, relocation benefits and compensation would be provided.

During construction there may be displacement of unhoused people who may be living within the project footprint. Under local ordinance Sacramento City Code Chapter 8.140, USACE, the non-Federal partners and the local levee maintaining agency have authority to prohibit camping of levees and within 25 feet of levees to avoid damage to critical infrastructure and to ensure that levees can be easily inspected and maintained. The local agency requirements will be implemented under the Proposed Action. The removal of encampments within the construction footprint would prevent threats to public health, safety, and welfare of communities from increased risk of flooding due to potential damage of critical levee infrastructure. Additionally, the removal of encampments is needed to ensure the safety of the unhoused population during active construction. Encampments with the Proposed Action footprint are subject to removal regardless of USACE action to implement the Proposed Action.

NEPA Effects Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant

The Proposed Action as described in the ARCF GRR FEIS/EIR is generally lacking two components that are a proposed Design Refinement in this Comprehensive SEIS/SEIR, American River Erosion Contract 4A and 4B. There are populations of unhoused people seasonally in the Parkway under the SR160 bridge. During construction there may be temporary displacement of unhoused people. Services for those displaced are offered by both the City of Sacramento and Sacramento County.

Alternatives Comparison

Alternative 3a through 3d

Alternative 3a through 3d include alternative designs for improvements to the American River 4A Project Component. All alternatives would be constrained within the construction buffer limits of the Proposed Action. Spatial constraints include the SR160 bridge to the northwest, the existing levee to the north and the American River to the south. All other project components (American River 3B, Sacramento River, Magpie Creek, Sacramento River Mitigation, American River Mitigation, Piezometer Network) would have the same effects as the Proposed Action.

Alternative 3a would be similar to the Proposed Action, but instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers. The material and equipment needed for this work would be substantially less than the Proposed Action because a bike trail reroute would not be required. Alternative 3a would require real estate acquisition of Union Pacific Railroad (UPRR) property.

Alternative 3b would be similar to the Proposed Action but would require a differing permanent bike trail reroute. The route following the railroad would be slightly longer than the Proposed Action and would require some vegetation trimming, clearing, regrading, and paving.

Alternative 3c would be similar to the Proposed Action but would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving and possible construction of a bridge. This alternative would require temporary closure of the bike trail and require temporary detours.

Alternative 3d would be similar to the Proposed Action, except that the permanent bike trail route would be a paved bike trail closer to the river along an existing off-road bike trail. Installing this route would require some vegetation trimming, vegetation clearing, regrading, and paving.

None of these alternatives would increase effects to socioeconomic conditions when compared to the Proposed Action. There is no existing housing in this area of the American River Parkway. While the area is heavily recreated by bicyclists, no permanent populations live in the area legally. Construction may have temporary effects on local business due to increased traffic and noise. However, when compared to the No Action Alternative, this heavily trafficked area near SR160 contains major roads like Del Paso Boulevard, Northgate Boulevard, and the Arden-Garden Connector, as well as the UPRR crossing. Therefore, construction related disturbances would not be a significant impact.

Table 2.6-4. Alternative 3a through 3d Effects on Socioeconomic Conditions

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a Induce substantial population growth in an area	American River Erosion Contract 4A	Similar to the Proposed Action, these alternatives protect existing levees and do not provide flood risk reduction to areas previously unprotected from the risk of flooding. This levee improvement would not induce substantial development between the levee and the American River because this land is protected from development by the American River Parkway Plan	N/A	Less than Significant	Long-term and Moderate effects that are Less than Significant

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-b Displace substantial numbers of people or existing housing	American River Erosion Contract 4A	Similar to the Proposed Action, temporary displacement of unhoused people may occur due to construction. Due to regulatory requirements for levee safety, removal of encampments is a part of ongoing maintenance. Therefore, the impact to unhoused people is not significant compared to the No Project or No Action Alternative. There are no homes currently and none expected to be developed due to location within the American River Parkway.	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b would include an alternative design for the American River Mitigation Site (ARMS) The alternative would be constrained to the same construction buffer limits as the Proposed Action. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, SRMS, Piezometer Network and Magpie Creek Project) would have the same effects as the Proposed Action.

Alternatives 4a and 4b would be similar to the Proposed Action except that the design would be changed to retain a portion of the existing pond, reducing the need for fill material and reducing the transportation, air quality, and GHG emissions impacts associated with filling the existing pond. A berm with a top width of 30-feet would be constructed to retain the western portion of the existing pond, and floodplain habitat would be constructed on the eastern portion of the site. The remnant pond would be approximately 30-acres in Alternative 4a, or 20-acres in Alternative 4b. Because this alternative would not provide space for the total area of mitigation required to address Project impacts, additional habitat mitigation elsewhere in the American River Parkway (likely Arden Pond) would need to be identified.

Table 2.6-5. Alternative 4a and 4b Effects on Socioeconomic Conditions

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
2.6-a Induce substantial population growth in an area	ARMS	Similar to the Proposed Action, Alternative 4a and 4b would not provide flood risk reduction benefits to the ARMS project site or other areas and would not induce population growth.	N/A	No Impact
2.6-b Displace substantial numbers of people or existing housing	ARMS	Similar to the Proposed Action, Alternative 4a and 4b would require the relocation of a single residence. There would be no significant impact related to displacement of people or housing.	N/A	Less than Significant

Alternative 5a

Alternative 5a would eliminate the need to construct the Sacramento River Mitigation Site. This alternative includes the purchase of all remaining, required mitigation credits from Service Approved Conservation Banks, whose service areas cover the ARCF project impacts. There would be no additional resources impacts. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and Magpie Creek Project) would have the same effects as the Proposed Action.

Table 2.6-6. Alternative 5a Effects on Socioeconomic Conditions

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a Induce substantial population growth in an area	Approved Conservation Banks	Similar to the Proposed Action, Alternative 5a would not cause substantial population growth. Alternative 5a would have no effect on the local economy or induce any population growth.	N/A	No Impact	No Impact
2.6-b Displace substantial numbers of people or existing housing	Approved Conservation Banks	Similar to the Proposed Action, Alternative 5a would have no effect on housing or population.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would complete the Sacramento River Mitigation needs by constructing a mitigation site at Watermark Farms. This alternative would replace the Proposed Action mitigation alternative for SRMS. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network, and Magpie Creek Project) would have the same effects as the Proposed Action.

Watermark Farms is privately owned and located within Yolo County, from River Mile 50.5 to River Mile 51.25 and includes the waterside of the levee to landside toe, and adjacent existing farmland. Watermark Farms is on the right bank of the Sacramento River across from the Pocket neighborhood and can be accessed from South River Road. The conceptual design is to restore approximately 227 acres of riverine and floodplain habitat by breaching the existing levee and creating a new setback levee and secondary channel. This floodplain and shallow-water habitat would provide suitable habitat for salmonid species, green sturgeon and Delta smelt.

Table 2.6-7. Alternative 5b Effects on Socioeconomic Conditions

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a Induce substantial population growth in an area	SRMS (Watermark Farms)	Similar to the Proposed Action, Alternative 9 would not induce substantial population growth. The mitigation site would not be accessible to the public, nor make any new lands available for development. During the three-season construction window, there would be a temporary local economy boost.	N/A	No Impact	No Impact
2.6-b Displace substantial numbers of people or existing housing	SRMS (Watermark Farms)	Similar to the Proposed Action, Alternative 9 would have no effect on housing or population. The land is being actively farmed and there are no existing homes or residents.	N/A	No Impact	No Impact

Alternative 5c

Alternative 5c combines three approaches to complete the Comprehensive ARCF Sacramento River Mitigation requirements. The SRMS would not be constructed. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A and 4B, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and Magpie Creek Project) would have the same effects as the Proposed Action.

Mitigation for impacts along the Sacramento River would be addressed by completing three actions:

1. Purchasing Delta Smelt Conservation Bank Credits from USFWS approved banks.
2. Providing funding for the Sunset Pumps Project to remove an existing rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon and steelhead.
3. Providing funding for the Sunset Pumps Project riparian mitigation requirements.

Purchasing mitigation credits would have no impact on socioeconomic resources. The Sunset Pumps Project will be evaluated under NEPA and CEQA by the Project Proponents, including DWR, USFWS and BOR. Therefore, no analysis for the partial to full funding of construction of the Sunset Pumps Project is needed in this SEIS/SEIR.

Table 2.6-8. Alternative 5c Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
2.6-a Induce substantial population growth in an area	SRMS (Approved Conservation Banks and Sunset Pumps)	Similar to the Proposed Action, Alternative 5a would not cause substantial population growth. Alternative 5a would have no effect on the local economy or induce any population growth.	N/A	No Impact	No Impact
2.6-b Displace substantial numbers of people or existing housing	SRMS (Approved Conservation Banks and Sunset Pumps)	Similar to the Proposed Action, Alternative 5a would have no effect on housing or population.	N/A	No Impact	No Impact

3.1 Aesthetics and Visual Resources

3.1.1 Existing Conditions/Affected Environment

Visual Character

The environmental setting described in Section 3.15.1 of the ARCF GRR Final EIS/EIR covering visual resources is generally applicable to the visual character of the project site. Generally, the ARCF GRR Final EIS/EIR describes the American River area as a highly-valued, natural riparian woodland setting with a feeling of serenity amid a developed urban area. The ARCF GRR Final EIS/EIR describes the Sacramento River area as a narrow riparian corridor. The ARCF GRR Final EIS/EIR describes Magpie Creek as open space with some small ranchettes and light industrial uses.

Since the publication of the ARCF GRR Final EIS/EIR, local community parks have been added to the project site for staging areas and general access: Larchmont Community Park, University Park, Oak Meadow Park, Glenbrook Park River Access, Garcia Bend Park, Miller Regional Park, Camp Pollock, the Dry Creek Parkway, and Walter S Ueda Parkway. The visual character of these parks is generally high. Overall, these parks have many trees and grassy fields that bring a green and lush view compared to the surrounding suburban development. These parks provide a contrast to the urbanized and suburban views that are more typical in the region. Some of these parks (specifically University Park, Oak Meadow Park, and Glenbrook Park River Access) are under large powerlines, which detract from the natural setting.

The American River Mitigation Site (ARMS) is in the American River Parkway and generally includes elements of visual character described in the ARCF GRR Final EIS/EIR for the American River. The American River area is a highly valued, natural riparian woodland setting with a feeling of serenity in the midst of a developed urban area. However, the project site for the ARMS includes a former sand and gravel mine pond surrounded by grassy areas, which was not described in the ARCF GRR Final EIS/EIR. The existing condition on the ARMS includes a single-family house and industrial elements such as shipping containers, heavy trucks, and equipment. The visual character of the western portion of the ARMS is not consistent with the natural character present elsewhere on the American River Parkway.

The Sacramento River Mitigation Site (SRMS), which was not included in the ARCF GRR Final EIS/EIR, consists of a mix of riparian forest, open grassy areas with disbursed shrubs, dispersed early successional vegetation areas, interior sandy flats, and sandy beaches.

Viewer Sensitivity

The environmental setting described in Section 3.15.1 of the ARCF GRR Final EIS/EIR covering visual resources is generally applicable to the viewer sensitivity of the proposed action. The ARCF GRR Final EIS/EIR describes the main viewer groups in the American River area as residents living near the levee, travelers crossing bridges over the American River, recreational users in the American River Parkway, and boaters on the American River. Only residences with two story homes have views of the American River and adjacent riparian land. Those recreating in the American River Parkway or on the American River see riparian forests and general open space lands. Overall, the ARMS, which was not described in the ARCF GRR Final EIS/EIR, has

a slightly different viewer sensitivity than the rest of the American River Parkway. The ARMS is privately owned, so recreational viewers are currently limited to those along the Jedediah Smith Memorial Trail, those recreating at Camp Pollock, those recreating at Discovery Park, or on other adjacent public areas of the American River Parkway.

The main viewer groups described in the ARCF GRR Final EIS/EIR for the Sacramento River include residents living near the levee, travelers crossing bridges over the Sacramento River, recreational users on existing bike paths, and boaters on the Sacramento River. Much of the Sacramento River levee access has been closed off by private gates and fences across the levees, preventing access by recreationalists, so most of the viewers of this area have been residents and boaters, although the City of Sacramento has expanded the portions of the levee that are open to recreational use with the extension of the Sacramento River Parkway.

Finally, the ARCF GRR Final EIS/EIR described the main viewer group at the Magpie Creek Project (MCP) site as local residents. The levee structure is low relative to the landscape and hard to define from the viewer's perspective.

As discussed previously, some local parks were added to the project site during design refinements and were not discussed in the ARCF GRR Final EIS/EIR. The main viewer groups of these parks are those living in the nearby neighborhoods. In addition, residences nearby the parks would have natural views of the parks. Some parks have features that may additionally draw recreationalist from outside nearby neighborhoods. Discovery Park hosts big event such as concerts, which draw in people from far distances. Camp Pollock hosts smaller events such as weddings which could also draw people from far distances. Larchmont Community Park and Garcia Bend Park have soccer fields and host soccer league that draw people from around Sacramento County. In addition, Garcia Bend Park, Miller Park, and Watt Avenue Boat Launch are popular boat launches that draw people from all over Sacramento County.

The SRMS, which was not included in the ARCF GRR Final EIS/EIR, would be viewed by boaters, those driving on State Route (SR) 160 and SR 84, those bicycling along SR 84 and those recreating at the Hidden Harbor Marina. Most of the views along both SR 160 and 84 are blocked by vegetation along the roads, but drivers can see the water side of the levee of the SRMS and associated riparian forest and sandy beaches on the shore of the SRMS, through gaps in the vegetation. Those using the Hidden Harbor Marina have a view of the northern shore of the SRMS, including associated riparian forest and sandy beaches. Boaters would have a view of both the northern and southern shores of the SRMS.

Scenic Vistas, Byways, and Highways

For this SEIS/SEIR, scenic vistas are considered areas designated as having important scenic views needing protection. Scenic byways are roads recognized by the Federal Highway Administration as having archeological, cultural, historic, natural, recreational, or scenic qualities (FHWA 2023a). Scenic highways in California, which are managed by the California Department of Transportation, are highways designated as scenic to add to the pleasure of residents and to encourage growth of recreation and tourism industries (California Department of Transportation 2023). SR 160 is listed as a State scenic highway from the Contra Costa County boundary to the Sacramento City boundary (California State & Highway Code § 263.7). California scenic highways are protected through local governing bodies through a corridor

protection program. The corridor protection programs are set up by the local governing bodies and protect the views of the scenic highways through “ regulation of land use and density of development (i.e., density classifications and types of allowable land uses); detailed land and site planning (i.e., permit or design review authority and regulations for the review of proposed developments), control of outdoor advertising (i.e., prohibition of off-premise advertising signs³ and control of on-premise advertising signs), Careful attention to and control of earthmoving and landscaping (i.e., grading ordinances, grading permit requirements, design review authority, landscaping and vegetation requirements), and the design and appearance of structures and equipment (i.e., design review authority and regulations for the placement of utility structures, microwave receptors, wireless communication towers, etc.)” (Caltrans 2008 pages 5-6). SR 160 is designated as a State scenic highway starting approximately 0.4 mile downstream of the southern portion of the Sacramento River Erosion Contract 3, and work at the Sacramento River Erosion Contract 3 site would not be visible from SR 160. SR 160 follows the Sacramento River downstream and is still designated as a Scenic Highway when it is on the opposite bank of the SRMS. The SRM would be visible from SR 160. There are no National scenic byways near the project site (FHWA 2023b). The City of Sacramento considers the views of the American River and the Sacramento River to be scenic views that need to be protected (City of Sacramento 2015,). There are no California Department of Transportation designated scenic vista points near the project site (California Department of Technology 2022).

Existing Visual Resources

Overall, the American River has natural views with grassy areas, dense riparian forests, and in some areas, large heritage oaks (Figure 3.1.1-1, Figure 3.1.1-2, Figure 3.1.1-3, Figure 3.1.1-4, and Figure 3.1.1-5). The Sacramento River project site similarly has natural views of riparian forest and grassy areas with some scattered infrastructure for river access (Figure 3.1.1-6, Figure 3.1.1-17). The SRMS has natural views with a mix of grassy areas, sandy areas, and riparian forest (Figure 3.1.1-7 and Figure 3.1.1-8). The MCP area is mostly grassy areas with industrial scenery scattered throughout the natural views (Figure 3.1.1-9). Local parks within the project site generally have maintained grassy fields and scattered trees (Figure 3.1.1-10, Figure 3.1.1-11, Figure 3.1.1-12, Figure 3.1.1-13, Figure 3.1.1-14, and Figure 3.1.1-15). The exception is Camp Pollock, which has views of dense riparian forest, large heritage trees, and a rustic building (Figure 3.1.1-16).



Source: PSOMAS 2020

Figure 3.1.1-1 View of Jedediah Smith Memorial Trail from the American River Erosion Contract 3B North Site 3-1



Source: Bailey Hunter 2021

Figure 3.1.1-2 American River View from the American River Erosion Contract 3B South Site 4-1



Source: Bailey Hunter 2022

Figure 3.1.1-3 View of Jedediah Smith Memorial Trail from the American River Erosion Contract 3B North Site 4-2



Source: Bailey Hunter 2022

Figure 3.1.1-4 View under the SR 160 Bridges from the American River Erosion Contract 4A Site



Source: Kevin Fellows 2023

Figure 3.1.1-5 View of American River Mitigation Site



Source: Melissa Dyer 2022

Figure 3.1.1-6 View of Sacramento Contract 3 Site



Source: Nicky Schleeter 2022

Figure 3.1.1-7 View from Grand Island Facing Steamboat Slough



Source: Nicky Schleeter 2022

Figure 3.1.1-8 View of Grand Island Facing Inland



Source: Blake Prawl 2023

Figure 3.1.1-9 View of Magpie Creek



Source: Bailey Hunter 2023

Figure 3.1.1-10 View of University Park



Source: Bailey Hunter 2023

Figure 3.1.1-11 View of Glenbrook Park River Access



Source: Bailey Hunter 2023

Figure 3.1.1-12 View of Oak Meadow Park



Source: Trevor Kough 2022

Figure 3.1.1-13 View of Larchmont Community Park



Source: Bailey Hunter 2023

Figure 3.1.1-14 View of Garcia Bend Park



Source: Bailey Hunter 2023

Figure 3.1.1-15 View of Miller Park



Source: Bailey Hunter 2023

Figure 3.1.1-16 View of Camp Pollock



Source: Bailey Hunter 2023

Figure 3.1.1-17 View of the Sacramento River Parkway

3.1.2 Applicable Laws, Regulations, Policies, and Plans

Federal

National Wild and Scenic Rivers Act (16 U.S.C. 1271 et. seq.)

This act was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the National Wild and Scenic Rivers System since 1981. The Lower American River was listed for having outstandingly remarkable values for anadromous fishery resources and recreation. Visual impacts that disturb the recreational values for which the Lower American River was included in the National System would not comply with the National Wild and Scenic Rivers Act. The National Wild and Scenic Rivers Act applies to the components of the Proposed Action along the American River, specifically all construction work and some staging associated with American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, and the ARMS.

State

California Wild and Scenic Rivers Act (PRC Section 5093.545h.)

This act was put in place to preserve certain rivers that have extraordinary recreational, scenic, fishery, or wildlife values. The Lower American River between Nimbus Dam and where the American River intersects with the Sacramento River has been designated under the California Wild and Scenic Rivers Act for extraordinary recreational values. Visual impacts that disturb the recreational values for which the Lower American River was included in the California Wild and

Scenic Rivers System would not comply with the California Wild and Scenic Rivers Act. The California Wild and Scenic Rivers Act applies to the parts of the Proposed Action along the American River, specifically all construction work and some staging associated with American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, and the ARMS.

Local

City of Sacramento 2035 General Plan – Environmental Resources

Approved on March 3, 2015, the City of Sacramento 2035 General Plan is a comprehensive plan that directs the City of Sacramento on future land use, development, and environmental protection. Part Two of the General Plan lists the environmental resources that are to be protected. Goal ER 7 outlines the policies put in place to protect visual resources (City of Sacramento 2015). These policies include protecting scenic views, developing complementing natural settings, minimizing unnecessary lighting, and directing lighting downward (City of Sacramento 2015).

Planning and Development Code of the City of Sacramento

Made effective September 30, 2013, Chapter 17 of the City of Sacramento Ordinance Code, titled Planning and Development Code, implements the policies of the City of Sacramento 2035 General Plan (City of Sacramento 2013, 17.100.010). The Flood (F) zone requires special developments within areas with the F zone to enhance the appearance of the river (City of Sacramento 2013, 17.200.310). The Sacramento River Erosion Contract 3 and a small portion of American River Erosion Contract 3B North are within the F zone. All other zones (Light Industrial [M-1], Standard Single Family [R-1], Single Family Alternative [R-1A], Agricultural [A], American River Parkway [ARP-F] and Transportation Center [TC]), within the project sites do not specify visual requirements.

Sacramento County General Plan of 2005 to 2030, Open Space Element

Adopted November 9, 2011, the Sacramento County General Plan of 2005 to 2030 outlines the goals, objectives, and policies for future development in the unincorporated areas of Sacramento County. The Open Space element, which was updated November 26, 2017, discusses that open space is important for providing a visual relief from urban sprawl. Policies listed to protect open space include maintaining open space, promoting education programs for natural resources and agriculture, following the Open Space Vision Diagram to prioritize open space acquisition, maintaining a regional park standard of 20 acres per 1,000 population, establishing trail connections, establishing greenbelts, and permitting development clustering in a manner that protects scenic areas (Sacramento County 2017).

Sacramento County Zoning Code

Made effective on September 25, 2015, and amended January 13, 2023, the Sacramento County zoning code implements the policies of the Sacramento County General Plan of 2005 to 2030. The Parkway Corridor (PC) zoning district was established to limit visual impacts to the American River Parkway (Sacramento County 2023, page 2-6). The PC zoning district limits how close structures can get to the levees and the height of buildings by levees to minimize impacts on the American River Parkway (Sacramento County 2023 page 4-25). Part of American

River Erosion Contract 3B North falls under the PC zoning district. In addition, the Sacramento River along the SRMS falls under Scenic Areas (DW-S). In addition, the Recreation (O) zoning district was established to protect the scenic areas of Sacramento County. Some staging and access sites of American River Erosion Contract 3B North and 3B South would be in the O zoning district. In addition, SRMS is in the O zoning district. No other zoning districts in the project site (Multiple Family Residential [RD-20], and Residential [RD-5]) list visual requirements. The Sacramento County Zoning code also defines a scenic corridor as a strip of land on each side of a stream or roadway which is generally visible to the public (Sacramento County 2023, page 4-47). The Sacramento County Zoning code defines the scenic corridor for a scenic highway as 500 feet from each side of the center line (Sacramento County 2023, page 4-47).

3.1.3 Analysis of Environmental Effects

3.1.3.1 Analysis Methodology

The evaluation of potential impacts relied on location descriptions of scenic highway locations from the California Streets and Highways Code § 263.7, spatial data of locations of scenic vistas from the California Department of Transportation (California Department of Technology 2022), information from the City of Sacramento 2035 General Plan and the Sacramento County General Plan of 2008 to 2030, the Planning and Development Code of the City of Sacramento, knowledge of the site, site photos, and Google Earth imagery.

The Federal Highway Administration provides guidelines on how to assess visual impacts of highway projects (FHWA 2015). Per the guidelines, a visual analysis must include the visual compatibility, viewer sensitivity, and visual quality. These factors were considered when analyzing the visual impacts of the Proposed Action and alternatives.

Scoping Comments

Comments submitted in response to the Notice of Intent (NOI) were reviewed for relevance to the analysis of environmental consequences and development of mitigation measures. A letter was received during the Scoping period from the Park Planning and Development Manager for the Cordova Recreation and Park District (Taylor 2022). This letter outlined concerns of visual effects associated with use of Larchmont Community Park as a staging area and impacts on the levee, which is viewable from Larchmont Community Park. These comments were considered during the analysis.

3.1.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g) and State CEQA Guidelines, as amended. The alternatives under consideration were determined to result in a significant impact related to aesthetics/visual resources if they would do any of the following:

- a. have a substantial adverse effect on a scenic vista;

- b. damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- c. result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality;
- d. create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.1.3.3 Effects Analysis

No Action Alternative

Work done under the No Action Alternative would involve tree removal, ground disturbance, and the use of construction equipment. Construction activities would result in short-term significant direct impacts on the visual tranquility of the American River Parkway due to construction equipment regularly in the American River Parkway over 10 years. Loss of vegetation along the American River, due to tree removal and construction of levee improvements, would result in significant short-term effects on visual resources of the mature vegetation, but a minor long-term impact on visual resources because trees would be left onsite and augmented by the addition of onsite mitigation plantings. Similarly, there would be a short-term significant direct impact on visual resources along the Sacramento River due to construction equipment on the levees over several years that would be visible to residents and boaters. In addition, there would be a short-term significant impact on visual resources due to vegetation removal along the Sacramento River. Since proposed work for the MCP would only be one season, and since the MCP is not located in an area used for recreation or where viewer sensitivity is high, the flood risk reduction work on the MCP would create short-term, less-than-significant impacts on visual resources.

The short-term significant impacts along the American and Sacramento Rivers would be significant and unavoidable as there are no feasible mitigation measures available to reduce visual impacts during construction activities. The long-term significant impacts on visual resources along the American and Sacramento Rivers would be reduced to less-than-significant impacts with implementation of mitigation measures listed in Section 3.15.6 of the ARCF GRR Final EIS/EIR, which would enhance vegetation regrowth and create a more natural view.

Proposed Action

3.1-a Have a substantial adverse effect on a scenic vista

CEQA Significance Conclusion: Short- and Long-term Significant and Unavoidable.

NEPA Significance Conclusion: Short- and Long-term Significant and Unavoidable.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

The area around the MCP is not considered a scenic vista. The Proposed Action would consequently not impact scenic vistas at the MCP site.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated.

The City of Sacramento General Plan describes the American and Sacramento Rivers as having important scenic views that need to be protected (City of Sacramento 2015). All projects along the American and Sacramento Rivers within the ARCF 2016 Project would have some sort of disturbance to river views. There would be construction equipment, ground-disturbing activities, and tree removal during construction. Appendix B 4.1 provides more details on vegetation removed. The collective disturbance associated with construction and tree removal would significantly change the scenic views along the American and Sacramento Rivers during construction. Work cannot be completed without ground disturbance and tree removal, so this effect is unavoidable. Implementing Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project, listed under Appendix B 4.1 of this SEIS/SEIR would allow for vegetation and trees to grow back along the American River and parts of the Sacramento River. Impacts on scenic views along the American River would be less than significant over time once vegetation establishes, making impacts to scenic views from construction along the American River short-term significant and unavoidable. In addition, as vegetation grows along the SRMS, impacts would become less than significant over time, although short-term visual impacts associated with the SRMS would be significant and unavoidable as no feasible mitigation is available.

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife”, for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less Than Significant.

The discussion on scenic vistas listed above under the CEQA Impact Conclusion is applicable for NEPA as well. There would be a direct short-term significant and unavoidable impact on scenic vistas. Once Mitigation Measure VEG-2 is implemented and vegetation establishes there would be a direct long-term, less-than-significant impact (long-term and moderate impact for the purposes of NEPA) on scenic vistas as the riparian plantings mature.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Short- and Long-term Less Than Significant.

The City of Sacramento General Plan describes the American and Sacramento Rivers as having important scenic views that need to be protected (City of Sacramento 2015). All projects along the American and Sacramento Rivers within the ARCF 2016 Project would have some sort of disturbance to the river views. There would be construction equipment, ground-disturbing activities, and tree removal during construction. Appendix B 4.1 provides more details on vegetation removed. Woody vegetation may not be replanted at the site once work is finished since woody roots could risk failure of the berm. The berm associated with American River Erosion Contract 4A, however, is approximately 1 acre of the 7,000 acres (Sacramento County 2023a) the American River Parkway is made up of. In addition, the location of the berm is next to the SR 160 bridges and the UPRR bridge. Generally, the visual character of the specific location of the proposed berm is not high due to the bridges. Construction of the bike trail re-route would also not change the scenic views of the American River as there are already existing paved bike trails along the American River. Areas disturbed from American River Erosion Contract 4A work would be reseeded with native grasses and revegetated where feasible. Since the preexisting views of the area are grassy from the existing levees with views of the bridges, creating additional grassy views along the constructed berm would not be detrimental to the localized views at this site. Construction of the erosion protection work and rerouted bike trail would create a short- and long-term, less-than-significant impact on the scenic views of the American River.

NEPA Impact Conclusion (Design Refinements): Short- and Long-term Minor to Moderate effects that are Less than Significant.

The discussion of scenic vistas listed above under the CEQA Impact Conclusion is applicable for NEPA as well. There would be a direct short-term and long-term but negligible impact that is less-than-significant on scenic vistas since the localized views of the area would generally match the views of the American River Erosion Contract 4A work once grasses establish. Construction of the erosion protection component design refinements, and rerouted bike trail, would create a direct less-than-significant impact on the short- and long-term scenic views of the American River.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Short- and Long-term Significant and Unavoidable.

The City of Sacramento General Plan describes the Sacramento River as having important scenic views that need to be protected (City of Sacramento 2015). As with Sacramento River Mitigation, the disturbance associated with construction and trees removed would be significant and significantly change the scenic views along the Sacramento Rivers during construction (short term) and long-term.

The erosion protection features along the Sacramento River could not be designed in a manner that would allow planting benches along the whole project and in a manner that would meet flood risk reduction objectives. Planting benches would only be built along less than 25 percent of the riverbank along the Sacramento River Erosion Contract 3 site. All other locations would only be hydroseeded. Previous flood risk reduction projects along the Sacramento River with revetment have seen success with natural plant recruitment, so vegetation may reestablish along areas without planting benches. However, permanent removal of the vegetation would cause impacts to the scenic views along the Sacramento River that would be long-term. Because there is no feasible mitigation available to avoid or reduce these impacts, the short- and long-term visual impacts from construction and tree removal would be significant and unavoidable.

NEPA Impact Conclusion (Design Refinements): Short- and Long-term Significant and Unavoidable.

The discussion on scenic vistas listed above under the CEQA Impact Conclusion is applicable for NEPA as well for the Sacramento River Erosion Contract 3 component design refinements. There would be a direct short- and long-term significant and unavoidable impact on scenic vistas along the Sacramento River.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Short- and Long-term Less than Significant

The City of Sacramento General Plan describes the American and Sacramento Rivers as having important scenic views that need to be protected (City of Sacramento 2015). Piezometers would be installed along the Sacramento and American Rivers. Infrastructure for the Piezometer Network would be placed on top of the levee or on the landside of the levee. Infrastructure associated with the Piezometer Network would be small. Small antennae or feathers would be installed, a small (approximately 12 inch) utility cover would be installed. Each group of piezometers would likely have above-ground infrastructure associated with the telemetry. Each piezometer would also include a solar panel the size of those associated with call boxes along highways. The infrastructure associated with the Piezometer Network is generally small. In addition, there is other infrastructure such as sumps, fences, powerlines, paved bike trails, boat docks, and bathrooms along the levees already, so adding the piezometers would not look out of place. Because the infrastructure is small and would not look out of place due to existing infrastructure, there would be a less than significant impact on views.

Installation of the Piezometer Network would include drill rigs. These drill rigs would be visible to those recreating along the American and Sacramento Rivers. However, it is anticipated that two to three piezometers would be installed per day and approximately three to fifteen Piezometers would be installed at each project reach. Therefore, the drill rigs would not be in one place for a long time. Because the views of the drill rigs would be very temporary at specific locations along the Sacramento and American Rivers, there would be a less-than-significant impact to the scenic vistas of the Sacramento and American Rivers from the drill rigs.

The majority of the proposed staging areas are on the land side of the levee and would be blocked from the views of the American and Sacramento Rivers by the levee. However, some staging areas needed for the Piezometer Network installation are visible along the Sacramento and American Rivers. These staging areas are not anticipated to be used for long periods of time but could be needed for up to 4 months. Because most of the staging areas would not be visible along the Sacramento and American Rivers, and because those that are would not be used for more than 4 months, there would be a less-than-significant impact to the vistas of the Sacramento and American River.

NEPA Impact Conclusion (Design Refinements): Short- and Long-term Minor Impact that would be Less than Significant.

The discussion on scenic vistas listed above under the CEQA Impact Conclusion is applicable for NEPA as well for the Piezometer Network. Because the infrastructure is small and would not look out of place due to existing infrastructure, there would be a minor impact that would be less than significant on views.

Because the views of the drill rigs would be very temporary at specific locations along the Sacramento and American Rivers, there would be a direct less-than-significant impact to the scenic vistas of the Sacramento and American Rivers. Because most of the staging areas would not be visible along the Sacramento and American Rivers, and because those that are would not be used for more than 4 months, there would be a direct less-than-significant impact to the vistas of the Sacramento and American River from the drill rigs.

3.1-b Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.

CEQA Significance Conclusion: Short-term Significant and Unavoidable; Long-term Less Than Significant.

NEPA Significance Conclusion: No Impact.

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

There are no State scenic highways or National scenic byways along the American River or the MCP and hence no scenic resources therein so there would be no impact. The Sacramento River Erosion Contract 3 footprint is 0.4 mile upstream from the portion of SR 160 that is designated a State scenic highway, and the railroad berm along SR 160 blocks the view of the river and the Sacramento River Erosion Contract 3 project site, so those driving along SR 160 would not be affected by temporary visual changes during construction. Because views are blocked, there would be no impact on scenic highways.

NEPA Impact Conclusion (Design Refinements): No Impact

There are no National scenic byways along the American River, Sacramento River, or the MCP, so there would be no impact on scenic byways.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant.

SR 160 travels along the Sacramento River near the SRMS and is listed as a State scenic highway at this location. The SRMS is on the opposite side of the Sacramento River. Generally, there is vegetation along SR 160 that blocks the view of the project site. There are gaps in some areas, and those driving on SR 160 would see regrading or disturbed soil for plantings done for bank mitigation work along the river. Regrading would cause a temporary change from the natural look of riparian vegetation to a less visually appealing view of disturbed soil with associated best management practice (BMP) materials needed to prevent storm water runoff such as silt fences and wattles. The visual effect from the regrading and replanting work would only last until the vegetation planted along the bank established, so there would be a direct short-term significant impact on visual resources. This short-term significant impact is unavoidable since disturbance is needed to revegetate the mitigation site and there are no feasible mitigation measures available to avoid or reduce this impact. Once vegetation matures and returns the visual quality of the site, the impacts on the visual character of the site would be less than significant.

NEPA Impact Conclusion (Design Refinements): No Impact

There are no National scenic byways along the Sacramento River so there would be no impact on scenic byways.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant

The Sacramento River flows along SR 160. In addition, the overall ARCF 2016 Project has components along the most northern portion of where SR 160 is designated as a scenic highway (specifically the footprint associated with Sacramento River East Levee (SREL) Contract 4). Piezometers could be installed at this location on top of the levee or on the land side of the levee in view of those driving along SR 160. Infrastructure associated with the Piezometer Network would be small. Small antennae or feathers would be installed, and a small (approximately 12 inch) utility cover would be installed. The solar panels the size of those associated with call boxes along highways could be installed for each piezometer. Up to 15 piezometers would be along a single reach (see Figure 3.5.7-1 in the SEIS/SEIR for reach locations). The infrastructure is small enough that it can be installed without removing or affecting vegetation, rocks, outcroppings, or other scenic visual resources. Because scenic resources like vegetation, rocks, and outcroppings would be left in place, the Piezometer work would not damage the scenic views of SR 160. There would be a less-than-significant impact to the views of scenic highways.

Some staging areas would be near the portion of SR 160 that it is designated a State scenic highway. The shoulder near Fremont bridge, the vacant lot near Bill Conlin Sports Complex, the vacant lot near Consumers River Boulevard, and the agricultural field near River Road are all already disturbed, and no new rocks, trees, outcroppings, or other scenic features would be impacted by use of the staging areas. Because there would be no new scenic features damaged at staging areas, there would be a less-than-significant impact from staging activities on the views along the scenic highway.

NEPA Impact Conclusion (Design Refinements): No Impact

There are no National scenic byways along the American or Sacramento Rivers so there would be no impact on scenic byways.

3.1-c Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

CEQA Significance Conclusion: Short- and Long-term Significant and Unavoidable.

NEPA Significance Conclusion: Short- and Long-term Significant and Unavoidable.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant

Generally, the view of the area would change due to the work associated with the MCP. Specifically, the levee would likely be slightly more distinguishable after it is raised and widened and vegetation is removed. The added levee at Raley Blvd, alignment change of Raley Blvd, new culvert at Raley Blvd, and added maintenance roads would be newly visible features in the area. In addition, during construction the area would temporarily look disturbed as work is completed. Vegetation would be removed near the levee and the area would only be replanted with native grasses. The parcels near the flood risk reduction work are zoned under the City of Sacramento Planning as light industrial (City of Sacramento Planning 2023). The zoning code for light industrial does not include any visual requirements or specifications. Given the marginal existing visual quality in this developed light industrial area, the construction-related and long-term impacts on visual resources would be less than significant.

The western-most staging area for the MCP would be within the Dry Creek Parkway and the Walter S Ueda Parkway. The staging area is also adjacent to the Sacramento Northern Bike Trail. Access to the staging area would be along a trail at the end of the Walter S Ueda Parkway. Use of the area for staging would disrupt the views of those using the Sacramento Northern Bike Trail and those using the trail in the Walter S Ueda Parkway as the views would include construction equipment, material storage, and would be different than the current views of a grassy field. Since these bikeways are recreational resources, the visual character of the area is

considered high. This view would be impacted over two years, but the area would be reseeded and returned to its original state after construction is complete. The size of disturbance would be limited to 0.1 mile of the 8.8 available miles of the Sacramento Northern Bike Trail and 0.25 mile of the 12.5 miles of trails available in the Walter S Ueda Parkway. The staging area would likely still be viewable farther along the trail, specifically from the north along the Sacramento Northern Bike Trail because the topography south of the staging area would block out the view and specifically farther west along the Walter S Ueda Parkway because the Walter S Ueda Parkway ends at the eastern edge of the staging area. However, this visible area would still be a small part of the recreational areas. Generally, raised roads and trees would block views of the staging areas. Because the impact on visual resources would be limited to a small part of the recreational resources, this impact to visual resources would be less than significant.

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less Than Significant

The ARCF GRR FEIS/EIR generally assessed the visual effect from flood risk reduction work in the MCP area and determined that there would be a less-than-significant impact since the original project area did not include many recreation, vegetation, or wildlife areas. The Proposed Action includes design refinements that were not included in the ARCF GRR FEIS/EIR. Specifically, the MCP area has been expanded and now includes a levee raise, levee extension, and construction of maintenance roads. These changes would add visually different features as compared with what is currently in the area. Overall, most of the area around the MCP has grassy views with industrial sites throughout the area. There are some homes in the northern section of the project area, just north of the MCP and the levee work could be visible from the backyard of these homes. In general, there are homes along the extended areas of the MCP. These homes are zoned by City of Sacramento Planning as light industrial (City of Sacramento Planning 2023); consequently, the visual character of this neighborhood is considered low due to the industrial character.

Construction and vegetation removal would affect the view from these residences. In addition, levee vegetation could block the residential views of the industrial properties on the south side of the MCP. However, the visual changes to the site would be less than significant because of the mostly industrial nature of the area, visual requirements for light industrial zoning do not exist, and the area is not considered to have high visual character and is not a destination for people who want a natural view. Additionally, the viewership of the area would be mostly residences within the 18 parcels with homes (City of Sacramento Planning 2023) along Magpie Creek. Consequentially, changes in views, both temporary and permanent from the Proposed Action, would create direct less-than-significant impacts (short-term and minor for NEPA purposes) to visual resources.

The ARCF GRR FEIS/EIR did not discuss staging areas. The discussion of visual impacts from staging under the CEQA Impact Conclusion applies to NEPA as well. Because the impact on visual resources would be limited to a small part of the recreational resources and because the visual impact would be limited to 2 years, this impact to visual resources would be direct less than significant (short-term and minor for NEPA purposes).

American River Erosion Contract 3B North and South

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The existing visual character along the American River is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. Disrupting the highly valued visual character of the American River with construction and a reduction of trees and riparian vegetation would cause a significant impact on visual resources. Appendix B 4.1 provides more details on vegetation removed. Because construction is only temporary, this would be a short-term significant impact to visual resources because the flood risk reduction work cannot be done without the construction equipment and disturbance. There is no feasible mitigation available to avoid or reduce this impact. Therefore, the short-term construction-related impacts would be significant and unavoidable.

A permanent reduction of trees and vegetation also would cause a short-term significant impact on visual resources. Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project and is listed under Appendix B Section 4.1 of this SEIS/SEIR, would be implemented to reduce this significant impact to a short-term significant and unavoidable impact since over time the vegetation would grow back and provide a natural visual character again. The construction footprint would be replanted in most areas where vegetation was cleared. Locations at access points within the vegetation free zone would not be replanted with woody vegetation and permanent O&M ramps would not be replanted with woody vegetation. In addition, there would not be replanting along tiebacks. However, the O&M ramps, tie backs, and vegetation free zone areas are only a small portion of the project site for American River Erosion Contract 3B North and South. There is no feasible mitigation available to reduce the short-term significant impact which therefore would be significant and unavoidable.

Many of the staging areas and access sites being used for the American River Erosion Contract 3B North and South include parks and recreational areas along the American River Parkway, specifically University Park, Oak Meadow Park, Watt Avenue Boat Launch, Larchmont Community Park, Kadema River Access, Estates River Access, Waterton Way River Access, and Glenbrook Park River Access would be affected by the proposed action. These recreation sites have high visual character and visual sensitivity since they provide a break for those wanting to escape urban viewsheds. Equipment frequently carrying material through or adjacent to these parks would have a significant impact on the viewshed and tranquility of those wanting to recreate. Though access and use of the staging areas would be designed to minimize tree removal, there may be some trees that must be removed in the parks to allow access and use of the park for staging areas. Likely, no more than 10 trees would need to be removed from any single park. Once work is over, new trees would be planted in place of any removed trees within parks. Larger trees may not feasibly be replaceable with similar-sized trees and would need to be replaced with younger trees. All trees removed and replaced would require consultation with the park managers to ensure appropriate tree species are placed in areas that meet the needs of the park. Trees removed along the levee could also have an impact on the viewshed of the parks, although trees would not be removed directly in front of Glenbrook Park River Access. In addition, a buffer of heritage oaks would be kept in place near both Oak Meadow Park and Larchmont Park, so the viewshed of trees from those parks would not be affected. There would

be a buffer of trees left around the Watt Ave Boat Ramp area near the riverbank which would provide some natural views, though some trees directly adjacent to the parking lot would be removed due to the location of the erosion protection features. Overall, there would be a short-term significant impact on the visual resources associated with these parks because of construction-related impacts and the time for tree replants to grow into equivalently sized trees compared to removed trees. Because there is no feasible mitigation available to reduce these impacts except for Mitigation Measure VEG-2, the loss of trees at staging areas and access sites would be a short-term significant and unavoidable impact. Long-term impacts related to tree removal would be significant, but with implementation of Mitigation Measure VEG-2, these impacts would be reduced to less than significant.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated.

The No Action Alternative assessed the flood risk reduction work impacts on visual resources along the American River. The extension of work in the American River Erosion Contract 3B North area would still occur in a similar viewshed with similar visual character and viewer sensitivity to what was analyzed in the No Action Alternative, so the design refinements that required new locations of work would not cause a new impact on visual resources. The total riparian habitat acreage impacted, 73 acres, on the American River by the ARCF 2016 Project is over the 65 acres discussed in the ARCF GRR FEIS/EIR. The acreage is higher than what was found in the ARCF GRR FEIS/EIR, and this impact would therefore remain short-term significant and unavoidable. As discussed in the ARCF GRR FEIS/EIR, use of launchable trench would completely remove trees and vegetation, but would be buried to allow for non-woody vegetation to be planted on top the launchable trench. In addition, the ARCF GRR FEIS/EIR discussed that bank protection would be placed around trees so trees could be saved but all vegetation under the canopy would be removed. Under the Proposed Action, some trees would need to be removed for launchable toe, launchable trench, and tie backs similarly to what was discussed in the ARCF GRR FEIS/EIR for launchable trench. Some trees would be saved where feasible similarly to what was discussed in the ARCF GRR FEIS/EIR for bank protection. In addition, use of tie backs on the upper portion of the slope at Site 4-1 were chosen because they would allow for the most trees to be saved. The ARCF GRR FEIS/EIR assumed that planting berms would be built for onsite plantings and planting benches are being installed for onsite plantings. In addition, soil-filled revetment would be used to allow portions of the bank protection areas without tie backs to be replanted. The new additional erosion protection methods for American River Erosion Contract 3B North and South are similar enough in method and location on the levee to the erosion protection methods described in the No Action Alternative that the visual impact from the design refinements would be similar to what was already analyzed in the No Action Alternative. Because the design refinements would not create new impacts on visual resources, there would be no direct impacts to visual resources along the American River under NEPA.

Many of the staging areas and access sites include parks and recreational areas along the American River Parkway. Some of these areas were not discussed as access points or staging areas in the ARCF GRR FEIS/EIR or previous NEPA documents. The discussion on visual impacts to these additional recreational areas above in the CEQA Impact Conclusion area

applicable to NEPA as well. Overall, there would be a short-term significant and unavoidable impact on the visual resources associated with these parks during construction. Long-term impacts from tree removal would be direct less than significant with implementation of Mitigation Measure VEG-2.

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife”, for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated.

As discussed under American River Erosion Contract 3B there is no feasible mitigation available to avoid or reduce this impact of disturbance caused by construction of the erosion protection work. Therefore, the short-term construction-related impacts would be significant and unavoidable. Unlike American River Erosion Contract 3B North and South, the erosion protection work associated with American River Erosion Contract 4B is almost completely within the vegetation free zone. USACE would seek a design deviation to avoid the removal of native trees from this zone, but there could be native trees that may need to be removed. Many of the trees associated with American River Erosion Contract 4B are heritage oaks and are considered an important part of the visual character of the area. If any of these trees have to be removed, there would be a significant degradation of the visual character in the area. Since the trees are located in the vegetation free zone, any tree that cannot be saved could not be replaced so the degradation would be long-term significant and unavoidable impact.

Similar to what is described under American River Erosion Contract 3B North and South, staging and access would occur in local parks. The effects determination would be the same for American River Erosion Contract 4B. Overall, there would be a short-term significant and unavoidable impact on the visual resources associated with these parks during construction. Long-term impacts from tree removal would be direct less than significant with implementation of Mitigation Measure VEG-2.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant with Mitigation Incorporated.

The 2016 ARCF GRR EIS/EIR already assessed that vegetation could need to be removed due to erosion protection activities. The erosion protection methods for tree scour and velocity work associated with American River Erosion Contract 4B (placing rock or revetment around trees) would be similar or less impactful than the bank protection erosion protection method (installing revetment along the riverbank or levee slope) discussed in the 2016 ARCF GRR EIS/EIR.

Consequently, the analysis under the 2016 ARCF GRR EIS/EIR applies to the Proposed Action. There would be no new impacts.

The 2016 ARCF GRR FEIS/EIR did not discuss access or staging. The CEQA discussion on impacts with staging and access are applicable for NEPA as well. Overall, there would be a short-term significant and unavoidable impact on the visual resources associated with these parks during construction. Long-term impacts from tree removal would be direct less than significant with implementation of Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project.

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife,” for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant

The existing visual character along the American River is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. Because of the visual character of the American River Parkway, a permanent reduction of trees and vegetation could cause a significant impact on visual resources. Appendix B 4.1 provides more details on vegetation removed. Overall, the erosion protection location is approximately 1 acre of the 7,000-acre American River Parkway, so tree removal would not be as drastic and noticeable. In addition, the location of the berm is adjacent to the SR 160 bridges and the UPRR bridge. Generally, the visual character of the specific location of the proposed berm is not high due to the bridges. When work is complete, areas would be reseeded with native grasses and, where feasible, the site would be replanted with vegetation. The existing visual character of the area includes grassy slopes due to the levee. Replanting the berm with grasses would match the visual character of the existing levee. Finally, the bike trail reroute would direct recreationalists away from the site, so the site would not be viewed as much. Since the project site is small, adjacent to bridges, and would become no longer visible from the Jedediah Smith Memorial Trail, the impact would be less than significant.

The addition of permanent rerouting of the bike trail would not change the visual character of the area since the bike reroute would generally follow an existing road. Paved bike trails are already part of the visual character of the American River Parkway. However, those using the bike trail would have a different visual experience than they would if the trail were not rerouted. In general, the view from the bike trail in the area is a grassy levee slope to the north and a riparian forest to the south (Figure 3.1.1-17). The view from the new route would include riparian forest from the north and grassy fields with powerlines to the south (Figure 3.1.1-18). The characteristics of both the current bike trail and the proposed reroute have elements of natural scenery (riparian forest) and unnatural elements (levee slope and powerlines) but the visual

character from the proposed bike trail reroute is not significantly different than the current visual character. There would be some tree trimming and may be some tree removal; however, only trees blocking the bike path would be removed and the overall view of the trees along the trail would remain and keep the riparian forest visual character intact. Because the visual character of the area would be little changed and since the view from the new proposed bike trail route would be comparatively similar to the current route, there would be a less-than-significant impact on visual resources in the area.



Source: Todd Rivas 2022

Figure 3.1.1-18 View from Existing Bike Trail



Source: Todd Rivas 2022

Figure 3.1.1-19 View from Proposed Bike Trail Reroute

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less Than Significant

The Proposed Action erosion protection methods are different enough from what was originally discussed in the ARCF GRR FEIS/EIR that replanting the site how the ARCF GRR FEIS/EIR described is likely not feasible. The discussion on visual impacts to the parkway described in the CEQA Impact Conclusion are applicable as well. Since the project site is small, adjacent to bridges, and would become no longer visible from the Jedediah Smith Memorial Trail, the direct impact would be less than significant.

The ARCF GRR FEIS/EIR did not discuss rerouting the Jedediah Smith Memorial Trail. The discussion of visual effects of rerouting the bike trail included in the CEQA Impact Conclusion section above applies to NEPA as well. Overall, because the visual character of the area would not change and since the elements which compose the view from the new proposed bike trail route would be similar to the current route, there would be a direct less-than significant-impact (short-term and negligible) on visual resources in the area.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Short- and Long-term Significant and Unavoidable

The existing visual character along the Sacramento River is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. Disrupting the highly valued visual character of the Sacramento River with construction and a reduction of trees and riparian vegetation would cause a significant impact on visual resources. Appendix B 4.1 provides more details on vegetation removed. Because construction is temporary, this would be a short-term significant impact. Because the flood risk reduction work cannot be done without the construction equipment and disturbance, and there are no other feasible mitigation measures available except Mitigation Measure VEG-2 which only partially reduces this impact, this short-term impact is significant and unavoidable.

A permanent reduction of trees and vegetation would cause a significant impact on visual resources. Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project and is listed under Appendix B Section 4.1 of this SEIS/SEIR, would be implemented to reduce this significant impact as much as possible. However, the Proposed Action would not include saving any trees within the erosion protection footprint of Sacramento River Erosion Contract 3. Planting benches would only be built along less than 25 percent of the riverbank along the Sacramento River Erosion Contract 3 site. All other locations would only be hydroseeded. Other flood risk reduction projects along the Sacramento River have had natural vegetation recruitment, or the process by which new individual plants are added to a population, occur after construction, so natural vegetation recruitment could occur on the Sacramento River Erosion Contract 3 project site as well. Because there would be areas where trees would be removed and not actively replanted with any vegetation, there would be a significant impact to the visual character along the riverbank. Because there are no other feasible mitigation measures available, this long-term impact from tree loss would be significant and unavoidable.

NEPA Impact Conclusion (Design Refinements): Short- and Long-term Significant and Unavoidable

The ARCF GRR FEIS/EIR already generally assessed the flood risk reduction work impacts on visual resources along the Sacramento River. In general, the ARCF GRR FEIS/EIR says that during construction there would be a significant and unavoidable impact to visual resources from construction equipment on the river and levee. Similar construction equipment would be used for the Proposed Action, so the direct significant and unavoidable impact would apply for the Proposed Action. Consequently, there would be no new impact on visual resources from construction equipment.

The ARCF GRR FEIS/EIR also determined that because trees would be left on the lower portions of the levee, installing planting berms, and installing vegetation on the planting berms the long-term impact to visual resources would be less than significant. Vegetation and trees would be removed as part of the Proposed Action. The Proposed Action would not include saving any trees within the erosion protection footprint of Sacramento River Erosion Contract 3. Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project and is

listed under Appendix B Section 4.1 of this SEIS/SEIR and plants benches, would be implemented to try to minimize the impact on trees as much as possible. The riverbank at the Sacramento River Erosion Contract 3 site has steep slopes in some areas that would require substantial material to build planting benches. Putting too much material in the river reduces the cross-sectional area of the river, reduces water conveyance, and causes a flood stage increase. Consequently, building planting benches along the whole project would likely not meet flood risk reduction objectives and would risk backwater rise on the American River. To meet flood risk reduction objectives, planting benches would only be installed at sites that already have gentle slopes to minimize material being added to the river. Planting benches would only be built along less than 25 percent of the riverbank along the Sacramento River Erosion Contract 3 site. All other locations would only be hydroseeded. Other flood risk reduction projects along the Sacramento River have had natural vegetation recruitment occur after construction completing, so natural vegetation recruitment could occur on the Sacramento River Erosion Contract 3 project site as well. Because there would be areas where trees would be removed and not actively replanted in-place with any vegetation, there would be a direct significant and unavoidable impact to the visual character along the riverbank.

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife”, for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant.

The existing visual character along the American River is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. Mitigation sites were not discussed in the ARCF GRR FEIS/EIR. Disruption and a massive regrading of the mitigation site is required to create riparian habitat at the mitigation site. Where feasible, trees would be left in place. Overall, the site currently is a former sand and gravel mine pond surrounded by grassy areas and riparian forest in the background. The site would be regraded and could completely remove or mostly remove the pond. Instead of a pond, drainages that would connect back to the American River could be built. Removal of trees and riparian vegetation would cause an unavoidable short-term significant impact on visual resources. Appendix B 4.1 provides more details on vegetation removed. In addition, the overall view of the area would go from a grassy pond to a riparian forest habitat with the possibility of inundated drainages instead of a pond. Even though the pond itself is not natural, the pond is visually pleasing to those using the bike trail and is unique to the area. The purpose of the mitigation site is to create habitat, so eventually the vegetation planted would establish into a riparian forest. Even though the filling in the pond at the site would change the visual character of the area, the views of the area would turn into a more natural riparian forest view that is consistent with the views along the American River in

the area. The views would not degrade, the visual character would just change. Since the views would remain natural at the site, there would be a less than significant impact on the existing visual character.

Those recreating in this part of the American River Parkway, specifically boaters and those on the Jedediah Smith Memorial Trail, would see disturbed soil during construction and disturbed ground for a few years until vegetation establishes, creating a short-term significant impact on visual resources. Because there are no feasible mitigation measures available, this short-term impact is a significant and unavoidable impact. Long-term impacts would be less than significant because vegetation would become reestablished over time and construction-related impacts would be minimized over time. Mitigation Measure VEG-2 would further minimize impacts.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Minor effects that are Less Than Significant.

Mitigation sites were not discussed in the ARCF GRR FEIS/EIR. The discussion on visual impacts to the area around the ARMS under the CEQA Impact Conclusion also applies to NEPA. Overall, those recreating in that part of the American River Parkway, specifically boaters and those on the Jedediah Smith Memorial Trail, would see disturbed soil during construction and disturbed ground for a few years until vegetation establishes, creating a short-term significant impact on visual resources. Without any feasible mitigation available except Mitigation Measure VEG-2, this short-term impact is significant and unavoidable. Long-term direct impacts would be less than significant (minor for NEPA purposes) because there are few viewer receptors in the vicinity, vegetation would become reestablished over time and construction-related impacts would be minimized over time. Mitigation Measure VEG-2 would further minimize impacts.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant.

The existing visual character along the Sacramento River is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. Mitigation sites were not discussed in the ARCF GRR FEIS/EIR. Disruption and regrading of both sites is required to create better habitat at the mitigation site. Though trees would be kept in place where feasible, removal of trees and riparian vegetation would cause an unavoidable short-term significant impact on visual resources where visible to recreationalists and those driving on SR 160. Appendix B 4.1 provides more details on vegetation removed. Over time, the center of the project site would change from a shrubby, grassy, and disturbed landscape to a riparian forest with streams flowing through. However, since the site is not open to the public, the center of the project site would not have high viewer sensitivity. The changes along the river would have a higher viewer sensitivity by those recreating along the Sacramento River or driving along SR 160. The view along the river would include disturbed soil during construction and reduced vegetation for a few years until vegetation matures at the project site creating a short-term significant impact on visual resources. Without any feasible mitigation available except Mitigation Measure VEG-2, this short-term impact is significant and unavoidable. The purpose of the mitigation site is to create habitat, so once vegetation establishes, the visual character of

the area would consist of riparian forest habitat. Since riparian forest would be a natural and a pleasing view, there would be a long term less than significant impact on the visual character of the area. Long-term impacts would be less than significant because there are few viewer receptors in the vicinity, vegetation would become reestablished over time and construction-related impacts would be minimized over time.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant.

Mitigation sites were not discussed in the ARCF GRR FEIS/EIR. The discussion on visual impacts to the area around the SRMS under the CEQA Impact Conclusion also applied to NEPA. Overall, those recreating along the Sacramento River or driving along SR 160 would see disturbed soil during construction and reduced vegetation for a few years until vegetation matures at the project site creating a direct short-term significant impact on visual resources. Without any feasible mitigation available except Mitigation Measure VEG-2, this short-term impact would be significant and unavoidable. Long-term direct impacts would be minor to moderate because vegetation would become reestablished over time and construction-related impacts would be minimized over time. Mitigation Measure VEG-2 would further minimize impacts.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant

The existing visual character along the Sacramento and American Rivers is considered high valued and visible to those wishing to recreate and get a break from the urban spaces. As already described under impact 3.1-a, the infrastructure associated with the Piezometer Network is small. In addition, since the shortest reach on the Sacramento and American Rivers is over a mile and a half (Figure 3.5.7-1 of the SEIS/SEIR), the addition of up to 15 solar panels along the reaches should not be noticeable to those recreating or living in the area. In particular there is some infrastructure already along the levees on the Sacramento and American Rivers such as sumps, bathrooms, signs, powerlines, paved bike trails, boat docks and fencing. Adding scattered solar panels and utility boxes for the piezometer network would not look out of the ordinary for the typical infrastructure already present on the levees along the rivers. Consequently there would be a minor direct less than significant impact.

The construction equipment and staging areas would be at the site temporarily so there would not be a lasting visual impact on the area. Due to the temporary timeframe of construction, there would be a less-than-significant impact on visual resources from construction equipment and staging areas.

Additionally, as described previously for work in the MCP area, most of the area around the MCP has grassy views with industrial sites throughout the area. The area is zoned by City of Sacramento Planning as light industrial (City of Sacramento Planning 2023); consequently, the visual character of this neighborhood is considered low due to the industrial character. Consequently, the short- and long-term visual impacts from the Piezometer Network are considered to be less than significant in the MCP area.

NEPA Impact Conclusion (Design Refinements): Short-term Moderate Impact that is Less than Significant and Long Term Minor Impact that is Less than Significant.

Installation of the Piezometer Network was not discussed in the ARCF GRR FEIS/EIR. The discussion on visual impacts of the Piezometer Network described under the CEQA Impact Conclusion also applies to NEPA.

Similar to the CEQA analysis above, due to the temporary timeframe of construction, there would be a less-than-significant moderate impact on visual resources from construction activities.

Additionally, as described previously for work in the MCP area, most of the area around the MCP has grassy views with industrial sites throughout the area. The area is zoned by City of Sacramento Planning as light industrial (City of Sacramento Planning 2023); consequently, the visual character of this neighborhood is considered low due to the industrial character. Consequently, the short- and long-term visual impacts from the Piezometer Network are considered to be less than significant in the MCP area.

3.1-d Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short- and Long-term Less than Significant with Mitigation

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant with Mitigation Incorporated

During construction of the Proposed Action, staging areas would have security lighting to protect construction equipment and stored materials. This would result in new sources of nighttime light that could be visible by anyone commuting on the bike paths and vehicles passing near the staging areas. These light sources would in some cases be adjacent to existing bright lights (e.g., light already at Larchmont Community Park). Night lighting of staging areas would result in a short-term significant impact on visual resources. However, implementing Mitigation Measure VIS-1 would reduce the impact of nighttime lighting to a less-than-significant level.

The majority of vegetation anticipated to be removed along the American and Sacramento Rivers is on the water side of the levee. Generally, there would be no lighting sources along the rivers that would become visible to the two-story homes that have views over the levee once vegetation is removed. Some minor tree removal may be needed within staging areas for American River Erosion Contract 3B. The majority of trees within parks used for staging would be left in place, so in general it is not anticipated that the specific trees removed would drastically change the

canopy coverage within parks to create new lighting sources for homes surrounding the parks. On the MCP, there are some industrial businesses on the opposite side of the waterway from homes. These industrial businesses have fencing surrounding the property which would already be screening some light sources that vegetation could be screening. Since it is not anticipated that vegetation to be removed screens existing light sources, there is a less-than-significant impact on causing substantial light or glare due to vegetation removal.

Implementing night construction work is sometime used to minimize traffic and recreational impacts. Night work is subject to all city ordinances and would use the minimal amount of lighting necessary to illuminate the work areas safely and effectively. New lighting could create a short-term significant impact during construction if substantial and directed at sensitive receptors. This impact could be potentially significant given the specific characteristics at each work site and staging area that require night lighting that could affect nearby homeowners. Implementing Mitigation Measure VIS-1, which was previously adopted for the ARCF 2016 Project, would reduce the potential impacts from new lighting during construction to nearby homeowners to a less-than-significant impact. Nighttime recreation is not typical along the American and Sacramento Rivers, so the recreation viewer group would not be affected by the temporary lighting. There could be visual impacts on wildlife from unnatural nightwork lighting. Implementing Mitigation Measure VIS-2, which was previously adopted for the ARCF 2016 Project, would minimize potential impacts to wildlife to a short-term, less-than-significant level.

Mitigation Measure VIS-1: Shielding construction lighting

Project Partners shall require its construction contractors to ensure that all temporary lighting is shielded or directed downward to avoid or minimize any direct illumination onto light-sensitive receptors located outside of the project site.

Timing: During nighttime construction

Responsibility: Project Partners

The short-term potentially significant impact related to lighting would be reduced to a short-term less-than-significant impact level with implementation of Mitigation Measure VIS-1 since light would be shielded away from sensitive receptors.

Mitigation Measure VIS-2: Minimize Disturbance to Wildlife from Nighttime Lighting

The Project Partners would minimize or avoid the effects of nighttime lighting on special-status fish species by implementing the following actions in the area of 24-hour night work.

- Avoiding construction activities at night, to the maximum extent practicable.
- Using the minimal amount of lighting necessary to safely and effectively illuminate the work areas.

- Shielding and focusing lights on work areas and away from the water surface of the Sacramento and American Rivers, to the maximum extent practicable.
- Temporary and permanent lighting would have correlated color temperatures and under 3000K to minimize disturbance to wildlife at night.
- • A qualified biologist would monitor the work area at appropriate intervals to assure that all relevant mitigation measures are implemented. Mitigation Measure BIRD-1 (See Appendix B Section 4.3) applies to night work as well.

Timing: During nighttime construction

Responsibility: Project Partners

The short-term significant impacts related to visual impacts on wildlife from nightwork would be reduced to a short-term less- than-significant impact level with implementation of Mitigation Measure VIS-2 since light would be shielded away from waterways and have correlated colors and temperatures less impactful to wildlife.

NEPA Impact Conclusion (Design Refinements): Short-term and Minor to Moderate effects that are Less Than Significant with Mitigation Incorporated

The ARCF GRR FEIS/EIR did not consider the impacts of project lighting on visual resources. The discussion above on impacts from temporary lighting at construction and staging sites under the CEQA Impact Conclusion applies to NEPA as well. Overall, implementing Mitigation Measure VIS-1 would reduce the potentially significant impact of nighttime lighting to a direct short-term and minor effect.

The ARCF GRR FEIS/EIR did not consider the possible impact of removing vegetation that could be screening light sources. The discussion above on impacts from temporarily removing vegetation that could be screening light sources under the CEQA Impact Conclusion applies to NEPA as well. Overall, since vegetation to be removed is not currently screening existing light sources, there is negligible impact on lighting views due to vegetation removal.

Finally, the ARCF GRR FEIS/EIR did not consider nighttime work. The discussion above on impacts from nighttime work under the CEQA Impact Conclusion applies to NEPA as well. Overall, Mitigation Measure VIS-2 would be implemented to minimize potentially significant impacts from lighting for nighttime work to a direct short-term and minor to moderate level.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than significant

As mentioned under effect 3.1-c, the Piezometer Network would be spread along the reaches along the American and Sacramento Rivers. The utilities are fairly small (the solar panels are similar size to those seen on cell phones along highways). These utilities would be scattered over long distances (the shortest reach on the American and Sacramento River is still over 1.5 miles) the Piezometer networks should not be noticeable. Although these panels could cause glare under

certain lighting conditions, this would not represent a new substantial source of glare that would adversely affect views in the area, and the impact would be less than significant.

NEPA Impact Conclusion (Design Refinements): Short-term and Long-term Minor effects that are Less than Significant

Installation of the Piezometer Network was not discussed in the ARCF GRR FEIS/EIR. The discussion on visual impacts of the Piezometer Network described under the CEQA Impact Conclusion also applies to NEPA. Glare from the solar panels glare could cause a minor effect to glare that is less than significant.

Alternatives Comparison

Alternative 3a

Alternative 3a includes an alternative design for improvements to the American River Erosion Contract 4A Project Component. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Overall, a landside berm would be constructed instead of a waterside berm. Overall, impacts from Alternative 3a would be similar to the Proposed Action and are described in Table 3.1-1, below.

Table 3.1-1. Alternative 3a Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.1 a: Have a substantial adverse effect on a scenic vista.	American River Erosion Contract 4A	Work would be on the landside of the levee. The topography of the levee would prevent the work from being viewable to the American River, so there would be no impact.	N/A	No Impact	No Impact
3.1 b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	American River Erosion Contract 4A	Similar to the Proposed Action, there are no scenic highways within the project site, so there would be no impact.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.1 c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	American River Erosion Contract 4A	The location of the landside berm would be in between the levee and highway bridge. The specific location of this work contains views of the levee and the SR 160 bridge. The topography of the levee would block most of the construction work from view of those recreating in the area. Consequently, construction of the landside berm would have a direct less-than-significant impact on the visual resources in the area.	N/A	Less than Significant	Long-term and Minor to Moderate effects that are Less than Significant
3.1 d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	American River Erosion Contract 4A	Similar to the Proposed Action, there would be a need to provide lighting for the staging areas and as needed for night work. This could cause a direct significant impact on visual resources, but Mitigation Measure VIS-1 and VIS-2 would reduce the impact to a less-than-significant level.	VIS-1 and VIS-2	Less than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation

Alternative 3b

Alternative 3b includes an alternative design for improvements to the American River Erosion Contract 4A Project Component. All other project components (American River Erosion Contract 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. The bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. Overall, effects from Alternative 3b would be similar to the Proposed Action and are described in Table 3.1-2, below.

Table 3.1-2. Alternative 3b Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 a: Have a substantial adverse effect on a scenic vista.	American River Erosion Contract 4A	Similar to the Proposed Action, the project site is small in size and the localized area has low visual character and would not be scenic, so impacts from vegetation removal and construction of the berm would be less than significant. In addition, paved bike trails are a part of the American River viewshed so changes to the bike trail would also cause direct less-than-significant impacts to the scenic views of the American River.	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	American River Erosion Contract 4A	Similar to the Proposed Action, there are no scenic highways within the project site, so there would be no impact.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
<p>3.1 c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality</p>	<p>American River Erosion Contract 4A</p>	<p>Like the Proposed Action, a berm would be built on the levee that would block the bike path. Like the Proposed Action, this bike detour would follow existing roads. Because the views in the area already include this road and because the visual character of the American River Parkway already includes paved bike trails, there would be a direct less-than-significant impact on the views from rerouting this bike trail. There would be more trees removed than the Proposed Action because the bike trail would follow the UPRR bridge and reconnect to the existing Jedediah Smith Memorial Trail instead of following the existing maintenance road under the UPRR bridge. Trees would need to be removed in the area along the UPRR bridge to build the bike trail. However only trees along the bike trail or haul route would be removed, so the overall view of riparian forest in the area would not significantly change. Also, the area where trees would be removed would be near the UPRR bridge, which would not have a lower visual character. Because of the visual character in the area due to the UPRR bridge and because the overall visual character of the area would remain riparian forest, tree removal would be a direct less-than-significant impact.</p> <p>Unlike the Proposed Action, the bike trail would eventually lead to the area where the berm would be built, so those using the Jedediah Smith Memorial Trail would be able to see the berm. Because the berm is near the SR 160 bridge and the UPRR bridge, the visual character of the area is already low, so adding the berm would not significantly impact the view of the area. In addition, the berm would be planted with grasses similar to the existing levee, so the visual character of a grassy slope already exists at the project site. The berm would have direct less-than-significant impacts on the visual resources in the area.</p>	<p>N/A</p>	<p>Less than Significant</p>	<p>Long-term and Minor to Moderate effects that are Less than Significant</p>

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	American River Erosion Contract 4A	Similar to the Proposed Action, there would be a need to light up the staging areas and a need for lighting for night work. This could cause a direct significant impact on visual resources, but mitigation measures would reduce the impact to a less-than-significant level.	VIS-1 and VIS-2	Less than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation

Alternative 3c

Alternative 3c includes an alternative design for improvements to the American River Erosion Contract 4A. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. The bike route would be a short reroute into the wetlands instead of lower on the levee. Overall, effects from Alternative 3c would be similar to the Proposed Action and are described in further detail in Table 3.1-3, below.

Table 3.1-3. Alternative 3c Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 a: Have a substantial adverse effect on a scenic vista.	American River Erosion Contract 4A	Similar to the Proposed Action, the project site is small in size and the localized area has low visual character and would not be scenic, so impacts from vegetation removal and construction of the berm would be direct less than significant. In addition, paved bike trails are a part of the American River viewshed so changes to the bike trail would also cause direct less-than-significant impacts to the scenic views of the American River.	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.1 b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	American River Erosion Contract 4A	Similar to the Proposed Action, there are no scenic highways within the project site, so there would be no impact.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	American River Erosion Contract 4A	Instead of rerouting the bike trail lower on the levee, the bike trail would be rerouted around the berm. Additional wetland and riparian habitat would be impacted in the area to build the bike trail around the berm creating a slightly larger impact on the visual resources in the area. Once construction is completed, the area would be replanted where feasible. Unlike the Proposed Action, those using the Jedediah Smith Memorial Trail would be able to see the berm. However, since the berm is being built next to the UPRR bridge and SR 160 bridge, the visual character of the area is already low. Because of the low visual character there would be a direct less-than-significant impact to visual resources in the area.	N/A	Less than Significant	Long-term and Minor to Moderate effects that are Less than Significant
3.1 d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	American River Erosion Contract 4A	Similar to the Proposed Action, there would be a need for lighting in the staging areas and night work when needed. This could cause a direct significant impact on visual resources, but mitigation measures would reduce the impact to a direct less-than-significant level.	VIS-1 and VIS-2	Less than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation

Alternative 3d

Alternative 3d includes an alternative design for improvements to the American River Erosion Contract 4A Project Component. All other project components (American River Erosion Contract 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. The bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail instead of going under the railroad. Overall, the effects from Alternative 3d would be similar to the Proposed Action and are described further in Table 3.1-4.

Table 3.1-4. Alternative 3d Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 a: Have a substantial adverse effect on a scenic vista.	American River Erosion Contract 4A	Similar to the Proposed Action, the project site is small in size and the localized area has low visual character and would not be scenic, so direct impacts from vegetation removal and construction of the berm would be less than significant. In addition, paved bike trails are a part of the American River viewshed so changes to the bike trail would also cause direct less-than-significant impacts to the scenic views of the American River.	N/A	Less than Significant	Short-term and Minor effects that are Less than Significant
3.1 b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	American River Erosion Contract 4A	Similar to the Proposed Action, there are no scenic highways within the project site, so there would be no impact.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
<p>3.1 c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality</p>	<p>American River Erosion Contract 4A</p>	<p>Like the Proposed Action, a berm would be built on the levee that would block the bike path. Like the Proposed Action, this bike detour would follow existing roads. Because the views in the area already include this road and because the visual character of the American River Parkway already includes paved bike trails, there would be a direct less-than-significant impact on the views from rerouting this bike trail. There would be more trees removed than the Proposed Action because the bike trail would follow the UPRR bridge and reconnect to the existing Jedediah Smith Memorial Trail instead of following the existing maintenance road under the UPRR bridge. Trees would be removed in the area along the UPRR bridge to build the bike trail. However, only trees along the bike trail or haul route would be removed, so the overall view of riparian forest in the area would not significantly change. Also, the area where trees would be removed would be near the UPRR bridge, which would not have a lower visual character. Because of the visual character in the area due to the UPRR bridge and because the overall visual character of the area would remain riparian forest, the removal of trees would be a direct less-than-significant impact.</p> <p>Unlike the Proposed Action, the bike trail would eventually lead to the area where the berm would be built, so those using the Jedediah Smith Memorial Trail would be able to see the berm. Because the berm is near the SR 160 bridge and the UPRR bridge, the visual character of the area is already low, so adding the berm would not significantly impact the view of the area. In addition, the berm would be planted with grasses similar to the existing levee, so the visual character of a grassy slope already exists at the project site. The berm would have direct less-than-significant impacts on the visual resources in the area. Also, unlike the Proposed Action, this reroute would be closer to the riverbank and mostly be away from the powerlines. Consequently, there would be a visual benefit to putting the bike path in this area, as the view from the bike path would be more natural than the No Action Alternative and the Proposed Action, resulting in a direct beneficial impact on visual resources.</p>	<p>N/A</p>	<p>Less than Significant and Beneficial</p>	<p>Short-term and Moderate, effects that are Less than Significant and Long-term Beneficial effects</p>

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1 d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	American River Erosion Contract 4A	Similar to the Proposed Action, there would be the potential need to light up the staging areas and a potential need for lighting for night work. This could cause a direct significant impact on visual resources, but mitigation measures would reduce the impact to a less-than-significant level.	VIS-1 and VIS-2	Less than Significant with mitigation	Less than Significant with mitigation

Alternatives 4a and 4b (CEQA-Only)

Alternative 4a for the ARMS would retain an approximately 30-acre portion of the existing pond, and Alternative 4b would retain an approximately 20-acre portion of the pond. All other project components (American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, SRMS) would have the same effects as the Proposed Action.

Under Alternatives 4a and 4b, a berm with a top width of 30-feet would be constructed to retain the western or southern portion of the existing pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. The remnant pond would be approximately 30-acres in Alternative 4a, and this alternative would include approximately 54 acres of floodplain habitat below elevation 21. In Alternative 4b, the pond would be approximately 20-acres and approximately 47 acres of salmonid habitat, 29 acres of YBCU habitat, and 22 acres of VELB habitat.

Table 3.1-5. Alternative 4a and 4b Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.1-a: Have a substantial adverse effect on a scenic vista.	ARMS	The proposed changes would be generally consistent with the Proposed Action, although the changes would be less in Alternatives 4a and 4b because a portion of the existing pond would be retained.	VEG-2	Short term Significant and Unavoidable, Long term Less than Significant with Mitigation
3.1-b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	ARMS	Similar to the Proposed Action, there are no scenic highways within the project site, so there would be no impact.	N/A	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.1-c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	ARMS	Like the Proposed Action, disturbance during construction would cause a short-term significant and unavoidable impact to the views in the area until vegetation reestablishes. In the long term, this alternative would replace a large pond and a disturbed area with staged equipment and vehicles with a smaller pond, and areas of riparian habitat. The visual character of the site would change substantially, but less than with the Proposed Action, which would remove the pond completely.	VEG-2	Short term Significant and Unavoidable, Long term Less than Significant with Mitigation
3.1-d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	ARMS	Similar to the Proposed Action, there would be the potential need to light up the staging areas and a potential need for lighting for night work. This could cause a direct significant impact on visual resources, but mitigation measures would reduce the impact to a less-than-significant level.	VIS-1 and VIS-2	Less than Significant with mitigation

Alternative 5a

Alternative 5a includes an alternative design for improvements to the SRMS. All other project components (American River Erosion 3B and 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Conservation bank credits would be used for mitigation.

There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used. Consequently, there would be no change in impacts to visual resources compared to the Proposed Action.

Table 3.1-6: Alternative 5a Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a: Have a substantial adverse effect on a scenic vista.	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant with Mitigation.
3.1-b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Effect
3.1-c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant.
3.1-d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	VIS-1, VIS-2	Less Than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less Than Significant with Mitigation Incorporated

Alternative 5b

Alternative 5b includes an alternative design for improvements to the SRMS. All other project components (American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, Sacramento River, MCP, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Watermark Farm, located on the right bank of the Sacramento River between RM 50.5 and 51.25, would be used as the mitigation site for Sacramento River work. Overall, Alternative 5b effects to aesthetics and visual resources are less than the Proposed Action.

Table 3.1-7. Alternative 5b Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a: Have a substantial adverse effect on a scenic vista.	SRMS	As already described above under the Proposed Action, the Sacramento River is considered an important scenic resource that needs to be protected. Creation of the mitigation site at Watermark Farms would include disturbance of the riverbank. This disturbance would degrade the views along the Sacramento River until the replanted vegetation reaches the preexisting maturity. There would be a direct short-term significant impact, and a long-term less-than-significant impact to the visual resources of the Sacramento River from work associated with Alternative 5b. No feasible mitigation measures are available to reduce the direct short-term significant and therefore the impact is significant and unavoidable.	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant.	Short-term Significant and Unavoidable; Long-term and Minor effects that are Less Than Significant.
3.1-b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	SRMS	Alternative 5b is not near a scenic highway or byway; consequently, there would be no impacts to the visual resources along a scenic highway or byway.	N/A	No Impact	No Impact

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
<p>3.1-c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.</p>	<p>SRMS</p>	<p>Alternative 5b would involve changing an agricultural field, homes, and ranch into a riparian forest with a channel running through it. This area is currently visible to those driving on South River Road and the views consist of the levee, homes, and a ranch. Those recreating on the Sacramento River currently see a levee with some trees at this location.</p> <p>The existing levee would be set back, and the road would be realigned to match the new conditions. Work would last 3 years. Those recreating along the Sacramento River would now be able to view a larger area of riparian forest instead of the thin strip of trees since the levee would be set back. Until vegetation establishes, the area would look disturbed because the existing levee would be regraded so the area would be visible before the mitigation establishes. This direct significant impact is unavoidable because the area must be regraded to create the riparian habitat and no feasible mitigation measures are available to avoid or reduce this impact.</p> <p>In addition, the views for those driving along the South River Road would change from homes and a ranch to agricultural fields. The road would follow the setback levee, so the new levee would be visible as well. The current views from South River Road include views of the existing levee, so that visual characteristic would not change.</p> <p>Overall, the views from the roads and the views from the Sacramento River would become more natural once work is complete and once vegetation establishes, creating a long-term beneficial impact on visual resources. Because the area would initially look disturbed and viewer sensitivity is high along the Sacramento River, there would be direct short-term significant impacts on visual resources. There are no feasible mitigation measures available so this direct impact would be significant and unavoidable.</p>	<p>N/A</p>	<p>Short-term Significant and Unavoidable; Long-term Beneficial</p>	<p>Short-term Significant and Unavoidable; Long-term Beneficial</p>

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
(continued) 3.1-c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	(continued) SRMS	3.1c. (continued) In addition, during construction those recreating along the Sacramento River would see construction equipment and staging equipment once the existing levee is degraded. Depending on when the new road is finished, vehicles traveling along South River Road would also see construction equipment and staging areas. Since work would occur over a 3-year period and since viewer sensitivity is high on the Sacramento River, this would be a direct short-term significant impact to visual resources. There are no feasible mitigation measures available so this direct impact would be significant and unavoidable.	N/A	(continued) Short-term Significant and Unavoidable; Long-term Beneficial	(continued) Short-term Significant and Unavoidable; Long-term Beneficial
3.1-d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Sacramento River Mitigation	Similar to the Proposed Action, there could be a need for nighttime lighting during construction. This could cause a direct significant impact on visual resources, but mitigation measures would reduce the impact to a less-than-significant level.	VIS-1 and VIS-2	Less than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less than Significant with Mitigation

Alternative 5c

Alternative 5c includes an alternative design for improvements to the SRMS. All other project components (American River Erosion Contract 3B and 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network) would have the same effects as the Proposed Action. Delta smelt conservation bank credits would be used for mitigation. There would be no new activities implemented corresponding to the purchased of the Delta smelt conservation bank credits, so there would be no additional visual impacts compared to the Proposed Action.

In addition, credits would be purchased or funds would be provided for the Sunset Pumps Project. Sunset Pumps is being implemented by Reclamation, DWR, and USFWS and consequently Reclamation, DWR, and USFWS will complete a corresponding CEQA and NEPA document. There would be no additional activities outside of Reclamation and USFWS NEPA

document or DWR’s CEQA document, so there would be no additional impacts from Alternative 5c on visual resources.

Table 3.1-8: Alternative 5c Effects on Aesthetics and Visual Resources

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.1-a: Have a substantial adverse effect on a scenic vista.	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	VEG-2	Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated.	Short-term Significant and Unavoidable; Long-term and Moderate effects that are Less than Significant with Mitigation.
3.1-b: Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway or national scenic byway.	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant.	No Effect
3.1-c: Result in substantial degradation to the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	N/A	Short-term Significant and Unavoidable; Long-term Less Than Significant	Short-term Significant and Unavoidable; Long-term and Minor to Moderate effects that are Less than Significant.
3.1-d: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	SRMS	No changes from the Proposed Action. There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used.	VIS-1, VIS-2	Less Than Significant with Mitigation	Short-term and Minor to Moderate effects that are Less Than Significant with Mitigation Incorporated

3.2 Geologic Resources

3.2.1 Existing Conditions/Affected Environment

Geology, Seismicity, and Soils

The environmental setting described in Section 3.2.1 of the ARCF GRR Final EIS/EIR covering geology, seismicity, and soils is generally applicable to Proposed Action.

Mineral Resources

Aggregate resources such as sand and gravel are the primary mineral resources found in Sacramento County (Sacramento County 2011). The Proposed Action lies within the Greater Sacramento Area Production-Consumption Region for Portland concrete aggregate as well as the Portland Cement Concrete-grade Aggregate and Kaolin Clay Resource Area (CGS 1999 and 2018). Sources of riprap would come from quarries located up to 100 miles away. The Proposed Action is not located within known areas of significant mineral deposits (Sacramento County 2011: Figure 8). In compliance with the Surface and Mining Reclamation Act, the California Geological Survey (CGS) has established the classification system for Mineral Resource Zones (MRZ), shown in Table 3.2-1, to denote both the location and significance of key extractive resources. The Proposed Action is located within MRZ-1 and MRZ-3.

Table 3.2-1. California Geological Survey Mineral Land Classification System

Classification	Description
MRZ-1a	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-1b	Areas of mined out Portland cement concrete-grade aggregate resources
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood exists for their presence
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from available data
MRZ-4	Areas where available data is inadequate for assignment to any other mineral resource zone

Notes : MRZ = Mineral Resource Zone

Source : DOC 2000

Paleontological Resources

Paleontological remains may be found in numerous types of rock formations. However, vertebrate fossils are most commonly recovered from sedimentary formations, as well as from a few igneous formations where sedimentary deposits are interbedded. The Magpie Creek Project (MCP) is underlain by the Riverbank Formation, which is the most extensive Quaternary unit in the Sacramento area (Wagner et al. 1981). The Pleistocene-age Riverbank Formation consists of weathered gravel, sand, and silt.

The Riverbank Formation is typically found as terrace deposits near the surface along the Sacramento River and its tributaries. South of the American River, at least two ancestral Riverbank gravel-filled channels are well expressed on the surface as nested fill terraces and in the subsurface as distinct buried channels. Paleontological remains have been found at several

localities in alluvial deposits referable to the Riverbank Formation in the Sacramento area (Anderson et al. 2018).

3.2.2 Applicable Laws, Regulations, Policies, and Plans

Federal

Clean Water Act Section 402

Section 402 of the CWA regulates discharges through NPDES and State waste discharge requirements including controlling erosion from construction sites and sediment-entry into receiving waterbodies. SWRCB and CVRWQCB have adopted specific NPDES permits for a variety of activities that have the potential to discharge wastes (including sediment) to waters of the State. SWRCB's Statewide storm water general permit for construction activity (2009-0009-DWQ) is applicable to all land-disturbing construction activities that would disturb 1 acre or more. Compliance with the NPDES permit requires submitting a notice of intent to discharge to CVRWQCB and implementing a SWPPP that includes BMPs to minimize water quality degradation during construction activities.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Fault Zoning Act, administered by the CGS, provides a mechanism for reducing losses from surface fault ruptures on a Statewide basis. The Act requires the mapping of zones around active faults in California to prohibit the construction of structures for human occupancy on active faults and minimize damage due to rupture of a fault. Active faults are those that have ruptured within the past 11,000 years. Where the Act identifies an Earthquake Fault Zone, a geologic investigation and report is necessary to prevent siting of buildings on active fault traces.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) addresses earthquake hazards from non-surface fault rupture, including liquefaction and seismically induced landslides. The Act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The Act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites, and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Standards Code

Title 24, Part 2 of the California Building Standards Code contains specific requirements for construction with respect to earthquakes and seismic hazards intended to be protective of public health. Chapter 16, Section 1613, Earthquake Loads of the Code deals with structural design and requires that every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions.

California Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. The policy outlines three primary goals: 1) Ensure adverse environmental effects of mining is prevented or minimized and that mined lands are reclaimed to a usable end use; 2) encourage the production and conservation of minerals; and 3) eliminate residual hazards to the public health and safety.

Local

There are no local regulations related to geology, soils, or mineral resources that apply to the Proposed Action.

3.2.3 Analysis of Environmental Effects

3.2.3.1 Analysis Methodology

The following evaluation of potential impacts relies on a review of published geological, mineral, and paleontological literature and maps, Sacramento County General Plan Conservation Element background report, and the ARCF GRR FEIS/EIR.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP) (SVP 2010) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the SVP (2010) significance criteria, all vertebrate fossils are generally categorized as being of potentially significant scientific value.

3.2.3.2 Basis of Significance

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, and the impact analysis that follows, also take into consideration the significance of an action while providing distinction between direct and indirect effects as required under NEPA (40 CFR 1508.1(g)). The Proposed Action under consideration is determined to result in a significant impact related to geologic and mineral resources if it would do any of the following:

- a. expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death, through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;
- b. result in substantial soil erosion or the loss of topsoil;

- c. locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- d. locate project facilities on expansive soil, creating substantial risks to property;
- e. have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- f. directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- g. result in the loss of availability of a known mineral resource, including locally designated resources.

3.2.3.3 Effects Not Addressed in Detail

Cause Exposure to Seismic Hazards (3.2-a)—Because the project sites are not located within an Alquist-Priolo Earthquake Fault Zone and there are no known active faults within or adjacent to the project sites, fault ground rupture is unlikely. Other seismic hazards are considered in the engineering design for project features, and therefore this issue is not addressed further in the SEIS/SEIR.

Cause Exposure to Unstable Soils (3.2-c, 3.2-d)—Because the project site is located in an area with relatively flat topography, there would be no adverse impacts related to landslides. Unstable soil conditions, expansive soils, and soils subject to liquefaction are considered in the engineering design for project features, and this issue is not addressed further in the SEIS/SEIR.

Place Wastewater Systems in Unsuitable Soils (3.2-e)—Because the alternatives under consideration would not include the use of wastewater disposal systems of any kind, there would be no effect related to the ability of soils to support the use of septic systems. Therefore, this issue is not addressed further in the SEIS/SEIR.

Reduce Availability of a Known Mineral Resource (3.2-g)—The project sites are classified as MRZ-1 and MRZ-3, and these classifications are not considered to be a regionally important mineral resource extraction zone. Review of the Sacramento County General Plan indicated there are no locally designated important mineral resources at any of the locations where project-related activities will occur (Sacramento County 2011). Therefore, the alternatives under consideration would have no impact and this issue is not addressed further in the SEIS/SEIR.

3.2.3.4 Effects Analysis

No Action Alternative

Construction of the No Action Alternative would include substantial construction and earth-moving activities over large areas that would result in temporary disturbance of soil during the construction period and could expose these disturbed areas to substantial erosion during rainstorms following construction, if not properly restored. This potentially significant impact was reduced to a less-than-significant impact with mitigation (consolidated in this SEIS/SEIR as Mitigation Measure GEO-1), which was previously adopted for the ARCF 2016 Project.

The No Action Alternative 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 site, the potential for failure or significant damage to project structures from seismic issues was determined to be low.

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, the Project Partners will obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the Notice of Intent 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, non-stormwater 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 non-stormwater 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 will be in place throughout all site work, construction/demolition activities, and will be used in all subsequent site

development activities. BMPs may include, but are not limited to, such measures as those listed below:

- work window- conduct earthwork during low flow periods;
- 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 stockpiling soil on the landside of the levee is not feasible, a waterside soil stockpiling location above the OHWM will be coordinated with NMFS, CVRWQCB, and USFWS (if applicable). 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 will 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, will 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;
- a copy of the approved SWPPP shall be maintained and available at all times on the construction site; and
- Project Partners will also prepare a Spill Prevention, Control, and Countermeasure Plan (SPCCP). A SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor will develop and implement a SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP will be completed before any construction activities begin. Implementation of this measure will comply with state and Federal water quality regulations. The SPCCP will describe spill sources and spill pathways in addition to the actions that 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 will outline descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It

will also describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.

Timing: Before and during construction

Responsibility: USACE

Proposed Action Alternative

3.2-b Cause substantial soil erosion or the loss of topsoil.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated.

NEPA Significance Conclusion: Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Sacramento River Mitigation Site, American River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

During construction activities, rainfall of sufficient intensity could dislodge soil particles from the soil surface. If particles are dislodged and the storm is large enough to generate runoff, substantial localized erosion could occur. The proposed construction activities would mainly occur during the season when rainfall is the least likely and river flows are at their lowest, reducing the potential for water erosion. However, tree removal activities could occur in winter months, and areas which have been disturbed by construction and only recently revegetated have the potential to result in water erosion due higher river flows and ground disturbing activities. Soil disturbance from construction activities that would occur during the summer months could result in substantial loss of topsoil due to wind erosion. Construction activities including excavation, grading, and other earth moving activities could result in the temporary and short-term disturbance of soil, which could expose disturbed areas on the waterside of the levee to storm events. Although most construction activities would occur during summer months, the project could result in substantial loss of topsoil from wind or water erosion.

Paving bike paths would cause an increase of impermeable surfaces, and potentially cause runoff due to erosion during rain events. However, paving would reduce erosion effects of high use of bikes, pedestrians, and horses on a dirt path.

The Proposed Action would result in a potentially significant impact due to the temporary, short-term construction impact. Mitigation Measure GEO-1 would be applied to reduce this impact:

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 the first instance of this mitigation measure in the discussion of the No Action Alternative.

Timing: Before and during construction

Responsibility: USACE

Implementing Mitigation Measure GEO-1 would reduce this impact to a less-than-significant level by requiring the preparation and implementation of a SWPPP with appropriate BMPs and the implementation of a Spill Prevention Control and Countermeasures Plan (SPCCP). These actions will enable source control and re-vegetation which will reduce erosion and maintain surface water quality conditions in adjacent receiving waters as well as prevent the discharge of oil into navigable waters. This impact would be less-than-significant with mitigation.

3.2-f Damage a unique paleontological resource or site or unique geologic feature

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated.

NEPA Significance Conclusion: Negligible Effects that are Less than Significant with Mitigation Incorporation

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Sacramento River Mitigation Site, American River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Negligible, and Less than Significant

The levee and erosion improvements associated with these project sites 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. Therefore, the potential to encounter a unique paleontological resource is very low, and this impact is less than significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Negligible Effects that are Less than Significant with Mitigation Incorporated

Based on detailed geologic mapping prepared by Fugro William Lettis & Associates, Inc. (2010: Figure 4 and Plate 1), there is a potential that installing box culverts could encounter the Riverbank Formation. Because numerous vertebrate fossils have been recovered from this formation in northern and central California, including at least nine different localities from Sacramento County, this formation is considered to be paleontologically sensitive. This impact would be potentially significant. Implementing Mitigation Measure GEO-2, which is a new mitigation measure, would reduce this impact to a less-than-significant level because construction workers would be alerted to the possibility of encountering paleontological resources and, in the event that resources were discovered, work would stop immediately and fossil specimens would be recovered and recorded and would undergo appropriate curation.

Mitigation Measure GEO-2: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan, as Required.

To minimize the potential for destruction of or damage to potentially unique, scientifically important paleontological resources during project-related earthmoving activities, the Project Partners shall require the following measures to be implemented to minimize accidental damage to or destruction of unique paleontological resources:

Before the start of any earthmoving activities in the Riverbank Formation (at the bike bridge portion of the MPC), the Project Partners shall retain a qualified paleontologist to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.

If paleontological resources are discovered during earthmoving activities, the construction crew shall notify the Project Partners and shall immediately cease work in the vicinity of the find. The Project Partners shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the Project Partners to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Timing: Before and during construction activities at the Magpie Creek bike bridge area.

Responsibility: Project Partners

Alternatives Comparison

Alternatives 3a through 3d

Alternatives 3a through 3d would change the location and type of improvements for the American River Erosion Contract 4A. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. None of these Alternatives would change any of the construction impacts associated with geological resources, mineral resources, or paleontological resources compared to the Proposed Action.

Table 3.2-2: Alternatives 3a through 3d Effects on Geology

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.2-b: Cause substantial soil erosion or the loss of topsoil.	American River Erosion Contract 4A	No change in effects from the Proposed Action.	GEO-1	Less than Significant with Mitigation	Long-term and Minor Effects that are Less than Significant with Mitigation Incorporated
3.2-f: Damage a unique paleontological resource or site or unique geologic feature.	American River Erosion Contract 4A	No change in effects from the Proposed Action.	N/A	Less than Significant	Negligible Effects that are Less than Significant

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include alternative designs for improvements to the ARMS. All other project components (MPC, American River Erosion Contract 3B North and South, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged. Alternatives 4a and 4b would preserve a 30-acre and 20-acre portion, respectively, of the existing pond on the ARMS. Neither of these Alternatives would change any of the construction impacts associated with geological resources, mineral resources, or paleontological resources.

Table 3.2-3: Alternatives 4a and 4b Effects on Geology (CEQA-Only)

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion
3.2-b: Cause substantial soil erosion or the loss of topsoil.	ARMS	No change in effects from the Proposed Action.	GEO-1	Less than Significant with Mitigation
3.2-f: Damage a unique paleontological resource or site or unique geologic feature.	ARMS	No change in effects from the Proposed Action.	N/A	Less than Significant

Alternatives 5a and 5c

Alternative 5a and 5c include alternative designs for improvements to SRMS. All other project components (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would remain unchanged. Alternative 5a would eliminate the need for construction of the SRMS by instead purchasing all remaining and required mitigation from a Service Approved Conservation Bank. Alternative 5c proposes replacing the SRMS with a combination of three less conventional mitigation approaches including purchasing Delta Smelt Conservation Bank Credits from a USFWS approved bank, providing funds for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation such as the Sunset Pumps project, and funding the Sunset Pumps project. There would be no impact on geological resources, mineral resources, or paleontological resources for the SRMS under these alternatives compared to the Proposed Action.

Table 3.2-4: Alternatives 5a and 5c Effects on Geology

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.2-b: Cause substantial soil erosion or the loss of topsoil.	SRMS	Alternatives 5a and 5c would have no physical effects, avoiding the impacts of the Proposed Action.	N/A	No Impact	No Impact
3.2-f: Damage a unique paleontological resource or site or unique geologic feature.	SRMS	Alternatives 5a and 5c would have no physical effects, avoiding the impacts of the Proposed Action.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would replace the SRMS with the Watermark Farms site approximately located on the right bank of the Sacramento River from River Mile 50.5 to River Mile 51.25. This Alternative project site does not include areas designated as mineral resources, or paleontologically sensitive formations. This alternative would not change any of the construction impacts associated with geological resources, mineral resources, or paleontological resources compared to the Proposed Action.

Table 3.2-5: Alternative 5b Effects on Geology

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.2-b: Cause substantial soil erosion or the loss of topsoil.	SRMS	No change in effects from the Proposed Action.	GEO-1	Less than Significant with Mitigation	Long-term and Minor effects that are Less than Significant with Mitigation Incorporated
3.2-f: Damage a unique paleontological resource or site or unique geologic feature.	SRMS	No change in effects from the Proposed Action.	N/A	Less than Significant	Negligible effects that are Less than Significant

3.3 Hydrology and Hydraulics

3.3.1 Existing Conditions/Affected Environment

Section 3.4.1 of the 2016 American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement / Environmental Impact Report (2016 ARCF GRR FEIS/EIR) describes the hydrologic setting of the project area, mainly focusing on the Sacramento and American Rivers, which have been significantly altered by human activities, including hydraulic and dredge mining for gold, building of levees for land reclamation and flood control, bank protection, land use changes, reservoir construction, water export projects, and dredging of alluvium for navigation and levee maintenance purposes.

In general, the Proposed Action is located within two basins: American River North and American River South. The upstream boundary of the basins is at Verona and the downstream boundary is at the Sacramento River Mitigation Site (SRMS). These basins include the leveed portions of the American River, Sacramento River, Magpie Creek, Dry Creek and Arcade Creek.

Surface Water

Local Hydrology

Magpie Creek: Magpie Creek, is a small stream that was diverted from its original southwesterly course in the 1950s and engineered into an artificial canal flowing to the north and west at right angles, paralleling the local roads. It receives perennial flows from the McClellan Business Park's wastewater treatment facility, approximately 1 mile upstream from Raley Boulevard, and seasonal flows from stormwater and overland flow. There are numerous seasonal wetlands east and west of Raley Boulevard. Don Julio Creek converges with Magpie Creek just to the west of Raley Boulevard. Magpie Creek merges with Steelhead Creek/Natomas East Main Drain Canal (NEMDC) approximately 3.2 miles downstream from Raley Boulevard.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, and ARMS: Besides the American River itself, numerous surface water features exist along the American River Parkway, including Steelhead Creek/NEMDC, which enters the American River Parkway at River Mile 1.7. Steelhead Creek/NEMDC parallels the northern levee approximately 0.3 miles north of the American River, flowing across the northern boundary of the Urrutia property and Discovery Park, and conveying flows into the Sacramento River 0.2 miles upstream of its confluence with the American River. The American River Mitigation Site (ARMS) site consists of a 58-acre pit created when the property was used for gravel mining, exists between Steelhead Creek/NEMDC and the American River. Upstream from Steelhead Creek/NEMDC, a man-made wetland parallels the northern levee starting at Steelhead Creek/NEMDC and continuing east for about 2.8 miles. This wetland was created during excavation of material for the north levee that was built in the 1950s. The American River Erosion Contract 4A intersects with the western portion of this wetland.

Sacramento River Erosion Contract 3: The section of the Sacramento River affected by the Proposed Action is entirely confined within levees, separating the river from agricultural land on

the west bank and urban land on the east bank at the Sacramento River Erosion Contract 3, and from agricultural lands at both sides at the SRMS. The river experiences tidal fluctuation in this area due to its closer proximity to the Sacramento River and San Joaquin River Delta (Sacramento-San Joaquin Delta). There is no floodplain between the river and the levee protecting the adjacent Pocket neighborhood.

The SRMS is located at the confluence of the Sacramento River (Mile 15), Cache and Steamboat Sloughs. The floodplain which has been disconnected from the river's tidal and seasonal flooding influence through topographic modification by levees.

The Piezometer Network would be constructed in all areas of the Proposed Action that were included in the 2016 ARCF GRR FEIS/EIR. However, the Piezometer Network was not analyzed in the 2016 ARCF GRR FEIS/EIR.

Flood Hazards

The Proposed Action is within designated flood hazard areas or in areas with reduced flood risk due to the presence of levees, according to Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer geospatial database (FEMA 2023).

Groundwater

The Proposed Action is part of the Sacramento River hydrologic region and more specifically overlies the North American River and South American River groundwater sub-basins, both of which are designated as high priority basins, and the Sacramento Valley – Solano groundwater sub-basin, which is designated as a medium priority basin by DWR and water suppliers associated with the Proposed Action (see Appendix B Section 2.3.1.1). Local groundwater sustainability agencies are required to submit groundwater sustainability plans under the Sustainable Groundwater Management Act. Approximately 34% of water usage in the Sacramento River hydrologic region comes from groundwater (DWR 2020). For more information on water suppliers, refer to section 2.3.1.1 in the Public Utilities Chapter.

3.3.2 Applicable Laws, Regulations, Policies, and Plans

Section 3.4 of the 2016 ARCF GRR FEIS/EIR lists Federal and State laws applicable to Hydrology and Hydraulics, and Chapter 5 summarizes the environmental laws applicable to the Proposed Action and the status of the Proposed Action's compliance with those laws. Two relevant laws and programs, the Porter-Cologne Water Quality Control Act of 1970 and the National Flood Insurance Program, are unchanged and not summarized further in this document. The following section summarizes additional laws and plans applicable to Hydrology and Hydraulics that were not described in the 2016 ARCF GRR FEIS/EIR.

Federal

The following Federal laws related to hydrology and hydraulics are relevant to the Proposed Action, and are described in detail in Chapter 5, "Compliance with Federal Environmental Laws and Regulations":

- Federal Emergency Management Agency Code of Federal Regulations Title 44, Section 65.10 (Levee Requirements) and FEMA Flood Zone Designations; and

- Rivers and Harbors Act of 1899, As Amended (Sections 14 and 10)
- Executive Order 11988, Floodplain Management.

State

California Executive Order S-01-06, Identification and Repair of Critical Erosion Sites

On February 24, 2006, the Governor declared a state of emergency for California's levee system. Soon after, he signed Executive Order S-01-06, directing DWR to identify and repair eroded levee sites on the Federal/State levee system to prevent catastrophic flooding and loss of life. To date, nearly 250 levee repair sites have been identified, and more than 100 of the most critical sites have been completed. Two of the sites are along the bank of the Sacramento River east levee between the Natomas Cross Canal and the American River. Rock toe protection has been installed at these sites. These improvements do not overlap with planned levee improvements on Sacramento River Contract 3.

Central Valley Flood Control Act of 2008

The Central Valley Flood Control Act of 2008, passed in 2007, recognizes that the Central Valley of California, which includes both Sacramento and American Rivers, is experiencing unprecedented development, resulting in the conversion of historically agricultural lands and communities to densely populated residential and urban centers. Because of the potentially catastrophic consequences of flooding, the Act recognizes that the Federal government's current (100-year (0.01% Annual Exceedance Probability (AEP)) design flood elevation standard is not sufficient to protect urban and urbanizing areas within flood-prone areas throughout the Central Valley and declares that the minimum standard for these areas is a 200-year (0.005% AEP) design flood elevation. To continue with urban development, cities and counties must develop and implement plans for achieving this new standard by 2025. With respect to flood risk damage reduction, the Central Valley Flood Control Act also calls upon DWR to develop a comprehensive Central Valley Flood Protection Plan that was last updated in 2022 for protecting the lands currently within the Sacramento–San Joaquin River Flood Management System.

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- That the quality of all the waters of the State shall be protected,
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason, and
- That the State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014 sets forth a framework for the long-term protection of groundwater resources. The SGMA requires local agencies to form groundwater sustainability agencies for high and medium priority basins and to develop and implement groundwater sustainability plans (GSPs). The California Department of Water Resources supports SGMA implementation through evaluation of GSPs and planning, technical, and financial assistance, and through guiding development of best management practices.

Local

City of Sacramento 2035 General Plan – Environmental Resources

The City of Sacramento 2035 General Plan was adopted in March 2015 (City of Sacramento 2015). The General Plan set out numerous goals around the topic of Environmental Resources, including water quality protection and biological resources. The policies to support these goals prioritize water quality improvement, groundwater recharge, watershed protection, stormwater quality and quantity, minimization of construction impacts, wetland and riparian habitat protection, and many others.

Sacramento County General Plan of 2005 to 2030, Safety, Conservation and Delta Protection Elements

The Safety Element of the existing Sacramento County General Plan of 2005 to 2030 (Sacramento General Plan) (Sacramento County 2005) contains the goal, “Minimize the loss of life, injury and property damage due to flood hazards.” The following policies that support this goal generally require that the County work with USACE, SAFCA, and other Federal, State, and local government entities include the following: Policy SA-6 requires the County to participate through SAFCA in obtaining Federal authorization for construction of flood control projects on the Sacramento and American Rivers to provide 200-year flood protection; Policy SA-10 requires the County to continue local efforts that encourage implementation of the Federal Flood Insurance Program; Policy SA-13 requires the County to prohibit urban uses on unprotected flood land; and Policy SA-14 requires the County to participate with the City of Sacramento and USACE and other Federal, state, regional, and local governments and agencies to develop policies to finance, construct, and plan flood improvements to eliminate flooding in Sacramento County.

The Sacramento County General Plan was amended in 2017; the General Plan’s Conservation and Delta Protection Elements are relevant to the Proposed Action (County of Sacramento 2017a, b). In this plan the County prioritizes preservation, protection, and enhancement of riparian, stream, and river corridors. The County General Plan recognizes the roles natural floodplains and stream functions play in maintaining healthy hydrologic processes. It contains objectives to limit the filling of floodplains and to conduct bank stabilization and channel modification projects in a way that preserves natural stream functions. Additionally, the improvement, repair, and long-term maintenance of Delta levees is a goal contained within the Delta Protection Element.

3.3.3 Analysis of Environmental Effects

3.3.3.1 Analysis Methodology

Hydraulic analyses were conducted on Magpie Creek, the American River, and the Sacramento River during the designs for the Proposed Action and alternatives. The effects of the Proposed Action on the water surface elevations was evaluated using the Hydrologic Engineering Center's - River Analysis System (HEC-RAS) computer software. HEC-RAS performs one-dimensional steady flow, one- and two-dimensional unsteady flow calculations, sediment transport/mobile bed calculations, and water temperature/water quality modeling. The development and use of this hydraulic modeling is described in Section 3.4.2 of the 2016 ARCF GRR FEIS/EIR.

Draft Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees (MFR ARCF 2016, Cumulative Hydraulic Impacts Analysis on the Probability of Failure of Sacramento River Levees, 21 February 2023) was presented in a Memorandum of Record dated 21 Feb 2023, which was prepared to determine how cumulative stage impacts associated with the ARCF 2016 Project for the American and Sacramento Rivers Erosion Improvements designs affect the overtopping probability and performance of the Sacramento River levee system. Scenarios that reflect the existing conditions and the combination of proposed design elements (*i.e.*, expanded Sacramento Weir and Bypass project, and erosion countermeasures (ECMs) were modeled in HEC-RAS and HEC-FDA.

The results of the analysis show that the hydraulic conditions without Sacramento Weir widening (future without the ARCF 2016 Project) or the hydraulic conditions with Sacramento Weir widening and ECMs (future with ARCF 2016 Project implemented) do not provide significant changes in water surface elevations along the Sacramento River. The cumulative hydraulic impacts for the current representation of the "With ARCF 2016 Project condition" do not result in an increase in Annual Overtopping potential at any of the index locations compared to the baseline condition. When considering geotechnical failures, the Annual Erosion Potential (AEP) at all index locations was reduced by the levee improvements proposed under the WRDA 2016, ARCF 2016 Project. The changes in conveyance capacity resulting from different ECM designs do not have a significant impact on the AEP compared to the reduction provided by the system-wide levee improvements.

3.3.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines, as amended. The alternatives under consideration were determined to result in a significant impact related to hydrology and hydraulics if they would do any of the following:

- a. decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

- b. alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: 1) result in a substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or 4) impede or redirect flood flows;
- c. result in the risk of release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones.

3.3.3.3 Effects Not Addressed in Detail

Result in the risk of release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. (3.3-c)

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, SRMS, ARMS, MCP, and Piezometer Network

The Proposed Action is not located in a tsunami or seiche zone. While the Proposed Action is located within a flood hazard area, the levee improvements under the Proposed Action are designed to decrease risk of flood water inundation. During construction, there is the small potential of pollutant release, such as petroleum products from construction on the waterside of the levee, and possibly on the landside of the levee in staging areas, which is addressed in Appendix B Section 3.8 “Hazards and Hazardous Materials.” The Proposed Action would not result in long-term storage of pollutants that could be exposed to flooding, and therefore, this issue is not addressed further.

3.3.3.4 Effects Analysis

No Action Alternative

Under the NEPA No Action Alternative, the remaining work on Magpie Creek, Lower American River, and Sacramento River authorized under the ARCF 2016 Project would be constructed. This work includes fix-in-place levee improvements which would improve flow conveyance and reduce the flood risk management system. These improvements would not change channel geometry or significantly alter the footprint of the levee system. As a result, the No Action Alternative would not substantially alter the erosion or siltation in the system or increase the rate of surface runoff in a manner that would result in flooding. Additionally, there would be no impact to stormwater drainage systems or additional sources of runoff caused by the NEPA No Action Alternative. Since flows were not expected to be adversely altered, the effects to hydrology and hydraulics described in the 2016 ARCF GRR FEIS/EIR were found to be less than significant, and no mitigation would be required.

However, since the analysis in the 2016 ARCF GRR FEIS/EIR, additional design refinements described under the Proposed Action are proposed to meet the flood risk management goals of the ARCF 2016 Project. If these refinements were not constructed, portions of the American and Sacramento River levee system would be vulnerable to erosion and, in the case of American

River 4A, be vulnerable to a breach due to adverse hydraulic conditions during high flows. A new levee would not be constructed on Magpie Creek east of Raley Blvd, additional canal improvements would not be constructed, and North Sacramento would remain vulnerable to flooding. Effects to flood risk would be significant without the additional improvements.

The SRM and ARM sites would not be constructed, and the existing hydrology and hydraulic conditions would continue. As a part of the ARCF 2016 Project, on-site mitigation such as planting berms would be constructed along the riverbanks. This mitigation strategy would not alter river hydrology or hydraulics.

Proposed Action Alternative

3.3-a Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Long-term and Negligible effects that are Less than Significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Long-term and Negligible effects that are Less than Significant.

The MCP components previously described in the ARCF GRR FEIS/EIR, such as the levee raise between Raley Boulevard and Vinci Avenue, the maintenance road between Raley Boulevard and Dry Creek Road, and the bike path culverts, would not substantially impede infiltration of surface water and would, therefore, not affect groundwater supplies or interfere substantially with groundwater recharge. The floodplain adjacent to the channel would be acquired to provide detention space to accommodate a 250-year flood event. Approximately 43.5 acres of floodplain have been purchased for this purpose. Floodplain acquisition east of Raley Boulevard would continue until approximately 80 acres are acquired. Continuation of the floodplain acquisition would permanently prevent development of these properties and maintain groundwater recharge in the area.

The MCP would not require groundwater withdrawal apart from temporary and short-term dewatering during construction activities, but the channel realignment east of Raley Boulevard could interfere with groundwater recharge in that area. Construction of the new channel and maintenance road would require filling a portion of a wetland, directly impacting approximately 0.41 acres of that wetland. While the channel and maintenance road would be designed with the goal of preventing indirect hydrologic impacts beyond the construction footprint, the construction design would maintain the area topography and would not impact the entire wetland hydrology. In addition, the rerouting of Don Julio Creek would not impact groundwater resources. The project improvement would have a long-term and negligible impact on

groundwater resources that is less-than-significant (NEPA); adverse impacts under CEQA would be less than significant.

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Construction would not create impervious surfaces that would substantially interfere with groundwater supplies or groundwater recharge at American River Erosion Contract 3B North and South, American River Erosion Contract 4B or Sacramento River Erosion Contract 3. In addition, these contracts would not require groundwater withdrawal and, therefore, there would be no impact.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant.

None of the proposed improvements at American River Erosion Contract 4A were discussed in the 2016 ARCF GRR FEIS/EIR, thus the impacts would be identical under both NEPA and CEQA, see Section 1.1 “Scope of the Environmental Analysis.” The proposed berm would affect a wetland which parallels the levee and the Jedediah Smith Memorial Bike Trail near State Route 160 bridge. The wetland is on the waterside of the levee and was incidentally created during construction of the original levee when surrounding soils were used as levee fill materials and the excavated area was never backfilled with soil. The topographic depression has since become a wetland and drainage system for the area. The wetland is not hydrologically well connected and becomes stagnant throughout the year. While most of the wetland would remain intact, approximately 0.54 acres of the 11.5-acre wetland would be filled in order to construct the berm. The berm would not be constructed entirely of impervious materials, is relatively small in comparison to the rest of the wetland acreage and would not substantially interfere with groundwater recharge. Further, no groundwater would be used during construction. The project improvement would have a short-term and negligible impact on groundwater resources that is less-than-significant (NEPA); adverse impacts under CEQA would be less than significant.

Sacramento River Mitigation Site and American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant; Long-term and Beneficial

The SRMS and ARMS were not considered in the 2016 ARCF GRR FEIS/EIR and are considered a new action under both NEPA and CEQA. The SRMS and ARMS would involve

regrading and constructing channels into these sites, including the removal of a man-made pond, and restoring connectivity with the adjacent rivers. The channels would be designed to have hydrologic connectivity to the Sacramento and American Rivers at all flow levels. This would create increased opportunities for groundwater infiltration, while increasing soil saturation and restoring the conditions needed to sustain riparian vegetation at both sites. Design of habitat mitigation features at the SRMS will evaluate tidal damping, channel stability, and exposure time for the wetland marsh feature (Environmental Science Associates, 2019). Selection of a hydrodynamic model will be determined for supporting the design process. Therefore, site restoration would have long-term beneficial impacts on groundwater resources (NEPA).

A variety of water sources would be required to establish the plantings at each mitigation site. These sources include pumping directly from the river, developing a well for revegetation purposes, municipal water, or water truck delivery to the site. At the programmatic design level, estimations include one well would be drilled at each mitigation site to temporarily water new plantings. Both ARMS and SRMS are located in the Sacramento Valley Basin, with ARMS in the North American Subbasin and SRMS in the Solano Subbasin. Groundwater data collected by DWR shown on the California's Groundwater Live, Groundwater Levels ArcGIS Dashboard (2022) show monitoring wells in the ARMS area are Normal (50-75%) to Above Normal (75-90%) for water levels. Two continuous global positioning systems (CGPS) stations exist in Sacramento County in the Sacramento Valley – South American Subbasin. CGPS Station P274 over the period of record (2005-2023) show a vertical water displacement of -0.27 feet; CGPS Station P275 shows vertical displacement of -0.15 feet from 2006 to 2023. Twenty-year groundwater level trends data shows that the subbasins that ARMS and SRMS are located within, have a generally decreasing trend of groundwater levels up to 2.5-feet/year. There is no land subsidence data for Sacramento County.

While groundwater levels are trending minor negative vertical displacement in Sacramento County, drilling several wells in areas that do not currently supply large municipalities for domestic or agricultural purposes would have a negligible impact on groundwater resources. DWR estimates in California's Groundwater Update that between 7,000 and 15,000 new wells are constructed in California each year (DWR 2020). Therefore, well installation for purposes of establishing mitigation plantings would have a short-term and negligible impact on groundwater resources that is less than significant (NEPA); adverse impacts under CEQA would be less than significant.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Because the Piezometer Network was not considered in the 2016 ARCF GRR FEIS/EIR, the impact conclusions are identical under both NEPA and CEQA. The purpose of the piezometer sensors is to monitor groundwater levels to ensure adequate performance of the levee improvements and would not interfere with groundwater recharge or use groundwater supply. Therefore, there would be no adverse impact on groundwater supplies or management.

3.3-b Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: 1) result in substantial erosion or siltation on- or off-site; 2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or 4) impede or redirect flood flows.

CEQA Significance Conclusion: Potentially Significant and Unavoidable

NEPA Significance Conclusion: Potentially Significant and Unavoidable

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Potentially Significant and Unavoidable

NEPA Impact Conclusion (Design Refinements): Potentially Significant and Unavoidable

The design refinements made to MCP since the 2016 ARCF GRR FEIS/EIR are intended to increase the flow capacity of Magpie Creek and improve hydraulics within the site over the long-term, including improved erosion protection by changing the Stream flows. Siltation on Magpie Creek has not been an issue in this location. Specific design refinements that improve hydraulics include vegetation clearing along approximately 2,700 linear feet of the channel between Vinci Avenue and Dry Creek Road, and overall widening of an estimated 2,100-foot segment of the channel between Raley Boulevard and Vinci Avenue. The channel slopes would be modified to a 2:1 slope and the channel bed would be widened an average of 10 to 25 feet. The widening of the channel would increase its flow capacity and modification of the channel slopes to a gentler grade would decrease bank erosion and instability of the channel. In addition, the removal of vegetation would increase flow velocities and conveyance in the channel.

The levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank and would be located between the channel and a developed industrial area to the south. It would not significantly impact hydrology or hydraulics because it would contain flood flows within the channel and adjacent undeveloped floodplain and keep flood flows from impacting the industrial area. The realignment of Magpie and Don Julio Creeks on either side of Raley Boulevard would be a short-term significant hydraulic impact during construction due to work occurring in the channels. An approximately 325-foot portion of Magpie Creek would be realigned to flow through a new culvert under Raley Boulevard to replace the existing undersized culvert, and approximately 200 feet of Don Julio Creek would be realigned to flow around the new culvert. Additionally, a sewer pipeline would be rerouted so that construction of the Raley Boulevard culvert does not damage it. The realignment would be done during the dry season. However, in the event that summertime flows are too great for the work to be completed, a Low Threat General Order (LTGO) Permit would be obtained from the CVRWQCB and the channel would be dewatered using a coffer dam and

pumped back into the channel downstream. The old channel would be filled in and once construction is completed the new channel would have the same hydraulic capacity.

Without the project improvements, flood waters from an approximately 7% AEP event (approximately a 1 in 15-year event) would overtop and go around the existing levee and flow through the old Magpie Creek channel, resulting in downstream flooding. The project improvements would prevent this overtopping and end-around effects, and would therefore increase waters being routed through the MCDC, and eventually Robla Creek, during storm events larger than a 7% AEP. This would result in an increase in peak discharges, velocities, and flood water volumes on the downstream segments of the MCDC, and Robla and Dry Creeks. Downstream stages would increase up to 0.3 feet, a significant impact. Mitigation Measure HYDRO-1 and HYDRO-2 would be implemented to avoid or reduce these effects through project design, or provide compensatory mitigation if required. Please refer to the Hydraulic Summary report provided in Appendix C for additional details. Even after implementing these Mitigation Measures, the impact would remain potentially significant and unavoidable. It is anticipated that there may be negligible to minor impacts associated with certain inhabited areas that occur up-stream of Northern Sacramento Bike Trail bridge on Robla Creek due to a minimal amount of induced flooding from the project. To better ascertain the impacts from this induced flooding there is a need for further modeling to occur. Once the modeling is available, the full extent of the impact would be assessed. If there is an impact that would warrant a take analysis being performed, necessary mitigation would be determined or further refinements in the project design would be made to reduce downstream impacts.

The design refinements would cause minor impacts to hydrology. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.41 acres of this wetland. However, construction of the realignment would not significantly alter the area's topography relative to the remaining 2.4-acre wetland and impacts to local hydrology would be less than significant.

Staging areas would be used temporarily for up to two construction seasons and would be returned to pre-existing conditions once construction is complete. Use of the staging area east of Raley Boulevard would not impact hydrology and hydraulics, as it is located at a higher elevation than the surrounding land. The MCP's northwest staging area contains numerous wetlands, with about 1.5 acres of upland area that can be used as staging. Use of this staging area would require vehicles and equipment to be confined to the upland area and use developed roadways to avoid impacting the wetlands on this parcel. Haul routes would use existing paved roads and would not impact hydrology and hydraulics.

The levee raise, maintenance road, and bike path bridge improvements were described in the Recommended Plan in the 2016 ARCF GRR FEIS/EIR and were not found to significantly impact hydrology or hydraulics. This is because these designs would better convey water flow through the current alignment of Magpie Creek and not interfere with the drainage pattern of the surrounding area.

The realigned and widened channel between Raley Boulevard and Vinci Avenue would accommodate 2,000 cfs. Because the design flow must accommodate 3,169 cfs, Magpie Creek

would not be able to convey the design flow and impacts would be potentially significant. Mitigation Measure HYDRO-1, which was previously adopted for the ARCF 2016 Project, would reduce hydrology and hydraulics impacts from the components described in the ARCF GRR FEIS/EIR to less than significant through the establishment of flowage easements to meet the conveyance volume of the required design flow of 3,169 cfs prior to channel widening. The project improvement would have a short-term and moderate to major impact on drainage patterns that is less-than-significant with mitigation (NEPA); adverse impacts under CEQA would be less than significant with mitigation.

Mitigation Measure HYDRO-1: Obtain flowage easements on adjacent floodplain

Prior to the start of the channel widening and levee improvements, the Project Partners shall obtain easements on 80 acres of the floodplain, to ensure the downstream portion of the system can accommodate the increased design flows conveyed by the upstream channel. The easements shall reserve 80 acres of floodplain area to contain flood flows and ban development of structures that could impact flood flows in perpetuity.

Timing: Before construction

Responsibility: Project Partners

Mitigation Measure HYDRO-2: Address downstream stage increases

Prior to the start of the channel widening and levee improvements, the Project Partners shall address downstream stage increases resulting from the improvements. These increases could be addressed through the following measure:

- Prepare an analysis to identify impacts to downstream properties that would experience a stage increase of 0.1 foot or more. Impacts to these properties would be quantified and compensation would be provided in accordance with applicable law.

Timing: Analysis completed before construction

Responsibility: Project Partners

American River Erosion Contract 3B North and South, and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

The American River Erosion Contact 3B North and South, and American River Erosion Contract 4B design refinements include construction of launchable rock toe and tiebacks as bank erosion control, as well as additional areas for bank and levee protection not originally considered in the ARCF GRR FEIS/EIR. These design refinements would be entirely within the river channel and existing levee system and would not alter the drainage pattern of the surrounding area or alter the course of the river channel. The addition of the launchable rock toe would narrow the channel and raise the river stage, as compared to a launchable rock trench where the rock would be

placed in an excavated trench within the existing riverbank. The tiebacks would be placed intermittently higher up on the bank slope to transition the riprap bank protection into the levee slope protection and would be built so that they interrupt and absorb the higher river flows, preventing scour at higher elevations without armoring the entire riverbank.

An evaluation of the system's overtopping risk would be established through a comprehensive Flood Damage Reduction (FDA) analysis led by the Sacramento District (SPK) Cumulative Modeling Team (CMT). Interim FDA model results by the CMT indicate that American River Erosion Contract 3B North and South and 4B do not increase the risk of overtopping of the North and South Levee Systems. Thus, there would be negligible impacts from the fill material required to construct the erosion protection design in terms of channel capacity and water surface elevation changes. The effect, therefore, would be anticipated to be less than significant.

The American River Erosion Contract 4B design refinements include velocity and tree scour protection work along the northern (0.2 miles) and southern (0.6 miles) levees. This work includes some tree removal, and placement of rock around trees that would be protected in place to address scour caused by localized hydraulic conditions around tree trunks during high flows. Because this work would improve hydrology or hydraulics in the surrounding area, impacts to hydrology and hydraulics are not anticipated.

NEPA Impact Conclusion (Design Refinements): Long-term and Negligible effects that are Less than Significant.

The American River Erosion Contract 3B North and South levee improvements include the launchable trench and standard bank protection with IWM incorporated as described in the 2016 ARCF GRR FEIS/EIR, and the launchable rock toe method, tiebacks, and locations included in the design refinements. The hydraulic analysis described above for CEQA incorporated actions described in the ARCF GRR FEIS/EIR, as well as the design refinements made since then. Thus, the impacts to hydraulics under NEPA would be long-term and negligible and less than significant.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant.

The American River Erosion Contract 4A improvements consist of an armored berm to be constructed along the river's right bank where the State Route 160 bridge piers are near the levee. The berm and its location were not analyzed in the 2016 ARCF GRR FEIS/EIR and impacts from construction activities are considered new actions under both NEPA and CEQA. The function of the berm would be to redirect flood flows away from the bridge piers and the nearby levee. A hydraulic analysis on the berm found that the velocity changes created by the berm would be small and resulting scour would be negligible. The redirected flows would be localized, would stay within the levee system, and would not impact surrounding areas. The proposed rerouting of the Jedediah Smith Memorial Bike Trail would involve paving and

regrading but would not result in a substantial increase in impervious surfaces because this action would be replacing an existing trail with another trail in a different location within the levee system. This new bike trail reroute would involve adding a new impervious surface in the parkway. Additionally, the bike path would be constructed along a profile that matches the elevation of the existing bike path to provide equal or better access during moderate flow event that inundate portions of the floodplain. HEC-RAS rain-on-grid simulations were conducted with the proposed grading to confirm the accessibility of the proposed bike path and assess local runoff pattern change. Based on the model result, culverts were placed at several locations to allow drainage through the elevated bike path. Thus, mitigated the drainage pattern impact of the elevated bike path. At high flows where the floodplain is conveying water (115,000 cfs and greater), model result confirmed there is less than significant impact due to the elevated bike path. Use of the staging areas would be temporary and would not affect hydrology or hydraulics and the staging area would be returned to pre-existing conditions once construction is complete. Haul routes within the Parkway would require minor regrading and addition of aggregate rock to facilitate truck access, but these actions would not significantly interfere with hydrology or hydraulics. The project improvement would have a short-term and negligible impact on drainage patterns that is less-than-significant (NEPA); adverse impacts under CEQA would be less than significant.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Long-term and Minor effects that are Less than Significant.

The Sacramento River Erosion Contract 3 in the 2016 ARCF GRR FEIS/EIR Recommended Plan include the placement of rock revetment from the riverbed to several feet above the summer water surface elevation to protect the riverbank from scour during high river flows. The Sacramento River design refinements include a launchable rock toe, which would supplement the standard rock revetment described in the 2016 ARCF GRR FEIS/EIR, with an additional 10 feet of rock at the revetment base. The tie-backs would be placed perpendicular to the river channel to prevent erosion of the upper bank without installing continuous rock protection. These design refinements would be entirely within the river channel and would not alter the drainage pattern of the surrounding area or alter the course of the river channel itself. The staging area would be located on an existing paved parking lot and would not affect hydrology or hydraulics. Effects of the erosion protection design were modeled using the 2D HEC-RAS model for a 1-in-350-year flow event (192,000 cfs). Results of the modeling indicate the rock revetment design would lead to stage increases of less than 0.2 ft and would not increase the risk of overtopping. The project improvement would have a long-term and minor impact on drainage patterns that is less-than-significant (NEPA); adverse impacts under CEQA would be less than significant.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Long-term and Beneficial

The ARMS site lies adjacent to the right bank of the lower American River and consists of a man-made pond created as a result of a historic gravel mine. The design is in the conceptual stage and would involve re-grading the majority of the site, including backfilling portions of the man-made pond, to create floodplain containing one or more channels connected to the river.

The ARMS site has been designed to incorporate erosion control measures using IWM and other natural engineering features to mitigate erosional risks both on and offsite; The site design would also accommodate natural sedimentation processes to allow for onsite habitats, post-construction, to become self-sustaining through ecological succession. Additionally, the site will be designed to ensure that flood flows are not impeded or redirected such that the rate and/or amount of surface runoff would contribute to on or offsite flooding. The project improvement would have a long-term and beneficial impact on drainage patterns (NEPA); adverse impacts under CEQA would be less than significant.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Long-term and Beneficial

At the confluence of Cache Slough, Steamboat Slough, and the Sacramento River, the SRMS forms a peninsula currently used as a dredge material disposal site. The eastern half of the SRMS is bordered by a Federal levee. The western half of SRMS is bordered by a non-Federal levee system which has been breached for Sacramento Shipping Channel dredging operations.

The SRMS design is still in the conceptual phase. All concepts would involve breaching the levee on the western half and excavation of one or more channels to reconnect the floodplain to the adjacent waterbodies. Breaching the Federal levee to establish additional floodplain on the eastern half is being considered. Any of the designs considered under the SRMS would improve hydrology and hydraulics because it would reconnect a portion of floodplain in the Sacramento-San Joaquin Delta to natural hydrologic influence, while decreasing river stage at high flow events. During high flow events, the SRMS would provide additional floodplain at the site, compared to the existing confined narrow channel, resulting in lower river stages and erosion potential. The project improvement would have a long-term and beneficial impact on drainage patterns (NEPA); adverse impacts under CEQA would be less than significant.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Because the piezometer installations were not considered in the 2016 ARCF GRR FEIS/EIR, the impact conclusions are identical under both NEPA and CEQA. The ground-disturbing work for Piezometer Network is confined to the drilling of boreholes on the levee top or landward of the levees. Therefore, installation and operation of the piezometers would have no impact on hydrology or hydraulics.

Alternatives Comparison

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A. All alternatives would be constrained within the construction buffer limits of the American River Erosion Contract 4A. Spatial constraints include the State Route 160 bridge to the northwest, the existing levee to the north and the American River to the south. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as American River Erosion Contract 4A. Overall the effects from Alternatives 3a through 3d would be similar to the Proposed Action and are described in Table 3.3-1.

Alternative 3a includes an alternative berm configuration for the American River Erosion Contract 4A. The waterside berm described in the American River Erosion Contract 4A would address unfavorable hydraulic conditions created by flood waters flowing past the State Route 160 bridge piers, which could erode the nearby levee and cause a breach. However, the waterside berm would require filling of a wetland in order to construct. Alternative 3a would avoid this impact by constructing a landside berm connected to the existing levee. This structure would contain floodwaters in the event that the main levee is breached. The bike trail would not require re-routing.

Alternative 3b would be similar to the American River Erosion Contract 4A but would require a different permanent bike trail reroute. The route following the railroad would be slightly longer than the American River Erosion Contract 4A and would require some vegetation trimming, clearing, regrading, and paving.

Alternative 3c would be similar to the American River Erosion Contract 4A but would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving and possible construction of a bridge. This alternative would require temporary closure of the bike trail and require temporary detours.

Alternative 3d would be similar to the American River Erosion Contract 4A for the Proposed Action, except that the permanent bike trail reroute would be a paved bike trail closer to the river along an existing off-road bike trail. Installing this route would require some vegetation trimming, vegetation clearing, regrading, and paving.

Table 3.3-1. Alternative 3a, 3b, 3c, and 3d Effects on Hydraulics and Hydrology

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3 - a: Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	American River Erosion Contract 4a	Similar to the Proposed Action for American River Erosion Contract 4A, the landside berm would not affect groundwater.	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant
3.3 - b: Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces	American River Erosion Contract 4A	Similar to the Proposed Action for American River Erosion Contract 4A, Alternative 3 has less than significant impacts.	N/A	Less than Significant	Short-term and Negligible effects that are Less than Significant

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include alternative designs for improvements to the ARMS. Alternatives 4a and 4b would preserve a 30-acre and 20-acre portion, respectively, of the existing pond on the Urrutia site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would remain unchanged compared to the Proposed Action. Overall the effects from Alternatives 4a and 4b would be similar to the Proposed Action and are described in Table 3.3-2.

Table 3.3-2. Alternative 4a and 4b Effects on Hydraulics and Hydrology

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.3 - a: Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	ARMS	Similar to the Proposed Action, Alternatives 4a and 4b would provide opportunities for groundwater infiltration on the ARMS.	N/A	Less than Significant
3.3 - b: Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces	ARMS	Similar to the Proposed Action, Alternatives 4a and 4b would not increase flows or create unfavorable hydraulic conditions on the American River.	N/A	Less than Significant

Alternative 5a

Alternative 5a would eliminate the need to construct the SRMS. This alternative includes the purchase of all remaining required mitigation credits from Service Approved Conservation Banks, whose service areas cover the Proposed Action Area. There would be no additional resources impacts. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action.

Table 3.3-3. Alternative 5a Effects on Hydraulics and Hydrology

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3 - a: Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Approved Conservation Banks	Alternative 5a would have no effect on the hydrology or hydraulics of the Site. Credits would be purchased for offsite mitigation.	N/A	No Impact	No Impact
3.3 - b: Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces,	Approved Conservation Banks	Alternative 5a would have no effect on the hydrology or hydraulics of the Site. Credits would be purchased for offsite mitigation.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would meet the SRMS mitigation target acreage by constructing a mitigation site at Watermark Farms, instead of the SRMS. All other project components (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action.

Watermark Farms is privately owned and located within Sacramento County and includes the waterside of the levee to landside toe, and adjacent existing farmland. Watermark Farms is on the right bank of the Sacramento River, from River Mile 50.5 to River Mile 51.25, across from the Pocket neighborhood and can be accessed from South River Road. The conceptual design is to restore approximately 227 acres of riverine and floodplain habitat by breaching the existing levee and creating a new setback levee and secondary channel. This floodplain and shallow-water habitat would provide suitable habitat for salmonid species, green sturgeon, and Delta smelt. Overall the effects from Alternatives 5b would be similar to the Proposed Action and are described in Table 3.3-4.

Table 3.3-4. Alternative 5b Effects on Hydraulics and Hydrology

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Comparison to No Action
3.3 - a: Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Watermark Farms	Alternative 5b would not interfere substantially with groundwater or recharge potential. Similar to the Proposed Action, this alternative would have beneficial impacts associated with increasing the size of the floodplain and improving hydrologic connection.	N/A	Less than Significant	Beneficial
3.3 - b: Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces,	Watermark Farms	Alternative 5b would have substantial effects on the hydrology or hydraulics of the Site, by converting farmland to a natural floodplain via setback levee. This alternative would not increase risk of erosion or affect the hydrology of the Sacramento River negatively.	N/A	Less than Significant	Beneficial

Alternative 5c

Alternative 5c combines three approaches to complete the SRMS. The SRMS would not be constructed. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action.

Alternative 5c would accomplish the following actions:

1. Purchase of Delta Smelt Conservation Bank Credits from USFWS approved banks,
2. Provide funding for the Sunset Pumps Project to remove an existing rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon and steelhead, and
3. Provide funding for the Sunset Pumps Project riparian mitigation requirements.

Purchasing mitigation credits would have no impact on the hydrology or hydraulics of any water systems in the project footprint. The Sunset Pumps Project will be evaluated under separate NEPA and CEQA by the Project Proponents, including DWR, USFWS and BOR. Therefore, no

analysis for the partial to full funding of construction of the Sunset Pumps Project is needed in this analysis.

Table 3.3-5. Alternative 5c Effects on Hydraulics and Hydrology

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.3 - a: Decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Approved Conservation Banks and Sunset Pumps	Alternative 5c would have no effect on the hydrology or hydraulics of the Site. Credits would be purchased for offsite mitigation.	N/A	No Impact	No Impact
3.3 - b: Alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces,	Approved Conservation Banks and Sunset Pumps	Alternative 5c would have no effect on the hydrology or hydraulics of the Site. Credits would be purchased for offsite mitigation.	N/A	No Impact	No Impact

3.4 Water Quality

3.4.1 Existing Conditions/Affected Environment

The environmental and regulatory framework described in Section 3.5 of the 2016 ARCF GRR FEIS/EIR adequately described the current water quality conditions within the project sites. However, the Magpie Creek Project (MCP) and the Sacramento River Mitigation Site (SRMS) were not included in the 2016 ARCF GRR and are discussed below in more detail.

Magpie Creek Project

Magpie Creek is not specifically mentioned in the Basin Plan, as it is impractical to list every surface water in the Central Valley Region. Waters which are not specifically listed are assigned the Municipal and Domestic Supply beneficial use by default, and other uses may apply. The MCP area is located just downstream of the former McClellan Airforce Base (now McClellan Business Park), which was designated a federal superfund site in 1987 due to contamination from organic solvents, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), vinyl chloride, metals, pesticides, oils and greases, and radioactive compounds. Cleanup activities associated with the base extended as far west as the project area. Today, Magpie Creek receives perennial water from McClellan Business Park wastewater effluent and stormwater runoff before its confluence with Don Julio Creek at Raley Blvd. Additional details are described in Appendix B Section 3.8 Hazards and Hazardous Materials.

Because of the area's history, the anticipated work to be conducted, and to support acquisition of the floodplain, soil testing was conducted in 2016 east of Raley Blvd and again in 2021, adjacent to the canal west of Raley Blvd. The results are summarized in two separate Phase II Environmental Site Assessment (ESA) reports. During the 2016 sampling event, several locations contained PCBs and metals at concentrations that exceeded the lower end of the ecological screening levels, indicating potential low level adverse effects to aquatic or terrestrial organisms. The majority of the samples did not contain detectable concentrations of these contaminants. Volatile and semi-volatile organic compounds, dioxins, diesel, and gasoline were analyzed, but not detected. The 2021 sampling event included both soil and surface water testing for organochlorine pesticides (OCPs), PCBs, and metals. OCPs and PCBs were not detected in the water samples, and metals were below the screening levels for tap water. Several OCPs and one PCB were detected in the soil samples, but not at concentrations exceeding the screening levels for industrial soil.

Sacramento River Mitigation Site

Water quality in the Delta near the SRMS is highly variable and heavily influenced by inflows from rivers and by seawater intrusion into the western and central portions of the Delta during periods of low outflow. Water quality parameters of particular concern include salt intrusion, turbidity, temperature, nutrients, and mercury. Prior to construction, an environmental site assessment would be performed to identify any specific areas of concern. The concentrations of these materials in the Delta are affected by river inflows, tidal flows, agricultural diversions, drainage flows, wastewater discharges, water exports, cooling water intakes and discharges, and groundwater connectivity (CVPIA, 1999).

303(d) Listed Impaired Waters

Pursuant to the Porter-Cologne Act, the Central Valley Regional Water Quality Control Board (CVRWQCB) updates the Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins (which includes portions of the Delta area such as the area around SRMS) every 3 years. The Basin Plan describes the designated beneficial uses for surface and ground water sources and associated water quality objectives to protect those uses. The most recent Basin Plan for the CVRWQCB was published in February 2019.

Under Section 303(d) of the Federal Clean Water Act (CWA), the SWRCB is required to submit to the U.S. Environmental Protection Agency a list identifying waterbodies not meeting water quality standards established to meet their designated beneficial uses. The most recent 303(d) list was published in the 2020 – 2022 Integrated Report (SWRCB 2022).

Surface waters in the region can be affected by contamination from agricultural pesticide runoff, industrial chemicals, mercury and other metals from mining, and temperature exceedances. The Lower American River is on the 303(d) list for the pesticides Bifenthrin and pyrethroids, polychlorinated biphenyls (PCBs), bacteria, mercury, and toxicity. More recently it has been proposed to be listed for temperature.

The Sacramento River from Knights Landing to the Delta (The Basin Plan defines the boundary to be near the City of Antioch, which includes the area around SRMS has been proposed to be on the 303(d) list for pesticides, (chlordane, dichlorodiphenyltrichloroethane (DDT), and dieldrin), mercury, PCBs, toxicity, and water temperature. The Sacramento River from the Sacramento City Marina to Suisun Marsh Wetlands has been proposed to be on the 303(d) list for pesticides (fipronil and pyrethroids), toxicity, and water temperature. A plan for meeting water quality standards, which includes determining the total maximum daily loads (TMDLs) for each contaminant, is being developed for these pollutants in the Sacramento River.

As a surface water that does not contain water quality standards in the Basin Plan, Magpie Creek is not listed on the State’s 303(d) List of Impaired Waters.

Existing Water Quality Conditions

Section 3.5 of the ARCF GRR FEIS/EIR (page 95-108) describes existing conditions of the American and Sacramento Rivers within the project sites. The 2019 Basin Plan identifies the following beneficial uses as applicable to the Lower American River from Folsom Dam to its confluence with the Sacramento River, and for the portion of the Sacramento River falling within the legal Delta including SRMS:

- Municipal and domestic supply
- Industrial service supply
- Industrial process supply
- Agricultural irrigation
- Stock watering (Sacramento River only)
- Groundwater recharge
- Navigation (Sacramento River only)
- Non-contact water recreation
- Water contact recreation
- Shellfish harvesting
- Commercial and sport fishing
- Warm freshwater habitat
- Cold freshwater habitat
- Migration of aquatic organisms
- Wildlife habitat
- Spawning for warm-water species
- Spawning for cold-water species (American River only)

Temperature and Dissolved Oxygen

Water temperature is a critical parameter from the standpoint of aquatic life, and the American and Sacramento Rivers have cool water temperatures. The Basin Plan states that temperatures cannot deviate more than 5°F from ambient river temperatures. Dissolved oxygen (DO) is inversely related to temperature, another critical parameter for aquatic life; higher temperatures decrease the amount of oxygen that the water can carry. DO levels can also be affected by water flow and can be depleted by decaying organic matter such as leaf litter. The Basin Plan has established DO objectives for waters with cold- and warm- freshwater habitat beneficial uses as well as spawning habitat beneficial uses, which apply to both the American and Sacramento Rivers.

Salinity

Salinity for municipal, agricultural and fish and wildlife uses is more of a concern in the tidally influenced Delta as saltwater intrusion from the ocean can negatively impact the Delta during below average water years as the river outflow is not adequate to keep the saltwater intrusion far enough out of the Delta system. Salinity in the Delta is subject to control through modifications caused by exports and floods, with climate as the primary long-term driver.¹

Turbidity and Total Suspended Sediment

Although sediment transport is part of natural river processes and dams have decreased sediment inputs into the American and Sacramento Rivers, it is considered a pollutant by the CVRWQCB and some streams are designated impaired in the region for sediment. Suspended sediment can be a source of transport for certain contaminants which bind to sediment. Sediment may smother benthic organisms and can have negative aesthetic impacts to surface waters. Construction activities can be a source of excess sedimentation into rivers and streams. Turbidity is an optical measurement of suspended sediment, and construction activities need to comply with the turbidity thresholds specified in the Basin Plan.

Mercury and Methylmercury

Inorganic mercury was utilized in Sierra Nevada gold mining operations starting in the late 1800s and is still present in sediment along downstream streams and rivers. Methylmercury is a highly toxic form of mercury which bioaccumulates in aquatic organisms and is formed by bacteria in wetlands, lakes, and stream beds. Controlling erosion of sediment into waterways is important for reducing fish mercury levels.

Nutrients

Nutrients, primarily nitrogen compounds (N) and phosphorus (P), may trigger excessive growth of algae or toxic blue-green cyanobacteria. Primary sources of nutrients are erosion, agricultural runoff, urban runoff, and treated municipal effluent. The emergency of increased concentrations

¹ Enright, C., and S. D. Culberson. 2009. Salinity trends, variability, and control in the northern reach of the San Francisco Estuary. *San Francisco Estuary and Watershed Science*, 7(2). <http://escholarship.org/uc/item/0d52737t>. Accessed October 2019.

of harmful algae blooms is indicated of potential problems with water stagnation, nutrient loading, and temperature increases. The cyanobacterium *Microcystis aeruginosa* has been an increasing component of summer harmful algal blooms in the Delta. ²

Groundwater Quality

In 2010, the CVRWQCB adopted a roadmap for protecting groundwater quality in the Central Valley. This roadmap is not a regulatory document but is intended to outline priorities and strategies for improving groundwater quality. The Plan identifies salinity, pesticides, and pathogens as the primary groundwater quality constituents of concern throughout the CVRWQCBs. ³

3.4.2 Applicable Laws, Regulations, Policies, and Plans

Sections 3.5 of the 2016 ARCF GRR FEIS/FEIR (page 96) identifies Federal, State or Local environmental laws and regulations that apply to regulating water quality. The following laws and regulations may have been updated since the 2016 ARCF GRR FEIS/FEIR or may have not been included and are included now.

Federal

Clean Water Act

The CWA is the primary Federal law governing water pollution. It established the basic structure for regulating discharges of pollutants into Waters of the U.S. (WOTUS) and gives the United States Environmental Protection Agency (USEPA) the authority to implement pollution control programs. In California, the USEPA has delegated authority to regulate the CWA to state agencies such as the CVRWQCB and SWRCB. Section 401 of the CWA regulates the water quality for any activity that may result in any in-water work or discharge into navigable waters. These actions must not violate Federal water quality standards. The CVRWQCB administers Section 401 of the CWA in California, and either issues or denies water quality certifications. Water quality certifications typically include project-specific requirements to ensure attainment of water quality standards. USACE obtained a Programmatic CWA 401 water quality certification (Order No. 5A34CR00819) on July 13, 2021, for the ARCF project. Each individual project will request coverage under this overall permit and this permit will expire July 12, 2026.

Section 404 of the CWA requires that a permit be obtained from USACE when an action will result in the discharge of dredged or fill material into wetlands and waters of the U.S. The 404(b)(1) guidelines specify that “no discharge of dredged or fill material shall be permitted if there is a practical alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse

² Lehman, P.W., Boyer, G., Satchwell, M. and Waller, S., 2008. The influence of environmental conditions on the seasonal variation of *Microcystis* cell density and microcystins concentration in the San Francisco Estuary. *Hydrobiologia*, 600(1), pp. 187-204.

³ Central Valley Regional Water Quality Control Board, “Groundwater Quality Protection Strategy: A ‘Roadmap’ for the Central Valley Region,” August 2010, https://www.waterboards.ca.gov/centralvalley/water_issues/groundwater_quality/2010aug_gwq_protect_strat_approved.pdf.

environmental consequences” (40 C.F.R. § 230.10[a]). When conducting its own civil works projects, USACE does not issue permits to itself. Rather, USACE complies with the guidelines and substantive requirements of the CWA, including Section 404 and Section 401. The Proposed Action would require discharge of fill material into WOTUS; therefore, a Section 404(b)(1) analysis will be completed after the Draft SEIS/SEIR is published but included as an appendix to the Final SEIS/SEIR. The discharge of fill material would comply with the 404(b)(1) guidelines with the inclusion of appropriate measures to minimize pollution or adverse effects on the aquatic ecosystem.

The project would also require a National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit since it would disturb more than one acre of land and involve possible storm water discharges to surface waters. Prior to construction, the contractor would prepare a Storm Water Pollution Prevention Plan (SWPPP) and then submit a Notice of Intent form to the CVRWQCB, requesting approval of the proposed work. This storm water plan would identify best management practices to be used to avoid or minimize any adverse effects of construction on surface waters. Once the work is completed, the contractor would submit a Notice of Termination to terminate coverage by the NPDES permit.

A CWA Section 401 Water Quality Certification and Order (WDID No. 5A34CR00819) was received from the CVRWQCB and went into effect for the ARCF 2016 Projects on July 13, 2021, and expires on July 12, 2026. The order requires USACE contractors to implement best management practices such as installation of a turbidity curtain to protect water quality. In addition, the order requires the contractor to monitor water quality during in-water construction and submit monthly monitoring reports to the CVRWQCB. If any of the ARCF 2016 Projects extend past the orders sunset date of July 12, 2026, USACE would be required to either amend its current permit or obtain a new permit from the CVRWQCB. Separate 401 Water Quality Certifications would be obtained for offsite mitigation sites.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation’s public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs, and ground water wells. SDWA authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. USEPA, states, and the local water system managers work together to ensure these standards are met.

State

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act requires each of the state’s nine regional water quality control boards (RWQCBs) to prepare and periodically update basin plans for water quality control. The jurisdiction of each RWQCB 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.

Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin

The water quality standards for these basins are contained within the Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin per Section 303 of the CWA. This document was last updated in 2019 (CVRWQCB 2019).

Water Quality Control Plan for the San Francisco Bay / Sacramento – San Joaquin Delta Estuary

The water quality standards applicable to the Delta are contained within this plan, per Section 303 of the CWA. This document was last updated in 2018 (SWRCB 2018).

The Delta Plan

The Delta Plan was enacted in response to the Sacramento-San Joaquin Delta Reform Act of 2009, which established the Delta Stewardship Council to create a comprehensive management plan to guide Federal, State, and local agencies on how to manage the Delta's water and environmental resources. The Delta Plan includes 14 regulatory policies and 95 recommendations. Collectively, these policies and recommendations address current and predicted challenges related to the Delta's ecology, flood management, land use, water quality, and water supply reliability.

Local

City of Sacramento 2035 General Plan – Environmental Resources

The City of Sacramento (City) 2035 General Plan was adopted in March 2015 (City of Sacramento 2015). The City set out numerous goals around the topic of Environmental Resources, including water quality protection and biological resources. The policies to support these goals prioritize water quality improvement, groundwater recharge, watershed protection, stormwater quality and quantity, minimization of construction impacts, wetland and riparian habitat protection, and many others.

3.4.3 Analysis of Environmental Effects

Analysis Methodology

Water quality impacts resulting from the Proposed Action were evaluated based on construction methods and duration, the materials used, the location, and the design of the project. The impacts were compared to the designated beneficial uses of the project's waterways and the thresholds of significance defined in the following section.

Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). 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, as amended. The alternatives under consideration were determined to result in a significant impact related to water quality if they would do any of the following:

- a. violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; or,
- b. conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Effects Analysis

No Action Alternative

Under the NEPA No Action Alternative, the remaining work on Magpie Creek, Lower American River, and Sacramento River described in the ARCF GRR FEIS/EIR would be constructed, but without the components of the Proposed Action. The MCP consisted of a levee raise and widening, a landside maintenance road, a new levee, culvert installation, and floodplain acquisition. With the exception of the floodplain acquisition, the MCP work was to occur west of Raley Blvd. The No Action Alternative did not include in-water work and effects to water quality were found to be less than significant.

The ARCF GRR FEIS/EIR found that construction of the launchable rock trenches on the American River would not impact water quality because this work would occur outside of the wetted channel. Construction of standard bank protection along the American and Sacramento Rivers would involve placement of underwater rock revetment along the riverbanks and could result in turbidity exceedances caused by sediment plumes, resulting in a significant but temporary impact. Equipment operation on land could result in stormwater runoff of soil from access and staging areas on the American River, while barge movement and anchoring could increase turbidity levels on the Sacramento River. Water temperature effects on the American and Sacramento Rivers were found to be less than significant because removed vegetation would primarily consist of shrubs and grasses which do not contribute significantly to shade, and trees would be protected in place. Additionally, the bank protection sites would include riparian plantings, which would contribute to shade long-term. Therefore, water quality effects were mainly temporary and during construction. With the avoidance and minimization measures discussed in the ARCF GRR FEIS/EIR Section 3.5.6, which include Best Management Practices (BMPs) and water quality sampling, effects to water quality would be reduced to less than significant.

However, since the analysis in the ARCF GRR FEIS/EIR, additional design refinements described under the Proposed Action were developed to meet the flood risk management goals of the ARCF 2016 Project. Without these additional improvements, portions of the American and Sacramento River levee system would be vulnerable to erosion, and MCP would not have capacity to convey a 200-year flood event. This could leave portions of the project area vulnerable to flooding and the adverse water quality impacts related to that flooding. The effects to water quality under the No Action Alternative would be significant.

Proposed Action Alternative

3.4-a Violate any water quality standards or waste discharge requirements, otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Long-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Sacramento River Mitigation Site, American River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Long-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Construction of the MCP, American River Erosion Contract 3B, 4A, and 4B, Sacramento River Erosion Contract 3, SRMS, ARMS, and the Piezometer Network would involve use of construction equipment and associated hazardous compounds (e.g., oil, grease, lubricants, etc.) and include ground-disturbing activities adjacent to surface waters which could increase sediment entering those waters, and potentially affect surface water and groundwater quality, aquatic organisms, and beneficial uses. In addition, dewatering could occur in areas where construction activities encounter shallow groundwater to continue with construction activities. Construction contractors would be required to prepare and implement a SWPPP which includes installation of BMPs to help protect surface water quality from storm water runoff. In addition, the Proposed Action would either use or amend its existing CWA Section 401 Water Quality Certification from the CVRWQCB and follow the avoidance and minimization measures in the permit prior to commencement of construction to ensure compliance with the Basin Plan and protect beneficial uses. The existing CWA 401 Water Quality Certification would be amended to include SRMS and ARMS. A new NPDES permit for dewatering for the MCP and American River Erosion Contract 4A would be obtained prior to construction. With implementation of Mitigation Measures GEO-1, HAZ-1, and WQ-1 impacts on water quality from construction activities would be reduced to less than significant under both CEQA and NEPA.

The Proposed Action requires discharges of fill into Federal and State waters. A Section 404(b)(1) evaluation will be completed to ensure impacts to the chemical, physical, and biological integrity of these waters along with the permanent fill footprint is adequately assessed. Mitigation for effects caused by adding fill to Federal or State waters would be accomplished

either through ESA-listed species mitigation required under the USFWS and NMFS Biological Opinions, or through the habitat mitigation requirements defined in the USFWS Coordination Act Report, which typically requires creation of new habitat at high mitigation ratios (see further discussion in Appendix B Section 4.1 Vegetation and Wildlife and 4.2 Aquatic Resources and Fisheries, and 4.3 Special Status Species for details on mitigations for impacts to biological resources). Implementation of Mitigation Measures GEO-1, HAZ-1, and WATERS-1, which were previously adopted for the ARCF 2016 Project, would reduce impacts from discharges of fill into Federal and State waters to less than significant under both CEQA and NEPA.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

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

Please refer to Appendix B, Section 3.8, “Hazards and Hazardous Materials,” for the full text of this mitigation measure.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife,” for the full text of this mitigation measure.

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

Before discharging any dewatered effluent to surface water at MCP and American River Erosion Contract 4A, the USACE and its Partners will obtain a Limited Threat General Order (LTGO) from the CVRWQCB. The LTGO will include water quality monitoring to adhere to the effluent and receiving water quality criteria outlined in the permit which is typically based on the CVRWQCB Basin Plan. As part of the permit, the permittee will design and implement measures as necessary to meet the discharge limits identified in the relevant permit. For example, if dewatering is needed during the construction of a cutoff wall, the dewatering permit would require treatment or proper disposal of the water prior to discharge if it is contaminated. These measures will represent the best available technology that is economically achievable to achieve maximum sediment removal.

Measures could include retaining dewatering effluent until particulate matter has settled before it is discharged, use of infiltration areas, and other BMPs. Final selection of water quality control measures will be subject to approval by the Central Valley RWQCB. USACE will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. USACE or its authorized agent will perform routine inspections of the construction area to verify that the water quality

control measures are properly implemented and maintained. USACE will notify its contractors and Project Partners immediately if there is a non-compliance issue and will require compliance.

Timing: Before and during construction

Responsibility: USACE

3.4-b Violate any water quality standards or waste discharge requirements, otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction project improvements.

CEQA Significance Conclusion: Short-Term Significant and Unavoidable, Long-Term Less than Significant with Mitigation.

NEPA Significance Conclusion: Short-Term Significant and Unavoidable; Long-Term and Minor effects that are Less than Significant.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated

The MCP design refinements include substantial in-channel work, including the realignment and widening of Magpie Creek on either side of Raley Boulevard, levee widening west of Raley Boulevard, culvert installation at Raley Boulevard, and the removal of channel vegetation between Vinci Avenue and Dry Creek Road. For the culvert installation, channel realignment, and channel widening, coffer dams would be installed for each section under construction and pumps would dewater the construction area. Water would be pumped and diverted around the construction area so that in-water work would not occur, which would minimize the amount of sediment entering receiving waters. The new channel would be excavated first, the box culvert installed, then the old channel would be filled in. The new channel would be widened to achieve 2:1 slopes along the banks and a 25 feet bed width, adding additional Waters of the United States acreage under jurisdiction. Water flowing through the new channel would carry sediment from the newly excavated canal downstream into Robla Creek, and ultimately into the Sacramento River approximately 8.5 miles downstream. Until the channel banks are revegetated, greater quantities of sediment would travel downstream when compared to the No Action Alternative. Due to the distance, it is likely this additional sediment would settle out before reaching the Sacramento River, particularly in the emergent wetlands in Robla Creek. In addition, the summertime and fall flows of Magpie Creek at this location are low which would minimize transport of sediments. The potential exists for legacy contamination from organochlorine pesticides, metals, and polychlorinated biphenyls to be carried downstream along with the

eroding sediment, though these contaminants were not found to be widespread throughout the project area.

Further, Magpie Creek receives wastewater effluent from McClellan Business Park before its confluence with Don Julio Creek within the project site. Because it is not specifically mentioned in the Basin Plan, its default beneficial use designation is Municipal and Domestic Supply, though it is highly unlikely this use is occurring on Magpie Creek. Improper handling, storage, or disposal of construction related materials or fuels and lubricants could cause degradation of surface waters or groundwater quality if they are not stored or handled properly. Even after implementation of Mitigation Measures GEO-1, HAZ-1, WATERS-1, and WQ-1 the construction of the MCP would result in significant and unavoidable impacts on water quality in Magpie Creek in the short-term due to sediment mobilization after water is introduced back into the new and widened channels after construction is complete. Long-term effects would be less than significant as vegetation reestablishes and stabilizes the channel banks.

The City of Sacramento 2035 General Plan states water quality protection as a goal and contains numerous policies to support that goal. The Proposed Action would not conflict with these policies and would implement several of these policies. The project would acquire, conserve and/or restore wetlands and floodplains at Magpie Creek and preserve SRA habitat when feasible; when not feasible, adverse impacts would be mitigated at a minimum 1:1 ratio by restoring this habitat onto planting benches on the American and Sacramento Rivers and at the mitigation sites considered under the Proposed Action.

American River Erosion Contract 3B North and South and 4B

CEQA Impact Conclusion (Entire Proposed Action): Short term Significant and Unavoidable, Long-term Less than Significant

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

The American River Erosion Contract 3B North and South, and 4B, design refinements include the staging area, haul routes, construction of launchable rock toe and associated planting benches, construction of tiebacks as bank erosion protection, and additional areas for bank and levee protection not originally considered in the 2016 ARCF GRR FEIS/EIR. In addition, American River Erosion Contract 4B overlays the same construction area as 3B and involves work to address tree scour and high velocities.

The planting benches would be constructed between the launchable rock toe erosion protection and the existing riverbank, resulting in the conversion of open water habitat to riparian forest, once the plantings have matured. The trees along the existing shoreline would be protected in place where possible, though some trees may require removal due to the location of the erosion protection features to allow for equipment access. These would be replanted in the same locations to replace those removed. However, existing trees left in place at locations where planting benches would be installed, would no longer be directly adjacent to the river and instead would be 20 feet away because the planting bench would be between the river and the existing trees. This would result in a temporary loss of shade where the planting benches are constructed until the young trees on the benches grow to sufficient height to shade the river. Instream woody

material (IWM) would be embedded into the planting benches to partially compensate for this impact. However, because the Lower American River is proposed to be 303(d) listed under the CWA for water temperature (SWRCB 2022), this short-term impact would be significant and unavoidable under both NEPA and CEQA. After vegetation has grown to sufficient height to shade the river, this long-term impact would be less than significant under CEQA.

American River Erosion Contract 4B located near American River Erosion Contract 3B North and South would require removal of trees above the OHWM. Because these trees do not provide shade to the river during the summer low flows, there would be no effect to water quality (temperature or dissolved oxygen) caused by tree removal at this site.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

Because American River 4A was not considered in the 2016 ARCF GRR FEIS/EIR, the impact conclusions are identical under both NEPA and CEQA. The American River 4A site is located above the American River OHWM and approximately 1,600 feet from the channel. Post-construction impacts on water quality would be less than significant because disturbed areas would be stabilized and/or revegetated to prevent erosion in storms and flood flows. In addition, implementation of Mitigation Measure WQ-1, which was previously adopted for the ARCF 2016 Project, would make impacts to the wetland less-than significant. The County of Sacramento General Plan (County of Sacramento 2017) contains numerous objectives for protecting and restoring in-stream riverine habitat and natural stream functions for preservation of water quality. Shaded riverine aquatic (SRA) habitat, and mitigation for SRA habitat, were specifically identified among the priorities for maintaining water quality. The City of Sacramento 2035 General Plan states water quality protection as a goal and contains numerous policies to support that goal. The Proposed Action would not conflict with these policies and would implement several of these policies. The project would acquire, conserve and/or restore wetlands and floodplains at American River Erosion Contract 4A and preserve SRA habitat when feasible; when not feasible, adverse impacts would be mitigated at a minimum 1:1 ratio by restoring this habitat onto planting benches on the American and Sacramento Rivers and at the mitigation sites considered under the Proposed Action. The Proposed Action would not conflict with these plans.

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

Please refer to Impact 3.4-a above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Short Term Significant and Unavoidable, Long Term Less than Significant

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

Under the Proposed Action design refinements, all vegetation, including trees, would be removed within the erosion protection footprint. Additional trees outside this footprint may be trimmed or removed to provide sufficient clearance for equipment to operate on the narrow shoreline to place rock. Existing IWM would be removed to provide room for equipment to operate. After the trees and IWM are removed, shading along the river's shoreline would be reduced, causing an indirect adverse impact to water temperature. This differs from the 2016 ARCF GRR FEIS/EIR, which stated that shrubs would be removed but most trees, the primary contributors to shade, would be protected in place. New IWM would be embedded into the bank revetment during rock placement to replace some of the shade removed by the project. Trees would be reestablished onto planting benches as mitigation, but would take many years to reach full majority and provide similar shade to the existing conditions. This portion of the Sacramento River is on the CWA 303(d) list of impaired waters for temperature. Because the permanent loss of additional shade would make it more difficult to meet water temperature standards, the Proposed Action would result in a short-term significant and unavoidable impact on water temperature under both CEQA and NEPA. After vegetation has grown to sufficient height to shade the river, this long-term impact would be less than significant under CEQA.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term and Negligible effects that are Less than Significant with Mitigation Incorporated

The habitat mitigation features at the approximately 120-acre ARMS would include breaching the existing riverbank, grading of the site to create channels and allowing surface water to flow through the constructed channels and create floodplain riparian forest for habitat. Channels would be designed to remain inundated year-round. Soil and water at the site would be tested prior to any construction activities to determine the presence of hazardous materials. Water quality testing of the former sand and gravel mine pond would need to be conducted to ensure that the American River does not receive water which could cause violation of water quality standards or degradation of water quality. Imported soils would require laboratory testing in accordance with CWA Section 401 permit requirements prior to placement to avoid materials that could adversely affect water quality.

The channels would be constructed in a way that the centers of the channels would be connected to the American River at low flows, while the channel margins would be inundated annually during higher flows. This new shallow water and floodplain habitat would incorporate instream woody material and revegetation with native riparian trees and shrubs. The IWM and vegetation

would provide shade, which would benefit the site’s water quality by keeping water temperatures cool and dissolved oxygen levels high as water flows through the site. Periodic flooding of the mitigation area would benefit water quality as suspended sediment carried by the river would be deposited on the new floodplain. However, impacts to water quality would occur in the short term as riparian plantings would not provide shade until maturity (approximately 10 years) which would result in an increase in water temperatures and lowering dissolved oxygen levels in the project site and neighboring waterways. This would contribute towards the American River failing to meet temperature objectives stated in the Basin Plan for the Sacramento and San Joaquin Basin and result in a significant and unavoidable short-term post-construction impact.

To maintain water quality and decrease likelihood for fish stranding, the channels would be designed and sloped so that fish stranding does not occur and to maintain adequate water flow, lower temperatures, and dissolved oxygen levels that meet water quality criteria. Implementation of Mitigation Measures GEO-1, HAZ-1, and WATERS-1, which were previously adopted for the ARCF 2016 Project, would reduce long-term post-construction impacts of the Proposed Action on water quality to less-than-significant levels under both CEQA and NEPA.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Appendix B, Section 3.8, “Hazards and Hazardous Materials,” for the full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE and Project Partners

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife,” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The County of Sacramento General Plan (County of Sacramento 2017) contains numerous objectives for protecting and restoring in-stream riverine habitat and natural stream functions for preservation of water quality. Shaded riverine aquatic (SRA) habitat, and mitigation for SRA habitat, were specifically identified among the priorities for maintaining water quality. The City of Sacramento 2035 General Plan states water quality protection as a goal and contains numerous policies to support that goal. The Proposed Action would not conflict with these policies and would implement several of these policies. The project would acquire, conserve and/or restore wetlands and floodplains at the ARMS. The project would preserve SRA habitat when feasible; when not feasible, adverse impacts would be mitigated at a minimum 1:1 ratio by restoring this habitat onto planting benches on the American and Sacramento Rivers and at the mitigation sites considered under the Proposed Action.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short Term Significant and Unavoidable, Long Term Less than Significant With Mitigation

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

Habitat restoration at the approximately 100-acre SRMS would entail breaching the existing river side berm in at least one place and grading the site to create one or more channels and expose the interior to tidal influence. This mitigation site would be designed to increase the amount of shallow water and wetland acreage in the area to compensate for the placement of fill for construction of Sacramento River Erosion Contract 3 (discussed previously) and Contract 4 (discussed in a previous Supplemental EA/EIR prepared for Sacramento River Erosion Contract 3).

At the SRMS, there is the potential for contaminated sediment on site related to a closed municipal solid waste landfill located on the eastern portion of the site; this area would be avoided. However, because the western portion was used as a dredge material disposal site, soil in this area of the project site would need to be tested prior to construction activities. Any contaminated material would be removed from the site to avoid releases into the newly created shallow water habitat or adjacent waterways. Excavation and grading would disturb sediments that could contribute to turbidity issues along with residual amounts of organic or inorganic materials, algae and other microorganisms during construction. With implementation of GEO-1 and HAZ-1, described previously, post-construction impacts on water quality from any on-site contaminated materials would be less than significant.

As with the ARMS, the design would incorporate IWM and native trees and shrubs which would provide shade over the channels and keep water temperatures low and dissolved oxygen levels high. To maintain water quality and decrease likelihood for fish stranding, the channels would be designed and sloped so that fish stranding does not occur and to maintain adequate water flow to maintain lower water temperatures and dissolved oxygen levels that meet water quality criteria. However, impacts to water quality would occur in the short term as riparian plantings would not provide shade until maturity (approximately 10 years), which would result in an increase in water temperatures and lowering dissolved oxygen levels in the project site and neighboring waterways. This would contribute towards the Sacramento River failing to meet temperature

objectives stated in the Basin Plan for the Sacramento and San Joaquin Basin and result in a significant and unavoidable short-term post-construction impacts.

Tidal wetland habitat restoration would result in greater tidal exchange and flows in the area and could alter the salinity regime and or change methylmercury conditions in the Delta. Increased levels of salinity or methylmercury could negatively impact drinking water quality. The Lookout Slough Tidal Restoration and Flood Improvement Project EIR⁴ modeled salinity impacts associated with its 3,164-acre restoration project and found that given the dynamic nature of the tidal system, the effects of the Lookout Slough Restoration project on salinity would not result in substantial adverse effects on the beneficial use of the Delta water as drinking water. In addition, the Lookout Slough project determined that the project would not increase methylmercury levels. Because the SRMS is only 100 acres, it is expected that when detailed designs are available for modeling, the SRMS would have substantially less effects on salinity in the Delta than the Lookout Slough project and effects to salinity from the SRMS would be less than significant.

The County of Sacramento General Plan (County of Sacramento 2017) contains numerous objectives for protecting and restoring in-stream riverine habitat and natural stream functions for preservation of water quality. Shaded riverine aquatic (SRA) habitat, and mitigation for SRA habitat, were specifically identified among the priorities for maintaining water quality. The Proposed Action would acquire, conserve and/or restore wetlands and floodplains at the SRMS and preserve SRA habitat when feasible; when not feasible, adverse impacts would be mitigated at a minimum 1:1 ratio by restoring this habitat onto planting benches on the American and Sacramento Rivers and at the mitigation sites considered under the Proposed Action.

Piezometer Network

NEPA Impact Conclusion (Entire Proposed Action): No Impact

CEQA Impact Conclusion (Design Refinements): No Impact

The piezometer installations involve drilling wells for the purpose of monitoring water levels throughout the project site, and are not anticipated to conflict with any water quality control plans or sustainable groundwater management plans.

Alternatives Comparison

Alternative 3a

Alternative 3a includes an alternative design for improvements to the American River 4A Project Component. Alternative 3a would avoid the wetland impact described in the Proposed Action by instead constructing a landside berm connected to the existing levee. This structure would contain floodwaters in the event that the main levee is breached. The bike trail would not require re-routing. All other project components (American River Erosion Contract 3B, Sacramento

⁴ California Department of Water Resources (DWR). 2020. Final Environmental Impact Report. Lookout Slough Tidal Habitat Restoration and Flood Improvement Project. Available: chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Environmental-Services/Restoration-Mitigation-Compliance/Files/Lookout-Slough-FEIR_DES_v1_11032020_ay11.pdf

River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 3.4-1. Alternative 3a Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	American River 4A	Lesser impacts compared to the Proposed Action. The landside berm would avoid filling a wetland; however, construction activities would have a significant effect on water quality	GEO-1, HAZ-1, WQ-1	Less than Significant with Mitigation	Long-term and Moderate effects that are Less than Significant with Mitigation
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	American River 4A	Similar impacts to the Proposed Action. The landside berm would not conflict or obstruct implementation of a water quality control plan or sustainable groundwater management plan	WQ-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant; Long-term and Minor

Alternative 3b

Alternative 3b includes an alternative design for the American River 4A Project component, featuring a different bike trail alignment. In this Alternative, the bike trail would parallel the railroad and be routed through the same wetland that would be partially filled by the berm described under the Proposed Action. This bike trail alignment is above the American River OHWM and would result in a less-than-significant impact with mitigation. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 3.4-2. Alternative 3b Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	American River 4A	Similar to the Proposed Action. Construction activities would result in significant impact on water quality	GEO-1, HAZ-1, WATERS-1, WQ-1	Less than Significant with Mitigation	Long-term and Moderate effects that are Less than Significant with Mitigation
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	American River 4A	Similar to the Proposed Action. The bike trail alignment would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	WQ-1	Less than Significant with Mitigation	Long-term and Minor effects that are Less than Significant

Alternative 3c

Alternative 3c includes an alternative design for the American River 4A Project component, featuring a different bike trail alignment. It would route the bike trail through the same wetland that would be partially filled by the berm described under the Proposed Action. The bike trail would either involve building a bridge across the wetland or adding fill to the wetland to route the bike trail around the berm. This bike trail alignment is above the American River OHWM and would result in a less-than-significant impact with mitigation. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 3.4-3. Alternative 3c Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	American River 4A	This would result in similar impacts from construction compared to the Proposed Action, a significant impact on water quality	GEO-1, HAZ-1, WATERS-1, and WQ-1	Less than Significant with Mitigation	Long-Term and Moderate effects that are Less than Significant with Mitigation
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	American River 4A	Similar to the Proposed Action. The bike trail alignment would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	WQ-1	Less than Significant with Mitigation	Short-term and Minor effects that are Less than Significant

Alternative 3d

Alternative 3d includes a different bike trail alignment at American River 4A. The longer paved bike trail would be closer to the river and would use an existing off-road bike trail. This would add approximately 0.2 acres of fill below the river’s OHWM. All other project components (American River Erosion Contract 3B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 3.4-4. Alternative 3d Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	American River 4A	Greater impacts than the Proposed Action. This would require approximately 0.2 acres of additional fill below the American River OHWM and result in similar construction impacts compared to the Proposed Action, a significant impact on water quality	GEO-1, HAZ-1, WATERS-1, and WQ-1	Less than Significant with Mitigation	Long-term and Moderate effects that are Less than Significant with Mitigation
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	American River 4A	Similar to the Proposed Action. The bike trail alignment would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	WQ-1	Less than Significant with Mitigation	Long-term and Minor effects that are Less than Significant

Alternatives 4a and 4b (CEQA-Only)

Alternative 4a includes a design for the ARMS area that retains a 30-acre portion of the existing pond, while 54 acres of floodplain habitat containing channels connecting to the river would be constructed on the eastern portion of the site. Alternative 4b is similar, except that a 20-acre portion of the pond would be retained. An approximately 30-foot-wide berm would retain the pond and separate it from the hydrologic influence of the river. Under these alternatives, the restored floodplain would be smaller. This would still improve water quality by restoring a portion of the river’s historic floodplain, but to a lesser extent than the Proposed Action. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and SRMS) would have the same effects as the Proposed Action.

Table 3.4-5. Alternative 4a and 4b Effects (CEQA-Only)

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	ARMS	Less than the Proposed Action. Construction activities under Alternatives 4a and 4b would restore a portion of the American River's floodplain at ARMS, but a smaller portion than under the Proposed Action. These Alternatives would have a significant impact on water quality	GEO-1, HAZ-1, WATERS-1, and WQ-1	Less than Significant short-term construction impacts with Mitigation, Long-term Less than Significant
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	ARMS	CEQA and NEPA: Alternatives 4a and 4b would conflict with the Basin Plan for impact on water temperature in the American River, but would not conflict with or obstruct other water quality or groundwater management plans	WQ-1	Short-term Significant and Unavoidable, Long-term Less than Significant with Mitigation

Alternative 5a

Alternative 5a would involve purchasing mitigation bank credits to compensate for Sacramento River project impacts and would eliminate the need to construct the Sacramento River Mitigation Site. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, and ARMS) would remain the same. There would be no additional resource impacts from this alternative.

Alternative 5b

Alternative 5b is an alternative location for the SRMS, a site named Watermark Farms. The site is near the Sacramento River portion of the Proposed Action, but on the opposite (Yolo County) side of the river. It would involve construction of a setback levee and excavation of a channel into the site, restoring 227 acres of riverine and floodplain habitat. Unlike the SRMS under the Proposed Action, which is used as a dredge disposal site and contains a decommissioned landfill, the Watermark Farms site has been in agricultural use. The site could also contain areas of chemical contamination; if present, the contaminated materials would need to be removed and disposed of at an appropriate landfill to avoid water quality impacts (HAZ-1). Temporary construction-related water quality impacts and permanent water quality impacts would be similar to those described under the Proposed Action.

Table 3.4-6. Alternative 5b Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
3.4-a: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to project construction activities	Sacramento River Mitigation	Similar to the Proposed Action. Alternative 5b would create a new channel connected to the Sacramento River. Temporary construction-related water quality impacts would be less than significant with mitigation. Short-term increase in water temperature on the Sacramento River.	GEO-1, HAZ-1, WATERS-1 WQ-1	Less than Significant with Mitigation	Long-term and Moderate effects that are Less than Significant with Mitigation
3.4-b: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan due to post-construction improvements	Sacramento River Mitigation	Similar to the Proposed Action Alternative 5b would conflict with the Basin Plan for impact on water temperature in the Sacramento River, but would not conflict with or obstruct other water quality or groundwater management plans	GEO-1, HAZ-1, WATERS-1	Short Term Significant and Unavoidable, Long Term Less than Significant With Mitigation	Significant and Unavoidable for impact on water temperature

Alternative 5c

Alternative 5c is the purchase of mitigation bank credits and/or funding other projects for mitigation. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, MCP, ARMS and the Piezometer Network) would have the same effects as the Proposed Action. Delta Smelt Conservation Bank Credits would be used for mitigation. There will be no new activities done corresponding to the purchase of Delta Smelt Conservation Bank Credits, so there would be no additional land use impacts associated.

In addition, credits will be purchased or funds would be provided for the Sunset Pumps Project. Sunset pumps is being implemented by BOR, DWR and USFWS and consequently BOR, DWR and USFWS will complete a corresponding CEQA and NEPA document. There would be no additional activities outside of BOR and USFWS NEPA document or DWR’s CEQA document, so there would be no additional impacts from Alternative 5c on water quality.

3.5 Air Quality

This section examines the degree to which implementing the Proposed Action may result in adverse changes in air quality. This section describes existing air quality conditions, summarizes applicable regulations, and analyzes construction- and operation-related air quality impacts from the Proposed Action. The analysis of criteria air pollutant and toxic air contaminant (TAC) emissions is consistent with rules and regulations, as well as recommendations of the Sacramento Metropolitan Air Quality Management District (SMAQMD) and Bay Area Air Quality Management District (BAAQMD).

3.5.1 Existing Conditions/Affected Environment

The Proposed Action is located within the Sacramento Valley Air Basin (SVAB); however, Sacramento River Erosion Improvements include transporting materials by barge in the San Francisco Bay Area Air Basin (SFBAAB). The majority of the Proposed Action is in Sacramento County, which places the project primarily under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). However, material associated with the Sacramento River Erosion Contract 3 are likely to be transported from within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

The Proposed Action is located within the Central Valley of California, which has a Mediterranean climate characterized by hot, dry summers and mild, rainy winters. Summer high temperatures are hot, often exceeding 100 degrees Fahrenheit (°F). Winter temperatures are cool to cold, with minimum temperatures often dropping into the high 30s. Most of the precipitation occurs as rainfall during winter storms. The rare occurrence of precipitation during summer is in the form of convective rain showers. Additionally, during winter there are periods of dense and persistent low-level fog that are most prevalent between storms. Prevailing wind speeds are moderate.

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

Sensitive Receptors

Sensitive receptors include schools, residences, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Most of the levees in the project area are near local residences, with many peoples' backyards very close to the toe of the levee, within 25 to 50 feet. Additionally, there are a number of schools located along Magpie Creek and within the Magpie Creek component, as well as along the Sacramento and American Rivers, within 2 miles of the Proposed Action.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and nearby parks including Miller Park, Discovery Park, and Garcia Bend Park, are also considered to be sensitive receptors.

Criteria Air Pollutants

The Clean Air Act established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), which includes two different forms; respirable PM with an aerodynamic diameter of 10 micrometers or less (PM₁₀), and fine PM with an aerodynamic resistance diameter of 2.5 micrometers or less (PM_{2.5}), and lead (Pb). O₃ is a secondary pollutant that is not emitted directly into the atmosphere. Instead, it forms by the reaction of two ozone precursors: reactive organic gases (ROG) and nitrogen oxides (NO_x).

Established to protect public health and welfare, NAAQS and the California Ambient Air Quality Standards (CAAQS) include these criteria pollutants. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the NAAQS, primarily through their review of the State Implementation Plans (SIPs). In California, the California Air Resources Board (CARB) is responsible for the establishment of the SIP. The local air quality management districts are responsible for the enforcement of the SIP, as well as the NAAQS and CAAQS. If an area is meeting the NAAQS and CAAQS, that area is considered in “attainment”; however, areas that are noncompliant are designated “non-attainment” areas. Once attainment has been achieved, the air basin may be placed under a maintenance plan to demonstrate long-term compliance with the NAAQS. The State and Federal attainment status for the Sacramento Valley Air Basin (SVAB) and San Francisco Bay Area Air Basin (SFBBAB) are shown in Table 3.5-1 and 3.5-2, respectively.

Due to the non-attainment designations for the SVAB, the SMAQMD is required to prepare SIPs for O₃, and PM_{2.5} to establish how the area would attain the standards by dates specified within the plans. The SMAQMD is currently under a maintenance plan for PM₁₀, which must show maintenance of the NAAQS through 2033.

Barges transporting material to the site would travel through the SFBAAB in addition to the SVAB. The SFBAAB is in nonattainment for O₃ (8-hour averaging), PM₁₀ (24-hour and annual), and PM_{2.5} (24-hour and annual) (BAAQMD 2017). Due to the non-attainment designations for the Bay Area, the BAAQMD is required to prepare SIPs for O₃, PM₁₀, and PM_{2.5} to establish how the area would attain the standards by dates specified within the plans.

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

Table 3.5-1. Sacramento Valley Air Basin Attainment Status

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

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

Source: SMAQMD 2020

Table 3.5-2. San Francisco Bay Area Air Basin Attainment Status

Pollutant	Federal Attainment Status	State Attainment Status
1-hour Ozone	Non-attainment	Nonattainment
8-hour Ozone	Non-attainment	Nonattainment
24-hour PM ₁₀	Unclassified	Not-attainment
Annual PM ₁₀	Not Applicable	Non-attainment
24-hour PM _{2.5}	Non-attainment	Not Applicable
Annual PM _{2.5}	Unclassified	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	Unclassified
Quarter Lead	Attainment	Not Applicable

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

Source: BAAQMD 2017

California and National Area Designations

Both EPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic

designation categories are nonattainment, attainment, and unclassified. An “attainment” designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or redesignated as attainment must develop and implement maintenance plans, which are designed to ensure continued compliance with the standard.

In contrast, 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).

Finally, an “unclassified” designation indicates that insufficient data exist to determine attainment or nonattainment. The California designations also include a subcategory called “nonattainment-transitional,” a designation given to nonattainment areas that are progressing and nearing attainment.

Toxic Air Contaminants

In addition to criteria air pollutants, EPA regulates TACs, also known as hazardous air pollutants. Concentrations of TACs are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in ambient air; however, their high toxicity may pose a threat to public health even at low concentrations. Most TACs originate from human-made sources: on-road mobile sources, off-road mobile sources such as construction equipment, area sources such as dry cleaners, and stationary sources such as factories and refineries.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure. TACs are primarily regulated through State and local risk management programs (BAAQMD 2011).

3.5.2 Applicable Laws, Regulations, Policies, and Plans

Federal

Federal Clean Air Act

The Federal Clean Air Act requires the EPA to establish health-based air quality standards at the Federal level. The NAAQS were established for the following criteria pollutants: CO, ozone, SO₂, NO₂, PM₁₀, PM_{2.5}, and lead. Areas of the State are designated as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act.

State

California Clean Air Act

The California Clean Air Act requires CARB to establish health-based air quality standards at the State level. The CAAQS were established for the following criteria pollutants: CO, O₃, SO₂, NO₂, PM₁₀, PM_{2.5}, lead, sulfate, visibility reducing particles, hydrogen sulfide, and vinyl chloride. Areas of the State are designated as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the California Clean Air Act.

Local

Sacramento Metropolitan Air Quality Management District

Within Sacramento County, SMAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and State air quality regulations. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the State Implementation Plan (SIP) for ozone. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the CCA requirements to attain and maintain the NAAQS for ozone. The Sacramento Region has been designated as a "serious" nonattainment area for the 2015 8-hour ozone federal standard.¹

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria air pollutants and toxic air contaminants (TACs) and make recommendations for conducting air quality analyses. Thresholds of significance are designed on a cumulative basis, considering regional growth and anticipated development, such that projects that do not exceed the adopted thresholds would not impede the region from achieving the CAAQS and the NAAQS. Further, because the ambient air quality standards are designed to protect public health, projects that do not exceed SMAQMD-adopted thresholds, or are reduced to below the thresholds with applied mitigation, would be considered to have a less-than-significant impact under CEQA, would not contribute to exceedance of a CAAQS or NAAQS, and would not result in adverse health effects.

After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

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

- **Rule 201: General Permit Requirements.** Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. Portable construction equipment (e.g., generators,

¹ U.S. Environmental Protection Agency. 2022. Greenbook 8-Hour Ozone (2015) Designated Area (State/Area/County Report). Last updated July 31, 2022. Available: <https://www3.epa.gov/airquality/greenbook/jbcs.html#CA>. Accessed August 8, 2022

compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.

- **Rule 402:** Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- **Rule 403:** Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the Project Area.

In addition, SMAQMD recommends that all construction projects include Basic Construction Emission Control Practices, as outlined in the *SMAQMD CEQA Guide* (SMAQMD 2019) and that any projects with construction mitigation requirements must reduce emissions from off-road equipment. According to the *CEQA Guide*, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance by application of these standard construction mitigation measures, then payment of a mitigation fee may be assessed to achieve the remaining mitigation necessary.

At the local level, air districts may adopt and enforce CARB control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), construction equipment that possess the potential to emit TACs must be permitted by SMAQMD. Permits may be granted if a project is constructed and operated in accordance with applicable regulations, including air toxics control measures. SMAQMD limits emissions and public exposure to TACs through several programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthy concentrations of air pollutants.

In September 2020, SMAQMD released the most recent version of the Mobile Source Air Toxics Protocol (MSAT Protocol). The MSAT Protocol provides guidance to local land use jurisdictions on assessing and disclosing potential cancer risk and PM_{2.5} concentrations from major roadways and railways throughout Sacramento County. The MSAT Protocol replaces the *Recommended Protocol for the Evaluation of Sensitive Receptors Adjacent to Major Roadways*.²

Bay Area Air Quality Management District

BAAQMD is the primary agency responsible for assuring that the NAAQS and CAAQS, are attained and maintained in the Bay Area. BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties. The BAAQMD responsibilities in improving air quality in the region include: preparing plans for attaining and maintaining air quality

² Sacramento Metropolitan Air Quality Management District. 2020 (September) Mobile Source Air Toxics Protocol Guidance Document. Available: <http://www.airquality.org/LandUseTransportation/Documents/FinalMSATProtocolGuidancev1.3Sept2020.pdf>. Accessed August 8, 2022.

standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; implementing public outreach campaigns; and assisting local governments in addressing climate change. The BAAQMD prepared the 2017 Clean Air Plan to address nonattainment of the national 1-hour ozone standard in the SFBAAB and CAAQS.

BAAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria air pollutants and TACs and make recommendations for conducting air quality analyses.

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

- **Regulation 2, Rule 1, General Permit Requirements:** Includes criteria for issuance or denial of permits, exemptions, appeals against decisions of the Air Pollution Control Officer and BAAQMD actions on applications.
- **Regulation 6, Rule 1, General Requirements:** Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions, and opacity.
- **Regulation 7, Odorous Substances:** Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person (or facility) must meet all limitations of this regulation but meeting such limitations shall not exempt such person from any other requirements of BAAQMD, state, or national law. The limitations of this regulation shall not be applicable until BAAQMD receives odor complaints from 10 or more complainants within a 90-day period alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence. When the limits of this regulation become effective as a result of citizen complaints described above the limits shall remain effective until such time as no citizen complaints have been received by BAAQMD for 1 year. The limits of this regulation shall become applicable again if BAAQMD receives odor complaints from five or more complainants within a 90-day period. BAAQMD staff shall investigate and track all odor complaints they receive and shall attempt to visit the site, identify the source of the objectionable odor, and assist the owner or facility in finding a way to reduce the odor.

City of Sacramento 2035 General Plan

The City of Sacramento 2035 General Plan Environmental Resources Element contains the following air quality goals and policies relevant to the proposed project (City of Sacramento 2015):

GOAL: Improve the health and sustainability of the community through improved regional air quality and reduced greenhouse gas emission that contribute to climate change.

- **Policy ER 6.1.1: Maintain Ambient Air Quality Standards.** The City shall work with the California Air Resources Board and the Sacramento Metropolitan Air Quality Management District (SMAQMD) to meet State and Federal ambient air quality standards in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.
- **Policy ER 6.1.3: Emissions Reduction.** The City shall require development projects that exceed SMAQMD ROG and NO_x operational thresholds to incorporate design or operational features that reduce emissions equal to 15 percent from the level that would be produced by an unmitigated project.
- **Policy ER 6.1.4: Sensitive Uses.** The City shall coordinate with SMAQMD in evaluating exposure of sensitive receptors to TACs and will impose appropriate conditions on projects to protect public health and safety.
- **Policy ER 6.1.10:** The City shall coordinate with SMAQMD to ensure projects incorporate feasible mitigation measures to reduce GHG emissions and air pollution if not already provided for through project design.

Sacramento County 2030 General Plan

The Sacramento County 2030 General Plan’s Air Quality Element, most recently updated in December 2020, contains the following air quality goals and policies relevant to the proposed project (Sacramento County 2011):

GOAL: Improve air quality to promote the public health, safety, welfare, and environmental quality of the community.

Multidisciplinary Coordination Objective: The integration of air quality planning with land use, transportation, and energy planning processes to provide a safe and healthy environment.

- **Policy AQ-3:** Buffers and/or other appropriate exposure reduction measures shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board’s “Strategies to Reduce Air Pollution Exposure Near High Volume Roadways” Technical Advisory and the [SM]AQMD’s “Mobile Sources Air Toxics Protocol” or applicable [SM]AQMD guidance shall be utilized when establishing these exposure reduction measures.
- **Policy AQ-4.** Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or GHG as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

Motor Vehicle Emissions Objective: A reduction in motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and an increasing reliance on the use of low emissions vehicles.

- **Policy AQ-11.** Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low emission fleet status for their off-road equipment.

Reducing Air Pollutants Objective: Compliance with Federal and State air quality standards to reduce all air pollutants, including ozone-depleting compounds to ensure the protection of the stratospheric ozone layer.

- **Policy AQ-16.** Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any 1-hour period.
- **Policy AQ-17.** Promote optimal air quality benefits through energy conservation measures in new development.
- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

3.5.3 Analysis of Environmental Effects

Analysis Methodology

Emissions of criteria air pollutants were evaluated using methodologies and guidance recommended by SMAQMD. Construction-related emissions were compared with the applicable thresholds of significance. Operations and Maintenance activities associated with the Proposed Action would generate emissions similar to current conditions, therefore, operational emissions were not modeled. Project emissions of criteria air pollutants were quantified using the California Emissions Estimator Model (CalEEMod) Version 2022.1 and SMAQMD’s Harborcraft, Dredge and Barge Emission Factor Calculator. For the Sacramento River Erosion Contract 3 component, modeling conducted by the Dutra Group for the Contract 2 was relied upon. Construction-related emissions were estimated using information such as construction schedule and phasing, expected duration of activities, equipment types, volumes of material to be hauled, and number of construction workers on-site during each construction phase. Construction information used to estimate air emissions is discussed in Chapter 2, “Description of Project Alternatives.” Due to uncertainty regarding the schedule for the Lower American River Contract 3B work, construction of the most extensive scenario, which included construction of Sites 3-1 and 4-2 concurrently was used to show the “worst-case” emissions in all 4 construction years. Types of activities that would generate emissions of air pollutants include vegetation clearing, excavation, installation of rock revetment, construction of launchable rock filled trench, reconstruction of levees, construction of mitigation sites, hauling of materials, and worker trips. The construction-related criteria air pollutant emissions estimated for each year of project construction are presented and compared to the applicable Air Quality Management District significance thresholds in Tables 3.5-3 through 3.5-6. Air quality modeling data summarized in this section are provided in Appendix C, “Air Quality and GHG Emissions Modeling.”

Because the project includes only temporary effects on air quality during construction, air quality model outputs were not further processed to estimate foreseeable adverse health outcomes using SMAQMD’s Strategic Area Project Health Screening Tool.

The Sacramento Metropolitan Air Quality Management District provided comments during the NEPA Scoping period. These comments pertained to the content of the mitigation measures, the potential need to update the General Conformity Report (finalized in June 2021), and active transportation mode detours.

Table 3.5-3. Maximum Daily Emissions Estimates for the ARCF Comprehensive Project and Remaining ARCF 2016 Project Components – Sacramento Valley Air Basin

Project	Unmitigated PM ₁₀	Unmitigated PM _{2.5}	Unmitigated ROG	Unmitigated NO _x	Mitigated PM ₁₀	Mitigated PM _{2.5}	Mitigated ROG	Mitigated NO _x
2024								
American River Contract 3B Erosion Improvements – Site tree removal	128.50	14.10	1.25	39.99	128.40	13.90	0.78	30.84
Sacramento Weir ¹	406.00	-	-	-	402.63	-	-	-
Sacramento River Erosion Contract 2	53.31	13.27	15.35	166.62	52.77	12.76	9.86	81.15
Sacramento River Erosion Contract 4	18.4	15.8	26.1	335	18.1	15.6	25.2	328
Lower American River Contract 3A ²	47	6	4	176	47	6	4	176
<i>Total ARCF Comprehensive Project Emissions</i>	653.21	49.17	46.7	717.61	648.9	48.26	39.84	615.99
CEQA Threshold	80	80		85	80	80		85
Exceed Threshold?	Yes	<i>No</i>		Yes	Yes	<i>No</i>		Yes
2025								
American River Contract 3B Erosion Improvements – Year 1 construction, Year 2 tree removal	1,570.50	187.50	16.56	438.99	1,542.4	172.4	7.4	359.59
Sacramento River Erosion Contract 3 (including Barge emissions)	16.40	14.71	57.58	481.58	14.86	13.29	54.17	452.93
American River Mitigation	45.6	15.1	4.82	124	30.0	8.75	2.17	98.2
Sacramento River Mitigation	14.4	6.25	3.04	64.7	9.52	3.54	1.26	48.40
Sacramento Weir	424.60	-	-	-	421.90	-	-	-
<i>Total ARCF Comprehensive Project Emissions</i>	2,071.50	223.56	82.00	1,109.27	2,018.68	197.98	65.00	959.12
CEQA Threshold	80	80		85	80	80		85
Exceed Threshold?	Yes	Yes		Yes	Yes	Yes		Yes
2026								
American River Contract 3B and 4B Erosion Improvements – Year 2 construction, Year 1 monitoring	770.28	92.06	8.02	214.53	756.28	84.56	3.74	173.08
Sacramento River Erosion Contract 3 (including Barge emissions)	16.65	14.29	56.24	473.28	15.2	13.36	53.88	453.67
American River Mitigation	20.90	9.84	3.00	60.5	11.7	4.73	1.04	43.7
Sacramento River Mitigation	9.57	4.62	2.08	60.3	8.16	2.58	1.16	52.9
American River Contract 4A Erosion Improvements	562	62.3	4.44	142	559	61	2.73	127
<i>Total ARCF Comprehensive Project Emissions</i>	1,379.40	183.11	73.78	950.61	1,350.34	166.23	62.55	850.35

Project	Unmitigated PM ₁₀	Unmitigated PM _{2.5}	Unmitigated ROG	Unmitigated NO _x	Mitigated PM ₁₀	Mitigated PM _{2.5}	Mitigated ROG	Mitigated NO _x
CEQA Threshold	80	80		85	80	80		85
Exceed Threshold?	Yes	Yes		Yes	Yes	Yes		Yes
2027								
American River Contract 3B and 4B Erosion Improvements – Year 2 monitoring	0.28	0.06	0.16	0.08	0.28	0.06	0.16	0.08
American River Mitigation	20.90	9.84	3.00	60.5	11.7	4.73	1.04	43.7
Magpie Creek	23.00	10.1	19.4	237	18.90	7.14	10.40	165
<i>Total ARCF Comprehensive Project Emissions</i>	44.18	20	22.56	297.58	30.88	11.93	11.6	208.78
CEQA Threshold	80	80		85	80	80		85
Exceed Threshold?	<i>No</i>	<i>No</i>		Yes	<i>No</i>	<i>No</i>		Yes

Notes: All results are in pounds per day. Bold numbers indicate concentrations above thresholds.

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

¹ Maximum daily emissions are not presented for PM_{2.5}, ROG, or NO_x.

- = emissions not provided.

Table 3.5-4. Annual Emissions Estimates for the ARCF Comprehensive Project and Remaining ARCF 2016 Project Components – Sacramento Valley Air Basin

Project	Unmitigated PM ₁₀	Unmitigated PM _{2.5}	Unmitigated ROG	Unmitigated NO _x	Mitigated PM ₁₀	Mitigated PM _{2.5}	Mitigated ROG	Mitigated NO _x
2024								
American River Contract 3B Erosion Improvements – Site tree removal	0.13	0.01	<0.01	0.07	0.13	0.01	<0.01	0.06
Sacramento Weir	53.59	11.67	1.76	16.98	53.15	11.26	1.22	6.41
Sacramento River Erosion Contract 2	1.71	0.81	1.09	14.24	1.52	0.64	0.85	10.45
Sacramento River Erosion Contract 4	0.18	0.14	0.27	3.16	0.18	0.13	0.23	2.88
Lower American River Contract 3A	<1.00	<1.00	0.27	9.76	<1.00	<1.00	0.27	9.76
<i>Total ARCF Comprehensive Project Emissions</i>	55.61	12.63	3.39	44.21	54.98	12.04	2.57	29.56
CEQA Threshold	14.6	15			14.6	15		
Exceed Threshold?	Yes	<i>No</i>			Yes	<i>No</i>		
General Conformity <i>de Minimis</i> Threshold	25	25	100	100	25	25	100	100
Exceed Threshold?	Yes	<i>No</i>	<i>No</i>	<i>No</i>	Yes	<i>No</i>	<i>No</i>	<i>No</i>
2025								

Project	Unmitigated PM10	Unmitigated PM2.5	Unmitigated ROG	Unmitigated NO _x	Mitigated PM10	Mitigated PM2.5	Mitigated ROG	Mitigated NO _x
American River Contract 3B Erosion Improvements – Year 1 construction, Year 2 tree removal	61.5	7.5	0.68	18.47	60.19	6.78	0.29	14.78
Sacramento River Erosion Contract 3 (including Barge emissions)	0.87	0.78	3.06	25.65	0.81	0.72	2.91	24.35
American River Mitigation	2.06	0.92	0.25	6.82	1.23	0.48	0.11	5.53
Sacramento River Mitigation	0.02	0.01	0.01	0.15	0.02	0.01	<0.01	0.11
Sacramento Weir	44.71	9.78	1.51	14.16	44.41	9.51	1.17	7.59
<i>Total ARCF Comprehensive Project Emissions</i>	109.16	18.99	5.51	65.25	106.66	17.50	4.48	52.36
CEQA Threshold	14.6	15			14.6	15		
Exceed Threshold?	Yes	Yes			Yes	Yes		
General Conformity <i>de Minimis</i> Threshold	25	25	100	100	25	25	100	100
Exceed Threshold?	Yes	<i>No</i>	<i>No</i>	<i>No</i>	Yes	<i>No</i>	<i>No</i>	<i>No</i>
2026								
American River Contract 3B and 4B Erosion Improvements – Year 2 construction, Year 1 monitoring	61.37	7.49	0.68	18.4	60.06	6.77	0.29	14.72
Sacramento River Erosion Contract 3 (including Barge emissions)	0.87	0.77	3.03	25.45	0.81	0.72	92.91	24.50
American River Mitigation	1.77	0.82	0.19	4.91	1.00	0.41	0.07	3.88
Sacramento River Mitigation	0.20	0.07	0.04	1.30	0.17	0.06	0.02	1.11
American River Contract 4A Erosion Improvements	6.91	0.83	0.08	1.97	6.78	0.76	0.04	1.62
<i>Total ARCF Comprehensive Project Emissions</i>	71.12	9.98	4.02	52.03	68.82	8.72	93.33	45.83
CEQA Threshold	14.6	15			14.6	15		
Exceed Threshold?	Yes	<i>No</i>			Yes	<i>No</i>		
General Conformity <i>de Minimis</i> Threshold	25	25	100	100	25	25	100	100
Exceed Threshold?	Yes	<i>No</i>	<i>No</i>	<i>No</i>	Yes	<i>No</i>	<i>No</i>	<i>No</i>
2027								
American River Contract 3B and 4B Erosion Improvements – Year 2 monitoring	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
American River Mitigation	1.77	0.82	0.19	4.91	1.00	0.41	0.07	3.88
Magpie Creek	0.29	0.12	0.24	2.92	0.23	0.08	0.12	1.97
<i>Total ARCF Comprehensive Project Emissions</i>	2.06	0.94	0.43	7.83	1.23	0.49	0.19	5.85
CEQA Threshold	14.6	15			14.6	15		
Exceed Threshold?	<i>No</i>	<i>No</i>			<i>No</i>	<i>No</i>		
General Conformity <i>de Minimis</i> Threshold	25	25	100	100	25	25	100	100

Project	Unmitigated PM10	Unmitigated PM2.5	Unmitigated ROG	Unmitigated NO _x	Mitigated PM10	Mitigated PM2.5	Mitigated ROG	Mitigated NO _x
Exceed Threshold?	No	No	No	No	No	No	No	No

Notes: Bold numbers indicate concentrations above thresholds

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

Table 3.5-5. Maximum Daily Emissions Estimates for the ARCF Comprehensive Project and Remaining ARCF 2016 Project Components– San Francisco Bay Area Air Basin

Project	Unmitigated/mitigated PM10 ¹	Unmitigated/mitigated PM2.5 ¹	Unmitigated/mitigated ROG	Unmitigated/mitigated NO _x
2024				
Sacramento Weir	16.10	14.40	20.90	357.10
Sacramento River Erosion Contract 2	14.49	12.96	19.81	321.39
Sacramento River Erosion Contract 4	18.4	16.4	23.8	408
<i>Total ARCF Comprehensive Project Emissions</i>	48.99	43.76	64.51	1,086.49
CEQA Threshold	82 (exhaust)	54 (exhaust)	54	54
Exceed Threshold?	No	No	Yes	Yes
2025				
Sacramento River Erosion Contract 3 (Barge emissions)	0.93	0.84	6.11	43.36
Sacramento Weir	14.4	16.1	20.9	357.1
<i>Total ARCF Comprehensive Project Emissions</i>	15.33	16.94	27.01	400.46
CEQA Threshold for Average Daily Emissions	82 (exhaust)	54 (exhaust)	54	54
Exceed Threshold?	No	No	No	Yes
2026				
Sacramento River Erosion Contract 3 (Barge emissions)	0.99	0.84	6.38	45.27
<i>Total ARCF Comprehensive Project Emissions</i>	0.99	0.84	6.38	45.27
CEQA Threshold for Average Daily Emissions	82 (exhaust)	54 (exhaust)	54	54
Exceed Threshold?	No	No	No	No

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

¹ Given that some project components do not break out dust and exhaust components of PM emissions, the values in this column account for both components.

Table 3.5-6. Annual Emissions Estimates for the ARCF Comprehensive Project and Remaining ARCF 2016 Project Components – San Francisco Bay Area Air Basin

Project	Unmitigated/mitigated PM10	Unmitigated/mitigated PM2.5	Unmitigated/mitigated ROG	Unmitigated/mitigated NOX
2024				
Sacramento Weir	0.16	0.15	0.21	3.65
Sacramento River Erosion Contract 2	0.41	0.36	0.53	9.02
Sacramento River Erosion Contract 4	0.01	0.01	0.01	0.20
<i>Total ARCF Comprehensive Project Emissions</i>	0.58	0.52	0.75	12.87
General Conformity <i>de Minimis</i> Threshold	25	25	100	100
Exceed Threshold?	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
2025				
Sacramento River Erosion Contract 3 (Barge emissions)	0.05	0.04	0.31	2.20
Sacramento Weir	0.16	0.15	0.21	3.65
<i>Total ARCF Comprehensive Project Emissions</i>	0.21	0.19	0.52	5.85
General Conformity <i>de Minimis</i> Threshold	25	25	100	100
Exceed Threshold?	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
2026				
Sacramento River Erosion Contract 3 (Barge emissions)	0.05	0.04	0.31	2.20
<i>Total ARCF Comprehensive Project Emissions</i>	0.05	0.04	0.31	2.20
General Conformity <i>de Minimis</i> Threshold	25	25	100	100
Exceed Threshold?	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

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

The BAAQMD does not have annual CEQA thresholds of significance.

Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)) and the State CEQA Guidelines, as amended. The alternatives under consideration were determined to result in a significant impact related to air quality if they would do any of the following:

- a. conflict with or obstruct implementation of the applicable air quality plan;
- b. result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- c. expose sensitive receptors to substantial pollutant concentrations;
- d. result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Local air district (SMAQMD and BAAQMD) significance thresholds used in this analysis are presented in Tables 3.5-7 and 3.5-8, respectively, and General Conformity *de minimis* thresholds that apply to the project are presented in Table 3.5-9 and 3.5-10.

The No Action Alternative (the project as approved based on the ARCF GRR Final EIS/EIR) identified construction of the ARCF project over a longer timeline (14 years compared to 8 years as currently proposed). Since the ARCF 2016 Project was authorized, the schedule has changed and compressed substantially. Because the overall timeline and the specific years in which construction would occur have changed considerably since the project was authorized, the design refinements are the entire Proposed Action for the purposes of air quality analysis and conclusions under NEPA and CEQA are identical.

Table 3.5-7. Sacramento Metropolitan Air Quality Management District Thresholds of Significance for Construction

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

Notes: BACT = Best Available Control Technology; BMPs = Best Management Practices. Thresholds for PM₁₀ and PM_{2.5} are zero unless BACT/BMPs are implemented as part of the project.

Source: Sacramento Metropolitan Air Quality Management District 2020

Table 3.5-8. Bay Area Air Quality Management District Thresholds of Significance for Construction

Pollutant	Threshold (pounds per day)
Oxides of Nitrogen (NO _x)	54
Reactive Organic Gases (ROG)	54
Respirable Particulate Matter (PM ₁₀) - Exhaust	82 (exhaust)

Pollutant	Threshold (pounds per day)
Fine Particulate Matter (PM _{2.5}) -Exhaust	54 (exhaust)

Notes: BACT = Best Available Control Technology; BMPs = Best Management Practices. Thresholds for PM₁₀ and PM_{2.5} are zero unless BACT/BMPs are implemented as part of the project.

Source: Sacramento Metropolitan Air Quality Management District 2020

Table 3.5-9. General Conformity *de minimis* Thresholds for the Sacramento Valley Air Basin

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

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

Table 3.5-10. General Conformity *de minimis* Thresholds for the San Francisco Bay Area Air Basin

Pollutant	Threshold (tons per year)
Carbon Monoxide (CO)	None
Oxides of Nitrogen (NO _x)	100
Volatile Organic Compounds (VOC)/Reactive Organic Gases (ROG)	100
Respirable Particulate Matter (PM ₁₀)	None
Fine Particulate Matter (PM _{2.5})	100

Sources: 40 CFR 93 Section 153 (b)(1);

Effects Not Addressed in Detail

Effects from Piezometer Network. Air quality impacts from construction of the piezometer network are expected to be minimal; the equipment for the installations would consist of a drill rig and a support vehicle to provide well installation supplies. Furthermore, the piezometer installation would occur scattered across the entire Proposed Action Area. No additional hauling would be required beyond those already identified for the Proposed Action. Additionally, once construction is complete GHG emissions would cease. Therefore, the Piezometer Network would not cause additional direct or indirect air quality impacts and is not discussed further in this section.

Conflict with or Obstruct Implementation of the Applicable Air Quality Plan or Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region Is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard during Operation, Maintenance, and Inspection. Long-term operational and maintenance activities under the Proposed Action would result in limited emissions of criteria air pollutants and precursors from the use of on-road vehicles on the levees for inspection and maintenance activities, mowing grasses on the levees, vegetation removal from channels, and possibly limited heavy earth-moving equipment for repair of any damage to the site. These

emissions would be limited to a temporary time frame once or twice per year, and operations and maintenance activities would be similar to those conducted under current conditions. Emissions resulting from long-term operational and maintenance activities would not exceed SMAQMD or *de minimis* thresholds.

Effects Analysis

No Action Alternative

Construction of the No Action Alternative would exceed the SMAQMD and BAAQMD daily emission thresholds for NO_x and PM₁₀. Mitigation would be implemented to reduce dust emissions to less than significant. Although mitigation measures would be implemented to reduce NO_x for off-road equipment by 20 percent, construction-related emissions still would exceed SMAQMD's emission thresholds for NO_x. The USACE would be required to pay an off-site mitigation fee for NO_x emissions in the SVAB, which would reduce the effect to a less-than-significant level. Borrow activities and barge delivery emissions would not exceed thresholds and would result in a less-than-significant impact. Borrow activities emissions associated with potential borrow sites located north of the project site were captured in the SMAQMD off-site soil estimations.

Annual construction emissions from the No Action Alternative would exceed the General Conformity threshold for NO_x in the Sacramento Federal Ozone Nonattainment Area (SFNA), resulting in a significant adverse effect. Implementing Enhance Exhaust Control Practices for off-road equipment and only using on-road heavy-duty diesel trucks or equipment that comply with USEPA 2010 on-road emission standards would reduce annual construction emissions below the *de minimis* threshold. Therefore, this direct effect would be reduced to a less-than-significant level.

Construction activities would result in short-term diesel particulate (DPM) emissions from onsite heavy-duty equipment and trucks and could expose sensitive receptors to DPM generated during construction, therefore resulting in a potential adverse health effect. However, implementing mitigation measures would reduce DPM and associated health risks during construction to less than significant.

The project would not result in any major sources of odor.

Finally, long-term O&M activities would result in limited emissions of criteria pollutants from activities such as driving trucks on the levees for inspections and maintenance actions, mowing of grasses on the levees, and possibly limited heavy earth-moving equipment for repair of any damage to the site. Therefore, impacts from long-term O&M activities would be less than significant.

Proposed Action Alternative

3.5-a, b Conflict with or Obstruct Implementation of the Applicable Air Quality Plan or Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region Is Non-Attainment under an

Applicable Federal or State Ambient Air Quality Standard during Construction

CEQA Significance Conclusion: Significant and Unavoidable

NEPA Significance Conclusion: Significant and Unavoidable

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation, American River Mitigation

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

Consistency with an air quality plan is determined based on whether the Proposed Action would conflict with or obstruct implementation of the Federal and State air quality plans, which would lead to increases in the frequency or severity of existing air quality violations. The Proposed Action is located within Sacramento County as part of the larger SFNA and is under the jurisdiction of SMAQMD. However, material associated with the Sacramento River Erosion Improvements would be hauled up the Sacramento River from areas within the SFBAAB, which is under the jurisdiction of the BAAQMD. Therefore, both SMAQMD and BAAQMD are responsible for establishing and enforcing air quality rules and regulations in the jurisdiction of the Proposed Action that address the requirements of Federal and State air quality laws.

The SFNA is designated a “severe” nonattainment area for the federal 8-hour ozone standard. Additionally, Sacramento County is designated nonattainment for the state 24 hour and annual PM₁₀ standards (SMAQMD 2020). The SFBAAB is designated nonattainment for 8-hour ozone, 24-hour, annual PM₁₀, 24-hour, and annual PM_{2.5} (BAAQMD 2017).

By its nature, air pollution is largely a cumulative impact. No single project by itself is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project’s individual emissions contribute to existing cumulatively significant adverse air quality impacts by violating air districts rules and regulations, generate emissions over air district significance threshold, and emitting TACs. SMAQMD and BAAQMD have developed regional air quality thresholds as allowable project-level emissions limits to enable the region to attain and maintain ambient air quality standards. Therefore, for CEQA purposes, an air quality effect is significant if the project’s construction emissions would exceed SMAQMD and BAAQMD CEQA daily emission thresholds, as shown in Table 3.5-7 and 3.5-8.

Additionally, Federal projects are also subject to the CAA General Conformity Rule (40 CFR 51, Subpart W). The purpose of the General Conformity Rule is to ensure that Federal project conform to applicable SIPs so that they do not interfere with strategies used to attain the NAAQS. The rule applies to Federal project in non-attainment areas for any of the six criteria pollutants for which the EPA has established these standards, and in any areas designated as “maintenance” areas. Therefore, under NEPA, an air quality effect is significant if the project’s construction emissions exceed the General Conformity *de minimis* threshold, which is shown in Tables 3.5-9 and 3.5-10.

Construction activities for the project would temporarily generate emissions of criteria air pollutants including ROG, NO_x, PM₁₀, and PM_{2.5}. Emissions of the ozone precursors ROG and NO_x are generated primarily by on-road mobile sources (i.e., delivery vehicles, construction worker vehicles) and off-road construction equipment. Emissions of fugitive PM dust is generated by hauling along unpaved roads and ground disturbing activities such as excavation and grading. Movement of off-road construction equipment and work trucks on unpaved roads can also generate fugitive PM dust. Construction-related emissions of fugitive PM dust can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance. Criteria air pollutant emissions would be generated throughout construction activities in 4 calendar years.

Maximum daily and annual emissions are estimated for ROG, NO_x, PM₁₀, and PM_{2.5} to evaluate emissions compared to the SMAQMD's threshold for on-road vehicles as well as off-road equipment operated within the Sacramento Valley Air Basin. These results are shown in Tables 3.5-3 and 3.5-4. Construction-related emissions would exceed the SMAQMD's emission threshold for in all 4 years of construction. NO_x would result in an exceedance in 2024 through 2027, PM₁₀ would be result in an exceedance in 2024 through 2026, and PM_{2.5} would result in an exceedance in 2025 and 2026. The actual emissions may be reduced depending on the availability of the borrow sites that are located closer to the Proposed Action, regardless, the overall construction emissions under the Proposed Action would exceed the thresholds and result in a significant impact.

Maximum daily and annual emissions are estimated for ROG, NO_x, PM₁₀, and PM_{2.5} to evaluate emissions against BAAQMD thresholds from barge activities. These results are shown in Tables 3.5-5 and 3.5-6. Construction-related emissions would exceed the BAAQMD's emission threshold for in 3 out of 4 years of construction. NO_x would be result in an exceedance in 2024 through 2026 and ROG would result in an exceedance in 2024.

Annual *de minimis* emissions are estimated for ROG, NO_x, PM₁₀, and PM_{2.5} and are shown in Tables 3.5-4 and 3.5-6 to evaluate the total ARCF project actions against federal General Conformity standards. Construction-related emissions would exceed SVAB federal General Conformity standards for PM₁₀ in 2024, 2025 and 2026. The Proposed Action would not exceed SFNA federal General Conformity standards.

The Proposed Action would emit NO_x, PM₁₀, PM_{2.5}, ROG at concentrations above applicable local thresholds of significance in at least 1 year during construction. Additionally, the Proposed Action would exceed SVAB federal General Conformity standards in 3 years of construction. Therefore, this would be a significant impact. Implementing Mitigation Measures AIR-1, AIR-2, AIR-3, AIR-4, and AIR-5, which were previously adopted for the ARCF 2016 Project, have been identified to address this impact.

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

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

- Water all exposed surfaces two times daily or more, as needed. Exposed surfaces include but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover, or suitably wet soils and other materials on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that travel along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speed on unpaved roads to 15 miles per hour.
- Complete pavement of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible.
- 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.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

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

Soil Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil; however, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
- Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible and 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 with a 6- to 12-inch layer of wood chips, mulch, or gravel to a distance of 100 feet from the paved road 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.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

Mitigation Measure AIR-3: Implement SMAQMD’s Enhanced Exhaust Control Practices and Require Lower Exhaust Emissions for Construction Equipment.

The Project Partners shall require contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment and on-road haul trucks must be equipped with 2010 or newer engines. Tier 0 and uncontrolled engines are prohibited for use in the project. To demonstrate compliance with this requirement:

- The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that would be used an aggregate of 8 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, and the CARB equipment identification number for each piece of equipment. This will include all owned, leased and subcontracted equipment to be used. The construction contractor shall provide the anticipated construction timeline including start date, and the name and phone numbers of the project manager and the on-site foreman. This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. The SMAQMD Construction Mitigation Tool can be used to submit this information. The inventory shall be updated and submitted monthly throughout the duration of the project, or as pre-arranged with SMAQMD, except for any 30-day period in which no construction activity occurs. In the event that no construction occurs for any 30-day period, a notification will be sent to SMAQMD stating that no construction occurred.
- The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet average of 90 percent Tier 4 emissions vehicles. This plan shall be submitted in conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
- SMAQMD’s Construction Mitigation Tool can be used to identify an equipment fleet that achieves this reduction. The construction contractor shall ensure that emissions from all off-road diesel-powered equipment used in the project area do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented, and a summary provided monthly to USACE and SMAQMD. A visual survey of all in-operation equipment shall be made at least weekly. A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey.
- Use the Construction Mitigation Tool to track PM10 emissions and mileage traveled by on-road trucks, reporting results to USACE and SMAQMD on a monthly basis.

Timing: Before and during construction

Responsibility: USACE and construction contractor(s)

Mitigation Measure AIR-4: Use the Air District’s Off-site Mitigation Fee to Reduce NOx Emissions.

The Project Partners shall implement the measures listed below to reduce NOx construction-related emissions.

Pursuant to air district thresholds of significance, if the projected construction-related emissions exceed the NOx threshold of significance, based on the equipment inventory and use, USACE shall contribute to SMAQMD’s and/or BAAQMD’s off-site mitigation fee program sufficiently to offset the amount by which the project’s NOx emissions exceed the threshold. If emissions for the ARCF 2016 Project in any given year would exceed the *de minimis* threshold of 25 tons per year, USACE would enter into an agreement with SMAQMD and/or BAAQMD to purchase offsets for all NOx emissions in any year that projected emissions would exceed the threshold. The determination of the estimated mitigation fees shall be conducted in coordination with SMAQMD and/or BAAQMD before any ground disturbance occurs for any phase of project construction. (USACE anticipates purchasing offsets for NOx emissions in 2024 through 2027 because the ARCF 2016 Project is forecast to exceed the *de minimis* threshold. Estimated fees for the Proposed Action are \$37,350 annually to SMAQMD for emissions in the SVAB.) All mitigation fees shall be paid prior to the start of construction activity to allow air districts 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 and BAAQMD to ensure emission calculations and fees are adjusted appropriately.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure AIR-5: Implement Marine Engine Standards

The Project Partners shall encourage the use of EPA adopted Tier 3 and Tier 4 standards for newly built marine engines in 2008. The Tier 3 standards reflect the application of technologies to reduce engine PM and NOx emission rates. Tier 4 standards reflect application of high-efficiency catalytic after-treatment technology enabled by the availability of ultra-low sulfur diesel.

The Project Partners will use Tier 2 and 3 marine engines standards where available to reduce marine exhaust emissions. Due to uncertainty as to the availability of Tier 4 marine engines within the required project timeline, this mitigation measure does not require the use of Tier 4 marine engines. However, should they become available during the appropriate construction periods, the use of these engines will be required in order to further lower project emissions.

Timing: Before and during construction

Responsibility: USACE

Implementation of Mitigation Measures AIR-1 to AIR-5 would require establishment of BMPs and other on-site controls, including use of Tier 4 equipment for off-road equipment and higher-tier marine engines, to reduce NOx and PM emissions at the project site to the extent possible. USACE would pay a mitigation fee to offset remaining emissions. Mitigation Measure AIR-4 would further reduce this impact down to a less-than-significant level by paying a fee to reduce NOx emissions at off-site sources. There is no off-site fee program or other options to further reduce PM emissions generated at the project site during construction. As a result, the project would continue to generate maximum daily PM emissions that exceed SMAQMD thresholds of significance in 2024, 2025, and 2026. There are no other feasible mitigation measures, or additional mitigation measures approved by the SMAQMD, that can be implemented to further reduce this significant adverse impact related to PM10 emissions generated at the project site during construction. Therefore, this impact would be significant and unavoidable.

3.5-c Expose Sensitive Receptors to Substantial Pollutant Concentrations.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-term and Minor effects that are Less than Significant

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Design Refinements): Less than Significant

NEPA Impact Conclusion (Entire Proposed Action): Short-term and Minor effects that are Less than Significant.

Diesel PM, which is classified as a carcinogenic TAC by CARB, is the primary pollutant of concern regarding indirect health risks to sensitive receptors. Nearby land uses, especially residences and schools downwind of the project sites, could be exposed to diesel PM during construction activities, resulting in potential adverse health effects.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 30 or 70 year exposure period is often assumed. However, while cancer can result from exposure periods of less than 30 or 70 years, short-term exposure periods (i.e., exposure periods of 2 to 3 years) to diesel exhaust are not anticipated to result in increased health risk, as health risks associated with exposure to diesel exhaust are typically seen in exposure periods that are chronic (OEHHA 2015).

Construction of the Proposed Action would result in short-term emissions of TACs, primarily diesel particulate (DPM) emissions from on-site heavy-duty equipment and on-road haul trucks, as shown in Table 3.5-11. Construction activities associated with the ARCF 2016 Project, which includes the Proposed Action would continue for up to 4 years. As shown in Table 3.5-11 construction-generated exhaust emissions of PM_{2.5}, which includes DPM, would not exceed SMAQMD's mass daily threshold of 82 lbs/day. Table 3.5-11 does not include PM_{2.5} emissions

associated with the Sacramento River Erosion Contract 3 component due to modeling limitations, however, given that the PM_{2.5} exhaust emissions are far below significance thresholds, exhaust emissions generated during construction activities would be below local significance thresholds. The exhaust component of the PM_{2.5} is a very small portion of this total PM_{2.5} emissions.

Construction of the Proposed Action would not occur over a prolonged period in any one specific location, minimizing exposure from diesel PM at any one receptor. Additionally, as required by 13 CCR Section 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Moreover, the Proposed Action would apply SMAQMD and BAAQMD recommended construction mitigation which would further reduce emissions of TACs. Therefore, the Proposed Action would have a less-than-significant impact associated with exposure of sensitive receptors to TACs.

Table 3.5-11. PM_{2.5} Emissions by Construction Year

Construction Year	Unmitigated total PM _{2.5} generated – exhaust and dust (lbs/day)	Unmitigated PM _{2.5} – exhaust only (lbs/day)	Mitigated total PM _{2.5} generated – exhaust and dust (lbs/day)	Mitigated PM _{2.5} – exhaust only (lbs/day)
2024	71.62	20.62	104.58	9.95
2025	233.6	17.13	210.10	9.11
2026	169.49	11.98	159.76	7.35
2027	10.17	5.86	7.20	3.07

Notes: The HarborCraft calculator used to calculate barge emissions does not break out PM_{2.5} by dust and exhaust emissions, therefore, the barge exhaust emissions are not captured in the “exhaust only” columns.

For the Lower American River Contract 3A, exhaust only emissions are unknown, therefore, the total PM emissions are used.

3.5-d Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-term and Negligible effects that are Less than Significant

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Design Refinements): Less than Significant.

NEPA Impact Conclusion (Entire Proposed Action): Short-term and Negligible effects that are Less than Significant.

During construction, the project would generate odor from the use of diesel fuels over the 4-year construction period. However, the project would not generate a considerable amount of other emissions that would adversely affect a substantial number of people. This impact would be less than significant.

Alternatives Comparison

Alternative 3a

Alternatives 3a would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River 3B, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, and American River Mitigation) would be unchanged. It is anticipated that the material and equipment needed for Alternative 3a would be significantly lower than the Proposed Action because this alternative would not require any bike trail reroutes and would only include construction of the landside berm. However, even with reduced air quality emissions from the American River Contract 4A project component, emissions generated in conjunction with other project components would remain over applicable thresholds. Therefore, this alternative would not change any of the air quality related construction impacts.

Table 3.5-12. Alternative 3a Effects on Air Quality

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a,b: Result in a Cumulatively Considerable Net Increase of Any Criteria Area Pollutant Leading to a Conflict with Applicable Air Quality Plans During Construction Activities	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	AIR -1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-c: Expose Sensitive Receptors to Substantial Pollutant Concentrations	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.5-d: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Short-term and Negligible Effects that are Less than Significant	Less than Significant

Alternative 3b, 3c, 3d

Alternatives 3b, 3c, and 3d would change the location and type of improvements for the American River Contract 4A project component. All other project components (American River 3B, Sacramento River, Magpie Creek Project, Sacramento River Mitigation, and American River

Mitigation) would be unchanged. It is anticipated that the material and equipment needed as well as construction activities for these alternatives would be similar to the Proposed Action. Therefore, these alternatives would not change any of the air quality related construction impacts.

Table: 3.5-13: Alternatives 3b, c, and d Effects on Air Quality

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.5-a: Result in a Cumulatively Considerable Net Increase of Any Criteria Area Pollutant Leading to a Conflict with Applicable Air Quality Plans During Construction Activities	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	AIR -1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-c: Expose Sensitive Receptors to Substantial Pollutant Concentrations	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.5-d: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Less than Significant	Short-term and Negligible Effects that are Less than Significant

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include an alternative design for improvements to the American River Mitigation project component. All other project components (Magpie Creek, American River 3B, American River 4A, Sacramento River, and Sacramento River Mitigation) would remain unchanged. Alternatives 4a and 4b would retain a portion of the existing pond on the Urrutia site, therefore reducing the need for fill materials, construction-related transportation, and construction equipment usage. Alternative 4a and 4b would result in a decrease in the generation of criteria air pollutants and toxic air contaminants due to the preservation of a portion of the on-site pond and a reduction in material import. However, the combined criteria air pollutants generated during the years in which the American River Mitigation project component would be constructed (2024 and 2025) would remain above the SMAQMD threshold. Therefore, these alternatives would not change any of the construction impacts associated with air quality compared to the Proposed Action.

Table 3.5-14: Alternatives 4a and 4b (CEQA Only) Effects on Air Quality

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.5-a,b: Result in a Cumulatively Considerable Net Increase of Any Criteria Area Pollutant Leading to a Conflict with Applicable Air Quality Plans During Construction Activities	ARMS	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	AIR -1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable
3.5-c: Expose Sensitive Receptors to Substantial Pollutant Concentrations	ARMS	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Less than Significant
3.5-d: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	ARMS	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall air emissions would not change from the Proposed Action.	N/A	Short-term and Negligible Effects that are Less than Significant

Alternatives 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the Sacramento River Mitigation project component and proposes alternative mitigation fulfillment. All other project components (Magpie Creek Project, American River 3B, American River 4A, Sacramento River, and Sacramento River Mitigation) would remain unchanged. Alternative 5a includes purchasing all remaining, required mitigation credits from Service Approved Conservation Banks. Alternative 5c included the combination of three less conventional approaches to mitigation fulfillment including purchasing Delta Smelt Conservation Bank Credits, providing funding for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, and funding the Sunset Pump project. These alternatives would eliminate air quality impacts associated with the Sacramento River Mitigation Site.

Table 3.5-15. Alternative 5a and 5c Effects on Air Quality

Impact Number and Title	Location	Discussion	Mitigation Measure	Significance Conclusion	NEPA Effects Determination
3.5-a,b: Conflict with Applicable Air Quality Plans During Construction Activities	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there would be no impact to air quality.	N/A	No Impact	No Impact
3.5-c: Expose Sensitive Receptors to Substantial Pollutant Concentrations	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there would be no impact to sensitive receptors.	N/A	No Impact	No Impact
3.5-d: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there no other emissions would be generated.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would replace the Sacramento River Mitigation project component with the new Watermark Farms Mitigation Site. All other project components (Magpie Creek Project, American River 3B, American River 4A, Sacramento River, and Sacramento River Mitigation) would remain unchanged. It is anticipated that the material and equipment needed as well as construction activities for this alternative would be substantially greater than the Proposed Action, due to the need to construct a new levee. Therefore, this alternative would increase the amount of criteria air pollutants; however, the impact conclusion would remain consistent with the Proposed Action.

Table 3.5-16 Alternative 5b Effects on Air Quality

Impact Number and Title	Location	Discussion	Mitigation Measure	Significance Conclusion	NEPA Effects Determination
3.5-a,b: Conflict with Applicable Air Quality Plans During Construction Activities	SRMS	Consistent with the Proposed Action. Alternative 5b would require a new levee be constructed at the Watermark Farms Mitigation site and therefore, increase the amount of criteria air pollutants, however, the impact would remain consistent with the Proposed Action.	AIR-1 AIR-2 AIR-3 AIR-4 AIR-5	Significant and Unavoidable	Significant and Unavoidable
3.5-c: Expose Sensitive Receptors to Substantial Pollutant Concentrations	SRMS	Consistent with the Proposed Action. Alternative 5b would require a new levee be constructed at the Watermark Farms Mitigation site and therefore, increase the amount of criteria air pollutants, however, the impact would remain consistent with the Proposed Action.	N/A	Less than Significant	Short-term and Minor Effects that are Less than Significant
3.5-d: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	SRMS	Consistent with the Proposed Action. Alternative 5b would require a new levee be constructed at the Watermark Farms Mitigation site and therefore, increase the amount of criteria air pollutants, however, the impact would remain consistent with the Proposed Action.	N/A	Less than Significant	Short-term and Negligible Effects that are Less than Significant

3.6 Greenhouse Gas Emissions, Climate Change, and Energy Consumption

This section assesses the Proposed Action’s greenhouse gas (GHG) emissions, climate change, and energy consumption. This section has been prepared in accordance with the Interim NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change promulgated by the Council on Environmental Quality (CEQ) in 2023. GHG emissions have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. This section discusses climate change, existing sources of GHG emissions, electrical use and generation, applicable regulations, and potential impacts of the Proposed Action related to GHG emissions, climate change, and energy consumption.

3.6.1 Existing Conditions/Affected Environment

The existing conditions and affected environment related to GHG and Climate Change is consistent with what is provided in the ARCF General Reevaluation Report (GRR) Final EIS/EIR.

Greenhouse Gas Inventory

The Sacramento County Climate Action Plan (CAP) includes an emissions inventory, which reflects a snapshot of the major sources of emissions in a single year and provides a baseline from which emissions trends are projected. The baseline year of 2015 was selected based on data available at the time the CAP was prepared. Additionally, the CAP includes forecasted GHG emissions, which provide an estimate of future GHG levels.

Table 3.6-1. A Comparison of the Sacramento County Community GHG Emissions Inventory for 2015 and Legislative-Adjusted Business as Usual Forecast

Sector	2015 GHG Emissions (MT CO2e/year)	2030 Forecast
Residential Energy	1,086,580	493,311
Commercial Energy	843,168	300,450
On-Road Vehicles	1,695,127	1,463,349
Off-Road Vehicles	195,769	253,857
Solid Waste	352,909	280,694
Agriculture	254,899	251,102
High-GWP Gases	251,085	245,175
Wastewater	27,253	19,248
Water-Related	15,222	2,526
Total	4,723,011	3,309,712

Note: Metric Ton (MT), carbon dioxide equivalent (CO2e)
Source: Sacramento County 2022

Climate Change Risks

A general summary of climate risks facing the Sacramento Valley Region include warming air and water temperatures, more extreme heatwaves, drier landscapes, less snow, variable precipitation and seasonal shifts, more intense droughts and foods with less predictability, higher

Delta water levels compounded by subsidence, increased risk of wildfire, and loss of ecosystem habitat. GHG-driven climate disruptions are resulting in human health, economic and environmental damages, altering patterns of human migration, harming public health, compromising national security, and harming business and industry (Houlton, Benjamin, Jay Lund 2018).

Flood-related Climate Hazards, Trends, and Impacts

California precipitation is highly irregular and growing more so, often with relatively long duration between storms (Dettinger et al. 2011). As a result, large, discrete storms provide a substantial fraction of California's rainy season total precipitation. Many of California's largest storms are atmospheric rivers, which can carry more water than seven to 15 Mississippi Rivers combined (Ralph & Dettinger 2011). These storms may result in heavy rainfall over a narrow area or short time frame (Gimeno et al. 2014). Additionally, many of California's most damaging events are considered compound flood events. Compound floods are those that occur when more than one flood-producing mechanism occur simultaneously such as large precipitation events, power outages, levee or dam failure, etc. The impacts from compound floods are significantly higher than that of the impact of any one compound alone, and the infrastructure damage caused is usually significantly more than the sum of the individual parts.

Historically, much of California's precipitation falls as winter snow, which melts slowly throughout the spring and provides a prolonged period of runoff throughout spring and early summer. However, as the frequency and intensity of heavy precipitation events (i.e., atmospheric rivers) have increased since the 1950s over most land area, and warmer, earlier springs have become more frequent, this pattern is shifting.

Increasing periods of precipitation are likely to lead to more flooding throughout California. Additionally, projections show that the wet season will be shortened, which will result in a compressed period during which the increased precipitation will fall (Swain et al. 2018). The Sacramento Valley Region largest winter storms will potentially become more intense and likely more damaging.

Electricity Use and Generation

The Sacramento Municipal Utility District (SMUD) is the primary electricity provider in Sacramento County. Pacific Gas and Electric (PG&E) provides natural gas service.

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2021, natural gas accounted for approximately 38 percent of California's power mix. Large hydroelectric powered approximately 9 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 34 percent. (CEC 2022).

In 2021, SMUD provided its customers with 29.6 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and 17.7 percent and 51.4 percent from large scale hydroelectric and natural gas, respectively (SMUD 2021). The proportion of SMUD-delivered electricity generated from eligible renewable energy sources is

anticipated to increase over the next three decades to comply with the Senate Bill (SB) 100 goals, as described in the section below.

3.6.2 Applicable Laws, Regulations, Policies, and Plans

3.6.2.1 Federal

Federal Clean Air Act

EPA is the Federal agency responsible for implementing the Federal Clean Air Act (CAA). On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the CAA and that EPA has the authority to regulate GHGs. The court held that the EPA Administrator must determine whether GHG emissions from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

Energy Policy and Conservation Act and Corporate Average Fuel Economy Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic Safety Administration (NHTSA), part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

Under the Energy Independence and Security Act of 2007 (described below), the Corporate Average Fuel Economy (CAFE) standards were revised for the first time in 30 years then later updated in 2012 and 2019.

Greenhouse Gas Findings under the Clean Air Act

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment finding:** The EPA Administrator found that the current and projected concentrations of the six key well-mixed GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or contribute finding:** The EPA Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

Energy Policy Act of 1992 and 2005

The Energy Policy Act of 1992 (EPAct) was enacted to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain Federal, State, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the

act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy.

National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change

Consistent with section 102(2)(C) of NEPA, Federal agencies must disclose and consider the reasonably foreseeable effects of their proposed actions including the extent to which a proposed action and its reasonable alternatives, including the no action alternative would result in reasonably foreseeable GHG emissions. NEPA established CEQ within the Executive Office of the President to ensure that Federal agencies meet their obligations under NEPA. CEQ oversees NEPA implementation, principally through issuing guidance and interpreting regulations that implement NEPA's procedural requirements. CEQ updated *Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* to help Federal agencies better assess and disclose climate impacts as they conduct environmental reviews. This step, directed by Executive Order 13990, advances commitment to restore science in Federal decision making, fight climate change, and build resilient infrastructure. Federal agencies should consider the ways in which a changing climate may impact the proposed action and its reasonable alternatives and change the action's environmental effects over the lifetime of those effects.

This guidance is intended to assist agencies in disclosing and considering the effects of GHG emissions and climate change. This guidance does not establish any particular quantity of GHG emissions as “significantly” affecting the quality of the human environment. However, quantifying a proposed action's reasonably foreseeable GHG emissions whenever possible, and placing those emissions in appropriate context are important components of analyzing a proposed action's reasonably foreseeable climate change effects.

Federal agencies should take the following steps when analyzing a proposed action's climate change effects under NEPA:

1. Quantify the reasonably foreseeable direct and indirect GHG emissions of a proposed action, the no action alternative, and any reasonable alternatives as discussed in Section IV(A) below.
2. Disclose and provide context for the GHG emissions and climate impacts associated with a proposed action and alternatives, including by, as relevant, monetizing climate damages using estimates of the SC-GHG, placing emissions in the context of relevant climate action goals and commitments, and providing common equivalents, as described below in Section IV(B).
3. Analyze reasonable alternatives, including those that would reduce GHG emissions relative to baseline conditions, and identify available mitigation measures to avoid, minimize, or compensate for climate effects.

3.6.2.2 State

With the passage of legislation, including Senate Bills (SBs), Assembly Bills (ABs), and executive orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the State level.

Senate Bill 100

Senate Bill 100, which is officially titled “The 100 Percent Clean Energy Act of 2018,” requires the public utilities commission to establish a renewables portfolio standard, under the California Renewables Portfolio Standard Program, that requiring all retail sellers to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (KWH) of those products sold to their retail end-use customers achieve 25 percent of retail sales by December 31, 2016, 33 percent by December 31, 2020, 40 percent by December 31, 2024, 45 percent by December 31, 2027, and 50 percent by December 31, 2030.

Assembly Bill 1493

AB 1493 requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emission standards were designed to apply to automobiles and light trucks beginning with model year 2009. In 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017–2025.

Executive Order S-3-05

The goal of Executive Order S-3-05, signed in 2005 by Governor Arnold Schwarzenegger, is to reduce California’s GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Executive Order B-30-15

In April of 2015, Governor Brown signed Executive Order B-30-15 which established a new interim GHG reduction target of 40 percent below 1990 levels by 2030 to ensure California meets the target of reducing GHG emissions to 80 percent below 1990 levels by 2050.

Assembly Bill 32

AB 32, the California Global Warming Solutions Act of 2006, was signed in September 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on Statewide GHG emissions. It requires that Statewide GHG emissions be reduced to 1990 levels by 2020. In December 2008, CARB adopted its *Climate Change Scoping Plan* (Scoping Plan) (CARB 2008), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32. The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State’s GHG inventory. CARB further acknowledges that decisions about how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors.

CARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. CARB has updated the Scoping Plan three times since it was first adopted in December 2008. The latest update was published in November 2022.

Executive Order S-01-07

Governor Schwarzenegger set forth the low carbon fuel standard for California; under Executive Order S-01-07, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (Chapter 185, 2007)

SB 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 required the Governor's Office of Planning and Research to develop recommended amendments to the State CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Executive Order S-13-2008

Executive Order S-13-08 required the National Academy of Sciences to complete a California Sea Level Rise Assessment Report. The Executive Order also dictates that the California Ocean Protection Council shall work with DWR, the California Energy Commission, California's coastal management agencies, and SWRCB to conduct a review of the Assessment Report every 2 years or as necessary. California adopted its 2009 Climate Adaptation Strategy (CNRA 2009) in response to this Executive Order, which is used to prepare, plan, and respond to future detrimental effects of climate change.

3.6.2.3 Local

CARB's Scoping Plan states that local governments are "essential partners" in the effort to reduce GHG emissions (CARB 2022). It also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions.

Sacramento Metropolitan Air Quality Management District

SMAQMD provides guidance to lead agencies for conducting GHG analyses under CEQA and is currently in the process of updating their guidance and thresholds of significance for GHG emissions. In February 2021, SMAQMD adopted the final version of the *Greenhouse Gas Thresholds for Sacramento County* guidance document. The final guidance document provides recommendations for thresholds that can be applied to construction and operational activities and provides a tailored approach for land use development projects. However, the Proposed Project does not fit the criterion of being a land use development project; therefore, the construction thresholds of significance identified by SMAQMD will be applied in this analysis (SMAQMD 2021).

Sacramento County General Plan of 2005 to 2030, Air Quality and Energy Elements

GOAL: Improve air quality to promote the public health, safety, welfare, and environmental quality of the community.

Multidisciplinary Coordination Objective: The integration of air quality planning with land use, transportation and energy planning processes to provide a safe and healthy environment.

- **Policy AQ-4:** Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or GHG as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

Sacramento County Climate Action Plan

The Sacramento County Climate Action Plan (CAP) details specific measures that will be implemented in Sacramento County by 2030 to GHG emissions from communitywide activities and government operations. It also includes an adaptation plan that recommends actions to reduce the community's vulnerability to the anticipated impacts of climate change. The CAP has been developed in response to mitigation measures contained in the Sacramento County's General Plan EIR, the County's adoption of a Climate Emergency Resolution in December 2020, and State legislation including Assembly Bill (AB) 32, Senate Bill (SB) 32, and SB 743 as well as Executive Orders S-3-05 and B55-18. The strategies and measures contained in the CAP complement a wide range of policies, plans, and programs that have been adopted by Sacramento County, State, and regional agencies to protect communities from hazards and activities contributing to GHG emissions. This CAP is organized into a main CAP document that provides general information about the County's approach and actionable strategies followed by seven appendices containing more information on the analyses used to inform the strategies and measures. (Sacramento County 2022).

City of Sacramento Preliminary Climate Action and Adaptation Plan

The Climate Action and Adaptation Plan (CAAP) builds off the City of Sacramento's 2012 Climate Action Plan, the City of Sacramento's Climate Emergency Declaration, and incorporates recommendations from the Mayors' Commission on Climate Change. The CAAP sets new and ambitious targets for the City and identifies key strategies and actions that form the foundation of Sacramento's goal of achieving carbon neutrality by 2045. (City of Sacramento 2022).

3.6.3 Analysis of Environmental Effects

3.6.3.1 Analysis Methodology

Construction-related exhaust emissions for the Proposed Action were estimated for construction worker commutes, haul trucks, barge activities, and the use of off-road equipment (see Tables 3.6-2 to 3.6-4). Only unmitigated emissions are presented in the BAAQMD because these

emissions are associated with barge engines and there is no feasible mechanism available to reduce these emissions. The Proposed Action’s potential GHG impact was analyzed using a conservative construction scenario to estimate the maximum construction emissions generated. Since operation and maintenance activities are part of the existing environmental baseline and thus would not create a substantial source of new emissions, operational GHG emissions were not modeled. Where significant climate change impacts are identified, mitigation measures to reduce these impacts are specified. Impacts of climate change on the Proposed Action, including the potential for more severe or extreme storm events that would affect the flood risk reduction system, are incorporated into the assumptions for the Hydraulic and Hydrologic modeling and related impact discussion in Appendix B Section 3.4, “Hydraulics and Hydrology.”

A variety of methods and emissions modeling software were used to quantify criteria air pollutants, described in Appendix B Section 3.5, “Air Quality.” The emission factors and models described there were also used to quantify GHG emissions. Additionally, this analysis relied on GHG modeling and analysis conducted by Ascent Environmental for a previous version of the Proposed Action improvements for the Lower American River Erosion Contract 3B. GHG emissions were summed over the duration of all anticipated activity, including the use of heavy-duty equipment, haul trucks, and worker commute trips. All inputs and assumptions are included in Appendix C.

The Interim NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change promulgated by the CEQ in 2023 was used for the NEPA analysis. The baseline (the No Action Alternative) includes the buildout of the authorized project described in the 2016 ARCF GRR Final EIS/EIR. Additionally, the Proposed Action would not result in indirect long-term impacts since GHG emissions would cease following construction (see Section 3.6.3.3. “Effects Not Addressed in Detail.” Lastly, the social cost of greenhouse gas emissions (SC-GHG) was not calculated because the Proposed Action would not result in any permanent operational GHG emissions.

Table 3.6-2. Proposed Action Unmitigated GHG Emissions from Construction Activities Within SMAQMD

Emissions Category	MT of CO ₂ e per year
2024	
American River Erosion Contract 3B Erosion Improvements – Site tree removal	18.13
Sacramento Weir	3,937.97
Sacramento River Erosion Contract 2	1,736
Sacramento River Erosion Contract 4	432.70
Lower American River Contract 3A2	3,536
Total ARCF Comprehensive Project Emissions	9,660.80
CEQA Threshold	1,100
Exceed Threshold?	Yes
2025	
American River Erosion Contract 3B Erosion Improvements – Year 1 construction, Year 2 tree removal	7,888.20
Sacramento River Erosion Contract 3 (including Barge emissions)	494
ARMS	2,831

Emissions Category	MT of CO ₂ e per year
Sacramento River Mitigation (SRMS)	58.4
Sacramento Weir	2,730.74
Total ARCF Comprehensive Project Emissions	14,002.34
CEQA Threshold	1,100
Exceed Threshold?	Yes
2026	
American River Erosion Contract 3B and 4B Erosion Improvements – Year 2 construction, Year 1 monitoring	7,873.92
Sacramento River Erosion Contract 3 (including Barge emissions)	499
American River Erosion Contract 4A Erosion Improvements	838
ARMS	2,065
SRMS	117
Total ARCF Comprehensive Project Emissions	11,392.92
CEQA Threshold	1,100
Exceed Threshold?	Yes
2027	
American River Erosion Contract 3B Erosion Improvements – Year 2 monitoring	0.92
ARMS	2,065
Magpie Creek Project (MCP)	1,147
Total ARCF Comprehensive Project Emissions	3,213
CEQA Threshold	1,100
Exceed Threshold?	Yes

Notes: yellow-shaded cells indicate exceedance of SMAQMD significance threshold.

CO₂e/year=carbon dioxide equivalent per year; MT=metric tons; SMAQMD=Sacramento Metropolitan Air Quality Management District

Source: GEI Consultants, 2023

Table 3.6-3. Proposed Action Mitigated GHG Emissions from Construction Activities Within SMAQMD

Emissions Category	MT of CO ₂ e per year
2024	
American River Erosion Contract 3B Erosion Improvements – Site tree removal	18.13
Sacramento Weir	3,917.60
Sacramento River Erosion Contract 2	1,736
Sacramento River Erosion Contract 4	432.7
Lower American River Contract 3A2	3,536
Total ARCF Comprehensive Project Emissions	9640.43
CEQA Threshold	1,100
Exceed Threshold?	Yes
2025	
American River Erosion Contract 3B Erosion Improvements – Year 1 construction, Year 2 tree removal	7,921.20
Sacramento River Erosion Contract 3 (including Barge emissions)	427
American River Mitigation (ARMS)	2,831
Sacramento River Mitigation (SRM)	58.4

Emissions Category	MT of CO _{2e} per year
Sacramento Weir	2,605.24
Total ARCF Comprehensive Project Emissions	13,842.84
CEQA Threshold	1,100
Exceed Threshold?	Yes
2026	
American River Erosion Contract 3B and 4B Erosion Improvements – Year 2 construction, Year 1 monitoring	7,906.92
Sacramento River Erosion Contract 3 (including Barge emissions)	499
American River Erosion Contract 4A Erosion Improvements	838
ARMS	2,065
SRMS	117
Total ARCF Comprehensive Project Emissions	11,425.92
CEQA Threshold	1,100
Exceed Threshold?	Yes
2027	
American River Erosion Contract 3B Erosion Improvements – Year 2 monitoring	0.92
ARMS	2,003
MCP	1,150
Total ARCF Comprehensive Project Emissions	3153.92
CEQA Threshold	1,100
Exceed Threshold?	Yes

Notes: yellow-shaded cells indicate exceedance of SMAQMD significance threshold.

CO_{2e}/year=carbon dioxide equivalent per year; MT=metric tons; SMAQMD=Sacramento Metropolitan Air Quality Management District

Source: GEI Consultants, 2023

Table 3.6-4. Proposed Action Unmitigated GHG Emissions from Construction Activities Within BAAQMD

Emissions Category	MT of CO _{2e} per year
2024	
Sacramento Weir	131.39
Sacramento River Erosion Contract 2	1,736
Sacramento River Erosion Contract 4	7.36
Total ARCF Comprehensive Project Emissions	138.75
BAAQMD Threshold	10,000
Exceed Threshold?	<i>No</i>
2025	
Sacramento River Erosion Contract 3 (Barge emissions)	Unknown
The Sacramento Weir	131.39
Total ARCF Comprehensive Project Emissions	Unknown
BAAQMD Threshold	10,000
Exceed Threshold?	<i>No</i>
2026	
Sacramento River Erosion Contract 3 (Barge emissions)	Unknown
Total ARCF Comprehensive Project Emissions	Unknown
BAAQMD Threshold	10,000
Exceed Threshold?	<i>No</i>

Notes: The barge emission calculate does not include values of greenhouse gas emissions, therefore, Sacramento River Erosion Contract 3 barge emissions are not captured.
CO_{2e}/year=carbon dioxide equivalent per year; MT=metric tons; BAAQMD=Bay Area Air Quality Management District
Source: GEI Consultants, 2023

3.6.3.2 Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)) and the State CEQA Guidelines, as amended. The alternatives under consideration were determined to result in a significant impact related to GHG emissions, climate change, and energy consumptions if they would do any of the following:

- a. generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;
- b. conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases;
- c. result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- d. conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

As there are not currently NEPA thresholds for determining if GHG emissions constitute a significant effect, a qualitative analysis was used which considered the quantity of greenhouse gas emissions anticipated and the potential for preventing any greenhouse gas reduction goal or climate change goal from being met to determine if GHG emissions would produce a significant effect.

Environmental justice considerations related to GHG emissions and climate change are discussed in Appendix B, Section 2.5, “Environmental Justice.” The effects analysis in Appendix B, Section 3.3, “Hydrology and Hydraulics” includes assumptions about how climate change will affect future meteorological and flow conditions.

3.6.3.3 Effects Not Addressed in Detail

Generate GHG emissions during operations. The Proposed Action would involve short-term construction activities to improve levee structures and implement erosion protection along the American River, Sacramento River, and Magpie Creek. The Proposed Action would also establish habitat mitigation at sites along the American and Sacramento Rivers. Once construction activities are complete, emissions-generating activities would cease. Operational activities may require maintenance crews to visit the sites periodically. However, these activities would be similar to the maintenance activities currently conducted, and the Proposed Action would not result in any substantial long-term increase in GHG emissions due to operations and maintenance. This issue is not discussed further.

Effects from Piezometer Network. GHG impacts from construction of the piezometer network are expected to be minimal; the equipment for the installations would consist of a drill rig and a support vehicle to provide well installation supplies. No additional hauling would be required beyond those already identified for the Proposed Action. Additionally, once construction is complete GHG emissions would cease. Therefore, the Piezometer Network would not cause significant additional direct or indirect GHG impacts and is not discussed further in this section.

3.6.3.4 Effects Analysis

No Action Alternative

The short-term construction emissions estimated for the No Action Alternative, which is also known as Alternative 2 in the 2016 GRR Final EIS/EIR, are shown in Table 3.6-5 below. The delivery and placement task were calculated using the assumption that same amount of material to be barged to the project site, would be trucked to the site in the same period of time. While most GHG emissions would be generated during construction and would cease following construction operations, the No Action Alternative would result in long-term indirect impacts from the increased maintenance activities and potential future flood fighting activities that would likely be required due to the continued presence of deficiencies in the Sacramento Valley Region levee system. However, the No Action Alternative would moderately increase the likelihood that the flood management system could accommodate future flood events as a result of climate change. Additionally, although the No Action Alternative would result in short-term direct impacts of GHG emissions, the project would comply with all Federal, State, and local air quality regulations.

As there are no current NEPA thresholds for determining whether GHG emissions constitute a significant effect, a qualitative analysis was used which considered the quantity of greenhouse gas emissions anticipated and the potential for preventing any greenhouse gas reduction goal or climate change goal from being met to determine if GHG emissions would produce a significant effect. Emissions associated with future flood fighting activities are unknown; however, it is assumed that the No Action Alternative would provide a moderate reduction in emissions due to the implementation of flood protection measures associated with the No Action Alternative. Based on this analysis, less than significant effects from GHG emissions are anticipated from carrying out the No Action Alternative.

Table 3.6-5. No Action Alternative Unmitigated Emissions from Construction Activities

Construction Year	Total GHG Emissions (MT/year of CO ₂ e SMAQMD	Total GHG Emissions (MT/year of CO ₂ e BAAQMD
Truck Delivery Scenario		
Year 2 On-site Construction	3,204.6	0
Year 2 Off Site Soil Borrow	101.3	0
Bypass Widening and Demolition of Old Levee	0	0
Year 2 Total	3,305.9	0
Barge Delivery Scenario		
Year 2 On-site Construction	1,920.8	0
Year 2 Off-site Soil Borrow	101.3	0

Construction Year	Total GHG Emissions (MT/year of CO ₂ e SMAQMD)	Total GHG Emissions (MT/year of CO ₂ e BAAQMD)
Year 2 Barge Delivery	148.6	164.7
Bypass Widening and Demolition of Old Levee	0	0
Year 2	2,170.7	164.7
BAAQMD Threshold	1,100	10,000
Exceed Threshold?	Yes	No

Proposed Action Alternative

3.6-a Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Minor effects that are Less than Significant

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

The Proposed Action would generate construction-related emissions from vehicle engine exhaust from operation of heavy-duty construction equipment, haul trips, and construction worker vehicle trips. The construction related GHG emissions estimated for each year of construction are presented in Tables 3.6-2 to 3.6-4

The Proposed Action would generate direct short-term GHG emissions from construction-related activities exceeding the SMAQMD construction threshold of 1,100 MT of CO₂e per year during all construction years. The Proposed Action would not generate GHG emissions over the BAAQMD threshold of 10,000 MT of CO₂e per year in any construction years.

Since the Proposed Action would generate emissions over the SMAQMD threshold, the Proposed Action would cause a potentially significant impact on the environment under CEQA. Mitigation Measure GHG-1 has been identified to address this impact.

Mitigation Measure GHG-1: Implement GHG Reduction Measures

Measures that would be implemented to reduce the project's contribution from generation of GHGs are as follows:

- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.

- Recycle at least 50 percent of construction waste and demolition debris.
- Purchase at least 20 percent 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 5-minute, as required by the State’s 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 a CARB-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) that meet the criteria of being real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols approved by the California Air Resources Board (CARB), consistent with Section 95972 of Title 17 of the California Code of Regulations and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can be verified by USACE or SMAQMD. Such credits must be purchased through one of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the California Air Pollution Control Officers Association’s (CAPCOA’s) GHG Rx and SMAQMD. Purchase of carbon offsets shall be sufficient to reduce the project’s GHG emissions to below SMAQMD’s significance thresholds applicable through a one-time purchase of credits, based on the emissions estimates in this SEIR or on an ongoing basis based on monthly emissions estimates that would be prepared in accordance with procedures established by Measure AQ-3.

Timing: Before, during, and after construction

Responsibility: USACE and project partners

Implementing Mitigation Measure GHG-1 will reduce construction-related GHG emissions to a less-than-significant level under CEQA through efficient operation of construction equipment engines, enhanced emissions reductions for equipment used during construction, minimization of equipment idling when not in use, and purchasing carbon offset credits. Therefore, with implementation of Mitigation Measure GHG-1 to reduce GHG emissions and purchase offset credits, the Proposed Action will not make a cumulatively considerable incremental contribution to cumulative GHG emissions and global climate change.

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant.

The Proposed Action would generate short-term direct GHG emissions during construction, as shown in Tables 3.6-2 to 3.6-4. However, implementing the Proposed Action would significantly increase the likelihood that the flood management system could accommodate future flood events because of climate change. The Proposed Action 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, which would likely occur without the implementation of the flood protection measures included in the Proposed Action. As there are no current numerical thresholds established under NEPA for determining whether GHG emissions constitute a significant effect, the same qualitative approach discussed under the No Action Alternative is used for the Proposed Action. The GHG emissions that would result from future flood fighting that is likely to occur without the Proposed Action is unknown; however, it is assumed that the Proposed Action would provide a moderate to significant reduction in emissions due to the implementation of flood protection measures associated with the Proposed Action. Therefore, since the Proposed Action would only generate short-term direct construction emissions and would not prevent any greenhouse gas reduction goal or climate change goal from being met, the Proposed Action would have long-term and minor effects from GHG emissions.

3.6-b Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Minor effects that are Less than Significant

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Design Refinements): Less than Significant with Mitigation Incorporated

The Proposed Action will provide erosion protection along portions of the American River and Sacramento River levee systems, improvements to the Magpie Creek Diversion Creek (MCDC) and provide improved flood protection to the densely populated City of Sacramento, City of Elk Grove, and some unincorporated Sacramento County areas. Therefore, the Proposed Action is an

adaptive measure against the potential effects of climate change (i.e., increased flooding frequency, magnitude, and duration). The climate change assessment contained in the 2018 Safeguarding California Plan, California’s Climate Adaptation Strategy (CAS) identified floods (among heat waves, wildfires, and droughts) as likely being one of the earliest climate change effects experienced in California (CNRA 2018).

The 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. The Updated AB 32 Scoping Plan cites the need to buffer from the increasing effects of climate change, including floods (CARB 2022). Therefore, in addition to reducing GHG emissions, which is the primary goal of the Scoping Plan, it is also critical to implement actions and projects that will prevent, avoid, and minimize the detrimental effects of climate change. These types of projects would also help avoid reconstruction and repair expenditures, losses and disruptions to economic activities, and effects on local residents from a flood event. However, the Proposed Action would include new temporary, short-term GHG emissions during construction, which could result in a significant impact. Mitigation Measure GHG-1 has been identified to address this impact.

Mitigation Measure GHG-1: Implement GHG Reduction Measures

Please refer to Impact 3.6-a above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE and project partners

Implementing Mitigation Measure GHG-1 will reduce construction-related GHG emissions to a less-than-significant level through efficient operation of construction equipment engines, enhanced emissions reductions for equipment used during construction, minimization of equipment idling when not in use, and purchasing carbon offset credits. Therefore, the Proposed Action would not conflict with plans for reducing GHG emissions. Because the Proposed Action will be consistent with the goals of the 2018 CAS and the 2022 AB 32 Scoping Plan to protect against the detrimental effects of climate change without impeding current economic growth, the Proposed Action will have a less-than-significant effect under CEQA.

NEPA Impact Conclusion (Entire Proposed Action): Short-term and Minor effects that are Less than Significant.

Implementing the Proposed Action would not prevent a greenhouse gas reduction goal or climate action goal from being met. As described in the CEQA analysis provided in the preceding paragraphs, the Proposed Action is an adaptive measure against the potential effects of climate change. With respect to the GHG emissions related to constructing the Proposed Action, there are no current numerical NEPA thresholds for determining whether GHG emissions constitute a significant effect. Because the Proposed Action would comply with all State, Federal, and local regulations for the reducing emissions of greenhouse gas, the Proposed Action would have a long term and minor effect.

3.6-c Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: No Impact

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): No Impact

The Proposed Action would be constructed using typical construction methods and includes the use of gas- and diesel-fueled vehicles and equipment. The Proposed Actions use of energy resources during construction would be non-recoverable but temporary and would not include unnecessary, inefficient, or wasteful energy use. The Proposed Action construction would temporarily increase fuel consumption; however, it is anticipated that fuel would only be used to the extent it is needed to complete construction activities and would not be consumed in a wasteful manner during construction. Additionally, the selected construction contractor(s) would use the best available engineering techniques, construction practices, and equipment operating procedures, and constructing the Proposed Action would reduce the potential for excessive energy and fuel use associated with reconstruction and repair efforts that would result from a flood event. This impact would be less than significant under CEQA. Because operational activities and energy use would be similar to the No Action Alternative activities, there would be no impact under NEPA.

3.6-d Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

CEQA Significance Conclusion: No Impact

NEPA Significance Conclusion: No Impact

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, , Sacramento River Erosion Contract 3, Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Sacramento County adopted a CAP which details specific measures that will be implemented in Sacramento County by 2030 to reduce GHG emissions from countywide activities and government operations (Sacramento County 2022). One of the main sectors addresses in the

CAP is energy. The actions that would be taken to reduce GHG emissions in the energy sector include improving energy efficiency in new and existing buildings, as well as County infrastructure, and increasing renewable energy sources.

The City of Sacramento adopted a Preliminary Climate Action and Adaptation Plan which sets targets for the city and identifies key decarbonization strategies and implementable actions that form the foundation of Sacramento's goal for achieving carbon neutrality by 2045 (City of Sacramento 2022). Energy-related actions include increasing energy efficiency in new and existing building, increasing the amount of electricity produced by local sources, and increasing renewable energy resources and storage. The State's Climate Commitment is to reduce greenhouse gas emissions by 85 percent by 2045. Additionally, this goal includes 90 percent clean energy by 2035, 95 percent clean energy by 2040 and 100 percent clean energy by 2045 (State of California 2022). The Proposed Action would result in energy consumption during construction activities; however, the Proposed Action would not result in energy consumption that would conflict with State or local plans for renewable energy or energy efficiency and there would be no impact.

Alternatives Comparison

Alternatives 3a

Alternatives 3a would change the location and type of improvements for the American River Erosion Contract 4A. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4B, Sacramento River, MCP, SRMS, and ARMS) would be unchanged. It is anticipated that the material and equipment needed for Alternative 3a would be significantly lower than the Proposed Action because this alternative would not require any bike trail reroutes and would only include construction of the landside berm. However, even with reduced GHG emissions from the American River Erosion Contract 4A, short-term construction GHG emissions generated in conjunction with other project components would remain significant. Energy usage during construction activities would decrease slightly and would remain less than significant. Therefore, this alternative would not change any of the climate change, GHG, or energy related construction impacts.

Table 3.6-5. Alternative 3a Effects on GHG, Climate Change, and Energy

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG emissions would continue to be above applicable thresholds.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-b: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG impact would not change from the Proposed Action.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-c: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	American River Erosion Contract 4A	Consistent with Proposed Action. This alternative would not result in increased energy consumption, or consumption of energy in a wasteful, inefficient or unnecessary manner.	N/A	Less than Significant	No Impact
3.5-d: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	American River Erosion Contract 4A	Consistent with Proposed Action. This alternative would not conflict with or obstruct any state or local plans for renewable energy.	N/A	No Impact	No Impact

Alternatives 3b, 3c, and 3d

Alternatives 3b, 3c, and 3d would change the location and type of improvements for the American River Erosion Contract 4A. All other project components (American River Erosion Contracts 3B and 4B, Sacramento River, MCP, SRMS, and ARMS) would be unchanged. It is anticipated that the material and equipment needed for as well as construction activities for Alternatives 3b, 3c, and 3d would be similar to the Proposed Action. Therefore, these alternatives would not change any of the construction impacts associated with GHG, climate change, or energy consumption.

Table 3.6-6. Alternative 3b, 3c, and 3d Effects on GHG, Climate Change, and Energy

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG emissions would continue to be above applicable thresholds.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-b: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	American River Erosion Contract 4A	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG impact would not change from the Proposed Action.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-c: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	American River Erosion Contract 4A	Consistent with Proposed Action. This alternative would not result in increased energy consumption, or consumption of energy in a wasteful, inefficient or unnecessary manner.	N/A	Less than Significant	No Impact
3.5-d: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	American River Erosion Contract 4A	Consistent with Proposed Action. This alternative would not conflict with or obstruct any state or local plans for renewable energy.	N/A	No Impact	No Impact

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b includes alternative designs for improvements to the ARMS. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, and SRMS) would remain unchanged. Alternatives 4a and 4b would retain a 30-acre or 20-acre portion, respectively, of the existing pond on the Urrutia site, therefore reducing the need for fill materials, construction-related transportation, and construction equipment usage. Alternatives 4a and 4b would result in a decrease in the generation GHG emissions as well as energy usage due to the preservation of a portion of the on-site pond. However, the combined Proposed Action related GHG emissions generated during the years in which the ARMS would be construction (2025 and 2026) would remain above the SMAQMD threshold. Energy usage during construction activities would decrease slightly and would remain less than significant. Therefore, these alternatives would not change any of the construction impacts associated with GHG, climate change, or energy consumption compared to the Proposed Action.

Table 3.6-6 Alternative 4a and 4b Effects on GHG, Climate Change, and Energy

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	ARMS	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG emissions would continue to be above applicable thresholds.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-b: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	ARMS	Consistent with Proposed Action. A slight reduction in emissions due to less materials and equipment usage however, it is assumed that overall GHG impact would not change from the Proposed Action.	GHG-1	Less than Significant with Mitigation Incorporated.	Short-term and Minor effects that are Less than Significant.
3.5-c: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	ARMS	Consistent with Proposed Action. This alternative would not result in increased energy consumption, or consumption of energy in a wasteful, inefficient or unnecessary manner.	N/A	Less than Significant	No Impact
3.5-d: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	ARMS	Consistent with Proposed Action. This alternative would not conflict with or obstruct any state or local plans for renewable energy.	N/A	No Impact	No Impact

Alternative 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the SRMS and proposes alternative mitigation fulfillment. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, and SRMS) would remain unchanged. Alternative 5a includes purchasing all remaining, required mitigation credits from Service Approved Conservation Banks. Alternative 5c included the combination of three less conventional approaches to mitigation fulfillment including purchasing Delta Smelt Conservation Bank Credits, providing funding for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, and funding the Sunset Pump project. These alternatives would eliminate GHG, climate change, and energy consumption impacts associated with the SRMS. Significance conclusions for all other project components would be the same as for the Proposed Action.

Table 3.6-6 Alternative 5a and 5c Effects on GHG, Climate Change, and Energy

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there would be no impact to GHG.	N/A	No Impact	No Impact
3.5-b: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there would be no impact to GHG.	N/A	No Impact	No Impact
3.5-c: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there would be no impact to sensitive receptors.	N/A	No Impact	No Impact
3.5-d: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the SRMS, therefore, there no other emissions would be generated.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would replace the SRMS with the new Watermark Farms Mitigation Site. All other project components (MCP, American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B Sacramento River, and SRMS) would remain unchanged. It is anticipated that the material and equipment needed as well as construction activities for Alternative 5b would be similar to the Proposed Action. Therefore, this alternative would not change any of the construction impacts associated with GHG, climate change, or energy consumption compared to the Proposed Action.

Table 3.6-7 Alternative 5a and 5c Effects on GHG, Climate Change, and Energy

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.6-a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	SRMS	Consistent with the Proposed Action. Alternative 5b would require a new levee be constructed at the Watermark Farms Mitigation site and therefore, increase the amount of GHG emissions, however, the impact would remain consistent with the Proposed Action.	GHG-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant.
3.5-b: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	SRMS	Consistent with the Proposed Action. Alternative 5b would require a new levee be constructed at the Watermark Farms Mitigation site and therefore, increase the amount of GHG emissions, however, the impact would remain consistent with the Proposed Action.	GHG-1	Less than Significant with Mitigation Incorporated	Short-term and Minor effects that are Less than Significant.
3.5-c: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	SRMS	Consistent with Proposed Action. This alternative would not result in increased energy consumption, or consumption of energy in a wasteful, inefficient or unnecessary manner.	N/A	Less than Significant	No Impact
3.5-d: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	SRMS	Consistent with the Proposed Action. This alternative would be consistent with state or local plans for renewable energy.	N/A	No Impact	No Impact

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3.7 Noise and Vibration

This section provides an overview of the existing noise conditions within the project vicinity, identifies the regulatory framework for noise, and analyzes potential noise impacts from project implementation.

3.7.1 Existing Conditions/Affected Environment

Noise is defined as sound that is unwanted (loud, unexpected, or annoying). Excessive exposure to noise can result in adverse physical and psychological responses (e.g., hearing loss and other health effects, anger, and frustration); interfere with sleep, speech, and concentration; or diminish the quality of life.

Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). The decibel (dB) scale is used to quantify sound intensity, with 0 dB being the lowest threshold of hearing. Decibel levels range from 0 to 140: 50 dB for light traffic is considered a low decibel level, whereas 120 dB for a jet takeoff at 200 feet is considered a high decibel level. Groundborne vibration is energy transmitted in waves through the ground. Vibration attenuates at a rate of approximately 50 percent for each doubling of distance from the source.

Noise Descriptors

The perceived loudness of sounds depends on many factors, including sound pressure level and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable, and can be approximated through frequency filtering using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (decibels expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All noise levels reported in this section are in terms of A-weighting. Community noise is commonly described in terms of “ambient” or all-encompassing noise level in a given environment. The noise descriptors most often used to describe the environmental noise are defined below.

- **L_{max} (Maximum Noise Level):** The maximum instantaneous noise level during specific a specific period of time. The L_{max} may also be referred to as the peak noise level.
- **L_{eq} (Equivalent Noise Level):** The average noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq} . In noise environments determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily influenced by the magnitude and number of single events that produce the high noise levels.
- **L_{dn} (Day-Night Average Noise Level):** The 24-hour L_{eq} with a 10-dBA “penalty” for noise events that occur during the noise-sensitive hours between 10 p.m. and 7 a.m. In other words, 10 dBA is “added” to noise events that occur in the nighttime hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn}

attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

- **Community Noise Equivalent Level (CNEL)** – The energy-average of the A-weighted sound levels occurring over a 24-hour period, with penalties of 10 dB and 5 dB, respectively, applied to A-weighted sound levels occurring during the nighttime hours (10 p.m. to 7 a.m.) and the evening hours (7 p.m. to 10 p.m.). The CNEL is similar to L_{dn} —it is usually within 1 dB of the L_{dn} —and for all intents and purposes, the two measurements are interchangeable. Because it is easier to compute and of more common use, the L_{dn} is used as the long-term noise measurement in this evaluation.¹

Groundborne Vibrations

The existing vibration environment in the proposed levee improvement area, is dominated by transportation-related vibration from roads, highways, and trains. 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 2018). The background vibration level in residential areas is usually 50 VdB or lower.

Noise Generation

The majority of the project area is located in urban and residential areas. The primary existing noise sources near the project sites ((Magpie Creek Project (MCP), American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, American River Mitigation Site (ARMS), Sacramento River Mitigation Site (SRMS), and the Piezometer Network)) include vehicular traffic, trains, common urban uses such as those in downtown Sacramento, air traffic, boats operating along the American River and Sacramento River, and light industrial uses and agricultural machinery in the vicinity of the MCP.

Certain areas along the Sacramento River have higher boating noise due to public marinas such as Discovery Park, Garcia Bend Park, Miller Park, Stan's Yolo, and Sherwood Harbor. Magpie Creek may experience higher levels of air traffic noise due to the proximity to the McClellan Airport.

Freeways within the project area include Interstate 80 Business (Business 80), State Route 160 (SR-160), Interstate 5 (I-5), and U.S. Highway 50 (U.S. 50). Other major roadways that would likely be used for hauling routes within the project area include Exposition Boulevard, Elvas Avenue, Fair Oaks Boulevard, American River Drive, Howe Avenue, Watt Avenue, Richards Boulevard, Riverside Boulevard, Pocket Road, Freeport Boulevard, Marysville Boulevard, Raley Boulevard, Norwood Avenue, and Rio Linda Boulevard. Arterial roadways and stationary sources have a localized influence on the noise environment. Other, smaller local roadways would also be used to access levee improvement areas from the major roads specifically identified here.

¹ L_{dn} and CNEL values rarely differ by more than 1 dB. L_{dn} and CNEL values are considered equivalent as a matter of practice, and this assessment treats them as such.

Noise Receptors

The majority of the levees in the project area are in close proximity to local residences, with many peoples' backyards very close to the toe of the levee. Since the levee elevation is higher than the houses, noise on the levees travels into nearby yards and houses. Some areas have trees between the levee and homes, which would filter some noise from levee activities. Additionally, residential properties near haul routes would be subject to a temporary increase in noise levels. Refer to Chapter 2, "Description of the Project Alternatives," for proposed haul routes.

Recreationists using the levee systems, American River Parkway, Sacramento Northern Bike Trail, and local parks including Miller Park, Discovery Park, and Garcia Bend Park, are sensitive noise receptors. In addition, local wildlife near these American and Sacramento River, and Magpie Creek are considered sensitive receptors.

3.7.2 Applicable Laws, Regulations, Policies, and Plans

Federal

United States Environmental Protection Agency

The EPA Office of Noise Abatement and Control was established to coordinate Federal noise control activities. The Office of Noise Abatement and Control established guidelines in response to the Federal Noise Control Act of 1972 to identify and address the effects of noise on public health and welfare, and the environment. Table 3.7-1 summarizes EPA's recommended guidelines for noise levels considered safe for community exposure (EPA 1974). The yearly average L_{eq} for a person seeking to avoid hearing loss over his or her lifetime should not exceed 70 dB. To minimize interference and annoyance, noise levels should not exceed 55 dB L_{dn} in outdoor activity areas and 45 dB L_{dn} in residential structures.

Table 3.7-1. Summary of United States Environmental Protection Agency Recommended Noise Level Standards

Effect	Sound Level	Area
Hearing loss	$L_{eq(t)} \leq 70$ dB	All areas
Interference with and annoyance during outdoor activities	$L_{dn} \leq 55$ dB	Outdoor areas of residences and farms, and other areas where people spend widely varying amounts of time or where quiet is a basis for use
Interference with and annoyance during outdoor activities	$L_{eq(24)} \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards and playgrounds
Interference with and annoyance during indoor activities	$L_{dn} \leq 45$ dB	Indoor residential areas
Interference with and annoyance during indoor activities	$L_{eq(24)} \leq 45$ dB	Other indoor areas with human activities, such as schools

Source: FTA 2018

Federal Transit Administration

The Federal Transit Administration (FTA) has developed guidelines for assessing the significance of vibration produced by transportation sources and construction activity. To address human response (annoyance) to groundborne vibration, FTA has established maximum-

acceptable vibration thresholds for different land uses. These guidelines recommend 72 vibration dB for residential uses and buildings where people normally sleep when the source of vibrations is frequent in nature, see Table 3.7-2. (FTA 2018)

Table 3.7-2. Ground-borne Vibration Impact Criteria for General Assessment (VdB re 1 micro-inch/second)

Land Use Category	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category 1: Buildings where vibration would interfere with interior operations.	65 ^d	65 ^d	65 ^d
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes:

VdB = vibration decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude.

^a "Frequent Events" is defined as more than 70 vibration events of the same source per day.

^b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

^c "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

^d This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018

State

California Department of Transportation

In 2013, Caltrans published the *Transportation and Construction Vibration Manual*. The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.7-3 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.7-3. California Department of Transportation Recommendations Regarding Levels of Vibration Exposure

Effect on Buildings	PPV (in/sec)
Architectural damage and possible minor structural damage	0.4-0.6
Risk of architectural damage to normal dwelling houses	0.2
Virtually no risk of architectural damage to normal buildings	0.1
Recommended upper limit of vibration to which ruins and ancient monuments should be subjected	0.08
Vibration unlikely to cause damage of any type	0.006-0.019

Notes: in/sec = inches per second; PPV = peak particle velocity

Source: Caltrans 2020

Local

City of Sacramento Noise Ordinance

The City of Sacramento exterior noise standard, as stated in the City's noise ordinance, is 55 dBA during the hours from 7:00 a.m. to 10:00 p.m. for residential and agricultural uses. The standard then adjusts to 50 dBA between 10:00 p.m. and 7:00 a.m. for residential and agricultural uses. The noise ordinance also exempts construction noise during the hours from

7:00 a.m. to 6:00 p.m. Monday through Saturday and from 9:00 a.m. to 6:00 p.m. on Sundays. The ordinance further states that the operation of an internal combustion engine is not exempt if the engine is not equipped with suitable exhaust and intake silencers in good working order. (8.68.080 Exemptions, Noise Control Standards, City of Sacramento Municipal Code)

Sacramento County Noise Ordinance

The Sacramento County noise ordinance states that a standard of 55 dBA is applied during the hours from 7:00 a.m. to 10:00 p.m., and a standard of 50 dBA is applied during the hours from 10:00 p.m. to 7:00 a.m. for residential and agricultural uses. The noise ordinance also states that construction noise is exempt during the hours from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays. (Chapter 6.68 Noise Control, County of Sacramento Code)

City of Sacramento 2035 General Plan – Environmental Constraints

The City of Sacramento’s 2035 General Plan includes policies related to construction noise and vibration effects, and includes some compatibility standards for new land uses. Although these compatibility standards are not directly applicable to the construction noise that would be generated by the alternatives under consideration, they provide useful context for acceptable noise levels.

GOAL EC 3.1: Noise Reduction. Minimize noise impacts on human activity to ensure the health and safety of the community.

- **Policy EC 3.1.1: Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table 3.7-4 (Table EC 1 in the General Plan), to the extent feasible.

Table 3.7-4. Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	Highest Level of Noise Exposure that is Regarded as “Normally Acceptable” (L _{dn} ^b or CNEL ^c)
Residential – Low Density Single Family, Duplex, Mobile Homes	60 dBA _{d,e}
Residential—Multi-family	65 dBA
Urban Residential Infill ^f and Mixed-Use Projects ^g	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

Note: CNEL = community noise equivalent level; dBA = A-weighted decibels; L_{dn} = day/night average sound level

a As defined in the State of California General Plan Guidelines, “Normally Acceptable” means that the “specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.”

b Ldn or Day Night Average Level is an average 24-hour noise measurement that factors in day and night noise levels.

c CNEL or Community Noise Equivalent Level measurements are a weighted average of sound levels gathered throughout a 24-hour period.

d dBA or A-weighted decibel scale is a measurement of noise levels.

e The exterior noise standard for the residential area west of McClellan Airport known as McClellan Heights/Parker Homes is 65 dBA.

f. With land use designations of Central Business District, Urban Neighborhood (Low, Medium, or High) Urban Center (Low or High), Urban Corridor (Low or High).

g All mixed-use projects located anywhere in the city of Sacramento.

Source: City of Sacramento 2015.

- **Policy EC 3.1.2: Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table 3.7-5 (Table EC 2 in the General Plan), to the extent feasible.

Table 3.7-5. Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)

Residences and buildings where people normally sleep ^a Existing Ldn	Allowable Noise Increment	Institutional land uses with primarily daytime and evening uses ^b Existing Peak Hour Leq	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	4
75	0	75	1
80	0	80	0

Note:

^a This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

^b This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

Source: City of Sacramento 2015, FTA 2006

- **Policy EC 3.1.5: Interior Vibration Standards.** The City shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or Federal Transit Administration (FTA) criteria.
- **Policy EC 3.1.7: Vibration.** The City shall require an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archaeological sites and require all feasible measures be implemented to ensure no damage would occur.
- **Policy EC 3.1.10. Construction Noise.** The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible

3.7.3 Analysis of Environmental Effects

Analysis Methodology

Construction activities would be the predominant source of noise and vibration associated with the Proposed Action. An analysis of construction noise was conducted using methodology recommended by the U.S. Department of Transportation for construction of large public works infrastructure projects (FTA 2018). Additionally, this analysis relied on the noise modeling and analysis conducted by Ascent Environmental for a previous version of the Proposed Action improvements for the American River Erosion Contract 3B North and South. Based on anticipated construction equipment types and methods of operation, construction noise levels for the construction process associated with the Proposed Action were calculated. These predicted noise levels were compared to significance criteria to determine whether significant impacts are anticipated to occur during construction. Where significant noise impacts are identified, mitigation measures have been identified to reduce noise impacts.

The magnitude of construction noise and vibration impacts at sensitive land uses depends on the type of construction activity, the noise and vibration levels generated by various pieces of construction equipment, and the distance between the activity and sensitive land uses. For this analysis, noise levels at various distances were estimated using calculation procedures recommended by FTA (FTA 2018). The calculations used for this analysis include distance attenuation (6 dB per doubling of distance) and attenuation from ground absorption for both hard ground and soft ground (1 to 2 dB per doubling of distance). This analysis uses a conservative approach and presents impacts of the most noise-generating improvements located in the nearest vicinity to sensitive land uses.

Basis of Significance

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, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action while providing distinction between direct and indirect effects as required under NEPA (40 CFR 1508.1(g)). The alternatives under consideration were determined to result in a significant impact related to noise and vibration if they would do any of the following:

- a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- b. Generate excessive groundborne vibration or groundborne noise levels;
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Additionally, the Sacramento County noise ordinance further states that construction noise is exempt from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays (Chapter 6.68 Noise Control, County of Sacramento Code). The City of Sacramento exempts construction noise from 7:00 a.m. to 6:00 p.m. Monday through Saturday

and from 9:00 a.m. to 6:00 p.m. on Sundays (8.68.080 Exemptions, Noise Control Standards, City of Sacramento Municipal Code). Thus, construction noise impacts were evaluated using the City and County noise codes, where applicable.

Effects Not Addressed in Detail

Noise impacts during operations The project does not include the construction of new stationary noise sources necessary for project operations after construction is complete. Additionally, the project would not include any permanent increases in traffic noise. Once construction is complete, operational activities would be limited to maintenance activities which would involve a small crew traveling to and from the site periodically to conduct inspections and limited work on-site. These activities are similar to current operations and would not result in traffic increases that could generate perceptible increases in noise. Therefore, this issue is not addressed further in the SEIS/SEIR.

Vibration impacts during operations The project would not result in any long-term sources of vibration caused by operations and maintenance activities after construction is complete, and therefore, operational vibration impacts are not discussed further in the SEIS/SEIR.

C. Expose people residing or working in the project area to excessive noise levels generated by airports All project components except for the Sacramento River Erosion improvements are more than 2 miles from the nearest airport or private airstrip. Therefore, these improvements would not expose people to excess noise levels due to the proximity to a public airport or private airstrip and no impact would occur. Although the Sacramento River Erosion improvements include work areas within 2 miles of the Borges-Clarksburg airport, occasional noise generated from this airport would not impact people working on constructing the project. No impact would occur, and this issue is not discussed further in this SEIS/SEIR.

Effects of Piezometer Network installation. Construction of the Piezometer Network would include minimal construction equipment (a drill rig and support truck) and duration of work at each individual location would be short (generally less than a day) because the network would be dispersed throughout the Proposed Action Area. Therefore, noise impacts from installation of the Piezometer Network are captured in the analysis of the remaining project components and do not require a separate evaluation.

Effects Analysis

No Action Alternative

The No Action Alternative, which is Alternative 2 in the 2016 GRR EIS/EIR, would generate temporary, short-term, and intermittent noise at or near noise sensitive receptors in and around the project area due to construction activities associated with the previously authorized levee and erosion repairs. Construction activities along the American River, and Sacramento River would result in temporary significant impacts on “residents, recreationists, and other noise sensitive groups. While 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 because they exceed the noise standard for the project area. However, implementation

of mitigation measures adopted in the 2016 ARCF GRR FEIS/EIR would reduce this impact to less than significant.

Ground vibration from construction of the No Action Alternative is expected to be discernible only at residences within 40 feet of the construction equipment resulting in a potentially significant impact. However, implementation of mitigation measures adopted in the 2016 ARCF GRR FEIS/EIR would reduce this impact to less than significant.

Proposed Action Alternative

3.7-a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

CEQA Significance Conclusion: Significant and Unavoidable

NEPA Significance Conclusion: Significant and Unavoidable

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

Erosion improvements and tree clearing for the American River and Sacramento River are similar in nature and therefore would produce similar noise levels. However, erosion protection work along the Sacramento River would occur from barges, and the existing levee would act as a natural barrier between the construction work area and nearby sensitive receptors on the landside of the levee (i.e. residential properties). Therefore, noise generation at nearby sensitive receptors during construction of the Sacramento River Erosion Contract 3 would be slightly reduced because of the attenuation provided by this natural barrier.

Construction of the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, and Sacramento River Erosion Contract 3 would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, including at nearby residential properties and recreation sites, in excess of local standards. Noise would be generated from use of heavy-duty equipment operating at the sites, use of heavy-duty trucks for hauling of materials to and from the site, worker commute traffic, and project activities at staging areas. Proposed access roads for material deliveries and hauling are described above in Section 3.7.1 “Existing Conditions/Affected Environment.”

While the City of Sacramento and Sacramento County have construction noise exemptions during daylight hours, as described in Section 3.7.2 “Applicable Laws, Regulations, Policies and Plans,” noise levels above 55 dBA during daylight hours (7am to 6pm) and 50 dBA during nighttime hours (6pm to 7am) are generally considered to be a significant effect on sensitive receptors because they exceed the noise standards for the Action Area. Construction activities

associated with these improvements would occur during daylight hours. Noise sensitive receptors in the above-mentioned improvement areas were described in Section 3.7.1 “Existing Conditions/Affected Environment.” Typical construction equipment noise levels are shown in Table 3.7-6. Additionally, Table 3.7-7 shows estimated noise levels for construction activities.

Table 3.7-6. Construction Equipment Noise Levels

Equipment Type ¹	dBA at 50 feet
Asphalt Paver	85
Backhoe	80
Chainsaw	76
Compactor	82
Crane, Mobile	83
Dozer	85
Drill	95
Excavator	N/A
Loader	80
Grader	85
Roller	85
Scraper	84
Trucks	84
Water Pump	77

Notes: ¹ All noise levels based on equipment fitted with properly maintained and operational noise control devices, per manufacturers specifications

Source: FTA 2018

Table 3.7-7. Noise Levels during Construction Activities

Distance Between Source and Receiver (feet)	Calculated 1-Hour Leq Sound Level (dBA)
50	85
100	77
200	69
300	65
400	62
500	59
1,000	51
1,500	47
2,000	43
3,000	40

Note: These calculations do not include the effect, if any, of local shielding from walls, topography, or other barriers which may reduce sounds levels further.

Source: Modeled by GEI Consultants, 2023.

Sensitive receptors near the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, A and Sacramento River Erosion Contract 3 include nearby residential neighborhoods and recreational facilities. The closest sensitive receptors to these improvement areas include single family residences located as close as 25 feet from proposed haul routes and construction areas.

Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq}) would be exceeded where construction activity would occur within approximately 600 feet of existing sensitive land uses. Considering that construction activities could occur less than 50 feet from residences in some cases, noise levels experienced at nearby receptors could be as high as 85 dBA L_{eq} . According to the estimates in Table 3.7-7 there is the potential for noise above applicable thresholds at sensitive receptors at distances of up to 600 feet during construction activities. This impact would be significant. The No Action Alternative includes a similar mix of equipment for erosion repairs along the American and Sacramento Rivers. The Proposed Action would have similar effects to the No Action Alternative for NEPA purposes.

The following previously adopted mitigation measure has been identified to address this impact.

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

USACE and its Partners will require 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, the construction contractor will prepare a noise control plan to identify feasible measures to reduce construction noise, when necessary. The measures in the plan would 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.) Monday through Friday, when feasible.
- Require that construction equipment be equipped with factory-installed muffling devices, and that all equipment be operated and maintained in good working order to minimize noise generation.
- Locate stationary noise-generating equipment as far as practicable from sensitive receptors.
- Limit unnecessary engine idling (i.e., more than 5 minutes) as required by State air quality regulations.
- Employ equipment that is specifically designed for low noise emission levels, when feasible.

- Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible.
- If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible.
- 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 would 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), and the California Department of Transportation's (Caltrans) Transportation and Construction Vibration Guidance Manual, which identifies maximum vibration levels of 0.2 to 0.5-inch per second Peak Particle Velocity (PPV) for minimizing damage to structures. Project construction specifications would require the contractor to limit vibrations to less than 0.2-inch per second PPV, and less than 72 vibration velocity level in decibel scale (VdB) within 50 feet at any building. If construction would occur within 50 feet of any occupied building, the contractor would prepare a vibration control plan prior to construction. The plan would include measures to limit vibration, including but not limited to the following:
 - Numerical thresholds above which the contractor would be required to document vibration sources and implement measures to reduce vibration, and above which work would be required to stop for consideration of alternative construction methods.
 - Avoid vibratory rollers and packers near sensitive areas to the maximum extent practicable.
 - Route heavily loaded trucks away from residential streets, if possible. If no alternatives are available, select streets with the fewest homes.
 - Prior to construction activities, notify each residence within 100 feet of construction and provide contact information to request pre- and post-construction surveys. These pre- and post-construction surveys would assess the existing condition of structures prior to construction and potential architectural/structural damage induced by levee construction vibration at each structure within 100 feet of construction activities, including staging areas. The survey would include visual inspection of the structures that could be affected and documentation of structures by means of photographs and video. This documentation would be

reviewed with the individual owners prior to any construction activities. Post-construction monitoring of structures would be performed to identify (and repair, if necessary) damage, if any, from construction activities. Any construction-related damage would be documented with photographs and video. This documentation would be reviewed with the individual property owners.

- Place vibration monitoring equipment in lines approximately parallel to the levee alignment at intervals not to exceed 200 feet along the construction limits, including active staging areas. Vibration monitors will be operational at all times during the performance of construction activities. The contractor will monitor and record vibrations continuously.

Timing: Before and during construction.

Responsibility: USACE.

Implementing Mitigation Measure NOI-1 would reduce construction-related noise generation to the extent feasible by requiring the preparation of a noise control plan, implementing feasible best management practices such as placing noise barriers between the construction site and nearby residence, and notifying sensitive users of excessive noise generation during the day. However, it is still possible that noise levels would exceed significance thresholds and no further mitigation measures are feasible for implement to further reduce construction-related noise impacts. Since construction noise exceeding the L_{eq} thresholds is still likely to be generated during the daytime, after implementation of all feasible mitigation measures, this impact would be **significant and unavoidable**.

Magpie Creek Project, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable

Construction of MCP and the ARMS would be similar to what was discussed above for the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, and Sacramento River Erosion Contract 3. However, for the MCP, a drill would be used intermittently for construction of the Raley Boulevard crossing. The drill would only be for very short durations of time and would occur more than 1,000 feet from residential properties. Therefore, to get a more accurate indication of noise levels at sensitive receptors near the MCP, a more commonly used piece of equipment (i.e. dozer and grader) was used to calculate noise levels.

The MCP and ARMS would include the potential for nighttime construction activities. Construction would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, include at nearby residential properties, in excess of local General Plan ordinances. Typical construction equipment noise levels are shown in Table 3.7-6. Additionally, Table 3.7-7 shows estimated noise levels for construction activities.

Nighttime construction may be necessary to complete improvements for MCP and the ARMS. The City of Sacramento and Sacramento County do not generally exempt construction noise during nighttime hours (6pm to 7am) and identify an acceptable noise standard of 50 dBA during these hours. However, the Sacramento County Municipal Code state that when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8 p.m. and to operate machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion (Sacramento County 2022). The City of Sacramento states that the director of building inspections, may permit work to be done during nonexempt construction hours in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days (City of Sacramento 2022). Certain project improvements may qualify for these exemptions. Nevertheless, this impact discussion considers nighttime noise generation above 50 dBA during nighttime hours (6pm to 7am) to be a significant effect on sensitive receptors because they exceed the noise standards for the MCP and ARMS.

The MCP and ARMS are located farther from sensitive receptors than the rest of the Proposed Action. The closest sensitive receptors to the MCP are residential property located approximately 200 feet north of the northern section of the project alignment where canal and slope flattening would occur. The closest sensitive receptors to the ARMS are residential properties located approximately 400 feet north of the project site.

Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq} for daytime, and 50dBA L_{eq} for nighttime) would be exceeded where daytime construction activity would occur within approximately 600 feet of existing sensitive land uses and nighttime construction activity would occur within 1,200 feet of existing sensitive land uses. Considering that construction activities could occur as close or even closer than 200 feet to residences in some cases, noise levels experienced at nearby receptors could be as high as 69 dBA L_{eq} . According to the estimates in Table 3.7-7, there is the potential for noise above applicable thresholds at sensitive receptors at distances of up to 600 feet during daytime construction activities, and 1,200 feet during nighttime construction activities. This impact would be significant. The No Action Alternative includes a similar mix of equipment for erosion repairs along the American River. Construction of the MCP and ARMS would have similar effects to the No Action Alternative for NEPA purposes. The following mitigation measure has been identified to address this impact:

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

Please refer to Impact 3.7-a

Implementing Mitigation Measure NOI-1 would reduce construction-related noise generation to the extent feasible by requiring the preparation of a noise control plan, implementing feasible best management practices such as placing noise barriers between the construction site and nearby residence, and notifying sensitive users of excessive noise generation during the day. However, it is still possible that noise levels would exceed significance thresholds and no further mitigation measures are feasible for implement to further reduce construction-related noise

impacts. Since construction noise exceeding the L_{eq} thresholds is still likely to be generated during daytime and nighttime hours after implementation of all feasible mitigation measures, this impact would be significant and unavoidable.

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant

Construction activities at the SRMS would be similar to the activities described above for other project improvements. Construction of the SRMS would include the potential for nighttime construction activities. Construction would result in a temporary increase in ambient noise levels in the vicinity of these proposed improvements, however, this temporary increase in noise levels would be consistent with the local General Plan ordinances. Typical construction equipment noise levels are shown in Table 3.7-6. Additionally, Table 3.7-7 shows estimated noise levels for construction activities.

The closest sensitive receptors to the SRMS is a residence located approximately 1,400 feet south of the project site. Based on the anticipated construction activities and associated noise levels, applicable thresholds (i.e., 55 dBA L_{eq} for daytime, and 50dBA L_{eq} for nighttime) the project improvement would not exceed daytime or nighttime noise levels. This impact would be less than significant. The No Action Alternative does not include construction at the SRMS. However, as discussed above, construction of the SRMS would not exceed established noise levels, therefore, would result in a less-than-significant impact for NEPA purposes.

3.7-b. Generation of excessive groundborne vibration or groundborne noise levels.

CEQA Significance: Significant and Unavoidable

NEPA Significance: Significant and Unavoidable

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable.

NEPA Impact Conclusion (Design Refinements): Significant and Unavoidable.

Operation of heavy-duty construction equipment create seismic waves that radiate along the surface of the earth and downward into the earth. The surface waves can be felt as vibrations. **Table 3.7-8** shows the vibration source levels for the highest vibration generating construction equipment likely to be used during construction of the proposed project. The highest level of vibration would likely come from a vibratory compactor/roller.

Table 3.7-8. Vibration Source Levels for Construction Equipment

Equipment Type ¹	PPV at 25 feet
Vibratory roller	0.210
Large bulldozer	0.089
Loaded trucks	0.076
Small bulldozer	0.003

Notes: PPV = peak particle vibrations

Sources: FTA 2018

In accordance with Caltrans guidance for determining impacts from vibration to structures (i.e., vibration levels that exceed 0.2 inch per second peak particle velocity [PPV]) and based on reference vibration levels and standard attenuation rates for a vibratory compactor, vibration from heavy-duty equipment would be a potential issue if structures were located within 25 feet of construction activity. 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 2018; Caltrans 2004]). Regarding disturbance to sensitive land uses, construction equipment would exceed FTA-recommended criteria for infrequent events (i.e., 80 VdB) within 75 feet of construction activity. Based on aerial imagery, sensitive receptors near the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3 are located as close as 25 feet away. Therefore, the use of heavy-duty construction equipment would exceed the FTA threshold for sensitive land uses and would result in a significant impact to nearby residential receptors. The No Action Alternative includes a similar mix of equipment for erosion repairs along the American and Sacramento Rivers. These project components would have similar effects to the No Action Alternative for NEPA purposes.

The following mitigation has been identified to address this impact.

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

Please refer to Impact 3.7-a, Project Components: American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, and Sacramento River Erosion Contract 3 for the full text of this mitigation measure.

Timing: Before and during construction.

Responsibility: USACE

Implementing Mitigation Measure NOI-1 would reduce construction-related vibrations to the extent feasible by requiring the preparation of a vibration control plan, implementing feasible best management practices such as routing heavy loaded trucks away from sensitive receptors and limiting the use of vibratory rollers and packers near sensitive receptors. Additionally, a pre- and post- construction survey would be conducted to assess the existing condition of structures prior to construction and potential architectural/structural damage induced by levee construction vibration at each structure within 100 feet of construction activities, including staging areas.

However, it is still possible that vibration levels would exceed significance thresholds and no further mitigation measures are feasible for implement to further reduce construction-related vibration impacts. Since construction vibration levels exceeding the FTA thresholds is still likely to be generated during the daytime, after implementation of all feasible mitigation measures, this impact would be significant and unavoidable.

Magpie Creek Project, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant

Construction of MCP, SRMS and ARMS would generate vibrations similar to what was discussed above for American River Erosion Contract 3B, American River Erosion Contract 4B, American River Erosion Contract 4A, and Sacramento River Erosion Contract 3. Table 3.7-10 shows the vibration source levels for the highest vibration generating construction equipment likely to be used during construction of the proposed project. The highest level of vibration would likely come from a vibratory compactor/roller.

The nearest sensitive receptors are more than 75 feet from project improvements. Therefore, the use of heavy-duty construction equipment would not exceed the FTA threshold for sensitive land uses and would result in a less-than-significant impact to nearby residential receptors. The No Action Alternative includes a similar mix of equipment along the American and Sacramento Rivers which would result in similar vibration levels. Therefore, construction of MCP, SRMS and ARMS would not exceed FTA thresholds for sensitive land use and would result in a less-than-significant effect for NEPA purposes.

Alternatives Comparison

Alternative 3a

Alternative 3a would change the location and type of improvements for the American River Erosion Contract 4A. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. This alternative proposes construction of a landside berm instead of a waterside berm and would thus include construction closer to residential properties. Additionally, due to the placement of this berm, construction noise attenuation would not benefit from the natural shielding and potential noise decrease from the existing levee. This alternative would have a greater significant and unavoidable impact compared to the American River Erosion Contract 4A.

Table 3.7-9. Alternative 3a Effects on Noise and Vibration

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards to other agencies	American River Erosion Contract 4A	No changes in effects from the Proposed Action.	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-b: Generation of excessive groundborne vibration or groundborne noise levels	American River Erosion Contract 4A	No changes in effects from the Proposed Action.	N/A	Significant and Unavoidable	Significant and Unavoidable

Alternatives 3b, 3c, and 3d

Alternatives 3b, 3c, and 3d would change the location and type of improvements for the American River Erosion Contract 4A. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. The project elements that would be altered would not change any of the construction effects on noise and vibration compared to the Proposed Action.

Table 3.7-10. Alternatives 3b, 3c, and 3d Effects on Noise and Vibration

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards to other agencies	American River Erosion Contract 4A	No changes in effects from the Proposed Action.	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-b: Generation of excessive groundborne vibration or groundborne noise levels	American River Erosion Contract 4A	No changes in effects from the Proposed Action.	N/A	Significant and Unavoidable	Significant and Unavoidable

Alternatives 4a and 4b (CEQA-Only)

Alternatives 4a and 4b include an alternative design for the improvements to the ARMS. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the ARMS. The project elements that would be altered would not change any of the construction effects on noise and vibration compared to the Proposed Action.

Table 3.7-11. Alternative 4a and 4b Effects on Noise and Vibration

Impact Number and Title	Location	Discussion	Mitigation Measure(s)	CEQA Significance Conclusion	NEPA Effects Determination
3.7-a: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards to other agencies	ARMS	No changes in effects from the Proposed Action.	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-b: Generation of excessive groundborne vibration or groundborne noise levels	ARMS	No changes in effects from the Proposed Action.	N/A	Less than Significant	Short-term and Moderate effects that are Less than Significant

Alternatives 5a and 5c

Alternatives 5a and 5c would eliminate the need to construct the SRMS and proposes alternative mitigation fulfillment. Alternative 5a includes purchasing all remaining, required mitigation credits from Service Approved Conservation Banks. Alternative 5c included the combination of three less conventional approaches to mitigation fulfillment including purchasing Delta Smelt Conservation Bank Credits, providing funding for a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, and funding the Sunset Pump project. These alternatives would eliminate noise and vibration impacts associated with the SRMS.

Table 3.7-12. Alternative 5a and 5c Effects on Noise and Vibration

Impact Number and Title	Location	Discussion	Mitigation Measure	Significance Conclusion	NEPA Effects Determination
3.7-a: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the Sacramento River Mitigation project component, therefore, there would be no impact associated with noise generation.	N/A	No Impact	No Impact
3.7-b: Generation of excessive groundborne vibration or groundborne noise levels	SRMS	Less than the Proposed Action. Alternatives 5a and 5c would eliminate the need to construct the Sacramento River Mitigation project component, therefore, there would be no impact associated with vibrations.	N/A	No Impact	No Impact

Alternative 5b

Alternative 5b would replace the SRMS with the new Watermark Farms Mitigation Site. This alternative would generate increased noise impacts due to the proximity of residence to the Watermark Farms Mitigation Site. The SRMS is located in a more rural area with only scattered rural residences, the closest of which is located 1,400 feet south of the mitigation site. This alternative would not change any vibration impacts associated with construction activities as all residence would be located far enough away to not result in a change to vibration impact.

Table 3.7-13. Alternative 5b Effects on Noise

Impact Number and Title	Location	Discussion	Mitigation Measure	Significance Conclusion	NEPA Effects Determination
3.7-a	SRMS, Watermark Farms	Greater than the Proposed Action. Alternative 5b would replace the Sacramento River Mitigation project component with the Watermark Farms Mitigation Site. This would increase noise impacts due to the proximity of residences to the Watermarks Farm Mitigation Site.	NOI-1	Significant and Unavoidable	Significant and Unavoidable
3.7-b	SRMS Watermark Farms	Greater than the Proposed Action. Alternative 5b would replace the Sacramento River Mitigation project component with the Watermark Farms Mitigation Site. This would increase vibration impacts due to the closer proximity of structures (roughly 300 feet from the site) to the Watermarks Farm Mitigation Site.	NOI-1	Less than Significant	Short-term and Moderate effects that are Less than Significant

3.8 Hazards and Hazardous Materials

3.8.1 Existing Conditions/Affected Environment

Phase I Environmental Site Assessments (ESA) are required by USACE policy for all civil works projects during the reconnaissance or feasibility study phases, and also by NEPA for all construction activities. The purpose of a Phase I ESA is to identify potential current or former hazardous, toxic, or radioactive waste sites. A Phase I ESA was conducted in 2012 for the project locations considered in the 2016 ARCF GRR EIS/EIR and included areas within a 1-mile buffer of these locations. Within this buffer a search of federal, state, and local environmental databases and historic aerial, topographic, and fire maps were reviewed. A site visit of the study area was also conducted to identify recognizable environmental concerns. The 2016 ARCF GRR EIS/EIR summarized the Phase I ESA results in Section 3.17.1 and the full report is in Appendix H of that document. The 2012 Phase I ESA identified seven sites with the potential to affect the ARCF footprint in the GRR Final EIS/EIR; however, none of those sites impact the areas considered under the Proposed Action in this SEIS/SEIR.

Due to the addition of new areas considered under the Proposed Action, updated Phase I ESAs were conducted at the American River sites and Magpie Creek. Several Phase II investigations, which include laboratory analyses of soil and water samples, were conducted at Magpie Creek. Below is a list of sites, dates, and findings of the new ESAs:

- American River 3B: A Phase I ESA was conducted in 2020 and did not find any new hazardous materials sites. Contaminated groundwater is unlikely due to overall groundwater gradients and presence of a levee cutoff wall.
- American River 4A: A Phase I ESA was conducted in 2023 and found a record of a drinking water well within ¼ mile of the site with PFAS (per- and polyfluoroalkyl substances) contamination.
- Magpie Creek: A Phase I ESA was conducted in 2015 on the undeveloped parcels to the east and west of Raley Blvd to be acquired by SAFCA for floodplain conservation. Due to the former agricultural use and the proximity of McClellan Airforce Base, the report recognized the potential for soil and groundwater contamination. A limited Phase II investigation followed in 2017. A Phase I ESA was conducted at Magpie Creek between Raley Blvd and Vinci Avenue in 2020. A Phase II investigation was conducted in this same area in 2021. The results are discussed in greater detail in the following section.

The California Environmental Protection Agency maintains data resources that provide information regarding hazardous waste disposal facilities or land containing hazardous waste, contaminated groundwater wells, and leaking underground storage tanks. A search of hazardous materials sites for the study area, including the new areas considered under the Proposed Action, was conducted in February 2023 using the CalEPA Cortese List and EnviroStor database, GeoTracker database, and list of Cease and Desist / Cleanup and Abatement Orders for sites containing hazardous materials which overlap with the projects considered under the Proposed Action. The American River Mitigation site (ARMS) and the McClellan Airforce Base are Cortese-listed sites with the potential for contaminants to affect areas considered under the

Proposed Action. A municipal solid waste landfill exists on the southeastern portion of Grand Island with no listed contaminants of concern. It has been closed since 1980.

The Proposed Action is not within a moderate, high, or very high fire hazard severity zone (Cal FIRE 2022a,b).

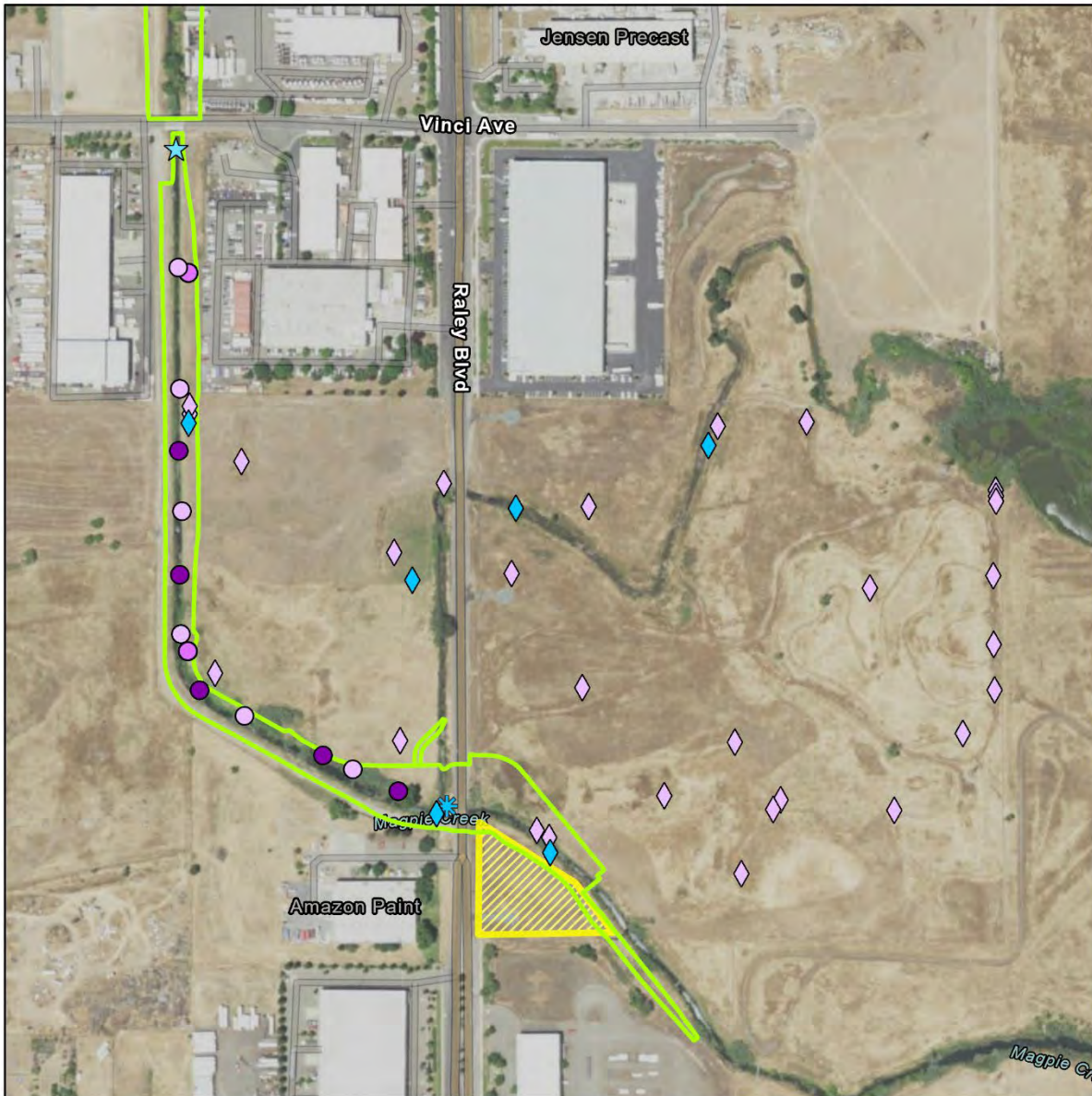
Known Hazardous Materials Sites

McClellan Air Force Base

McClellan Airforce Base was a maintenance depot for aircraft and electronic equipment from 1939 to 2001. It was designated a Federal superfund site and listed on the National Priorities List (NPL) in 1987. Magpie Creek and its tributaries run through the base east of Raley Blvd. A search of the California Department of Toxic Substances Control (DTSC) EnviroStor and California EPA Cortese list databases identified hazardous waste stored or used at the facility in significant quantities (DTSC 2023; CalEPA 2023a, b;). These include organic solvents, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), vinyl chloride, metals, pesticides, oils and greases, and radioactive compounds. From the 1940s through 1978, these materials were disposed and burned at various sites along the western side of the base. Environmental investigations beginning in 1979 identified soil and groundwater contamination both on and off the base. DTSC has been overseeing cleanup of the site, and much of the base has been converted to McClellan Business Park. Cleanup of the base extended as far west as the confluence of Don Julio and Magpie Creeks at Raley Blvd, within the project area, where Don Julio Creek was dewatered and bed sediment was excavated and transported away. Test results of the excavated material did not exceed cleanup criteria for the contaminants of concern (AECOM 2016).

As part of the 2017 Phase II investigation on the floodplain conservation parcels, 20 surface soil samples were collected between 0 and 1 feet below the ground surface and analyzed for pesticides and herbicides, metals, dioxins, semi-volatile organic compounds, volatile organic compounds, total petroleum hydrocarbons, and polychlorinated biphenyls (PCBs). The locations of these samples are in Figure 3.8-1. Following these results, additional surface soil samples were collected between 0 and 1 feet, and creek sediment samples were collected at 4 inches in depth (to represent an aerobic environment) and 2 feet in depth (to represent an anaerobic environment). The analytical results found detections of dichlorodiphenyldichloroethylene (DDE) and dichlorodiphenyltrichloroethane (DDT), PCBs, and several metals that were below levels of concern to human health based on the use of the site as a floodplain area, but of possible concern to ecological health.

As part of the Phase II ESA along the channel between Raley Blvd and Vinci Ave, 7 soil borings taken to 12 feet below ground surface at 4-foot intervals, 7 surface soil samples, two composite samples from stockpile sites, and two surface water samples were tested for metals, mercury, organochlorine pesticides, and PCBs. Sample locations are in Figure 3.8-1. Arsenic was the only analyte detected above the U.S. Environmental Protection Agency regional screening levels and California DTSC screening levels for commercial/industrial soil. However, arsenic in California is known to have higher background concentrations than the screening levels.



Magpie Creek Phase II ESA Sample Locations

2017 Locations

- ◆ Stream Sediment
- ◇ Soil Surface
- ✱ Water

2021 Locations

- Soil Boring
- Soil Composite
- Soil Surface
- ★ Water

▭ Construction Footprint

▨ Staging Area



**US Army Corps
of Engineers®**
Sacramento District

0 300 600 Feet



Updated 4/26/2023

Figure 3.8-1. Soil and water sample locations from the 2017 and 2021 Phase II ESAs for Magpie Creek

American River Mitigation Site

The ARMS is located on the northern bank of the American River at River Mile 1.3 within the American River Parkway. The property was initially used for agriculture beginning in the 1930s until approximately 1966 when the Urrutia family began sand and gravel operations on a portion of the property. By 1997, historic excavation activities resulted in the creation of an approximately 60-acre pond. The property was later used for sorting, distributing, and recycling soil and construction debris followed by a concrete pumping business operation (CVRWQCB 2023). The western portion of the site contains a garage and shop and three shipping containers. The property is used to stage concrete pumping equipment used by the property caretaker. The southwest corner of the property contains a wooded area. There are approximately 10 stockpiles of construction debris located east and south of the lake.

An environmental consultant was contracted by the Sacramento Area Flood Control Agency (SAFCA) to conduct environmental due diligence in preparation of SAFCA's planned acquisition of the property. The property has undergone a Phase I and II Environmental Site Assessment (ESA), as well as a Geotechnical Investigation.

A Phase I ESA conducted in October 2022 identified the 10 soil stockpiles, petroleum storage associated with two aboveground storage tanks (ASTs), storage of auto batteries on the ground, as well as historical conditions such as a former polychlorinated biphenyl (PCB)-containing transformer explosion, use of the property as an unpermitted construction debris site for several decades, the excavation of topsoil/aggregate from the manmade lake, and placement of fill into the pond.

Phase II ESA activities and geotechnical investigations were conducted in 2022 and 2023 and included geophysical scanning of the land portions of the property, bathymetry of the manmade lake, collection of stockpile and surface soil samples, geotechnical and environmental borings, sediment samples including grid sampling, deep boring sampling, and targeted sampling, groundwater sampling, and surface water sampling (Geosyntec 2023). Below is a summary of data results based on site locations which include Northern Area, Northeast Area, Embankment Area, Operations Area, and the Pond (Geosyntec 2023).

- In the *Northern Area*, which includes the entire area north of the onsite pond, 16 soil borings were advanced. The majority of the borings show no impacts from previous land uses. Lead was reported at slightly elevated concentrations in two samples, no other constituents of concern were reported.
- In the *Northeast Area* where buried and exposed rubble had been observed along the bank of the pond, six soil borings have previously been advanced. TPH-d, naphthalene and lead were reported at elevated concentrations in select soil samples and borings.
- In the *Embankment Area*, south of the pond between the site and the American River, 27 borings were advanced on the Embankment Area and eastern bank and 7 samples were collected from surface stockpiles. Constituents of concern were not reported at concentrations above screening levels in samples collected from the stockpiles. Naphthalene, TPH-d, chromium, and lead were reported at concentrations above screening levels in a few of the 27 borings. Unfiltered groundwater samples were also collected in this area. Arsenic,

barium, and nickel were reported at concentrations above the MCLs in one sample, naphthalene was reported in two of the groundwater samples, and TPH-d was reported in the four groundwater samples.

- In the *Operations Area* located on the western bank and consisting of an off-site residence with three and a half shipping containers, vehicles, equipment and materials storage, half a building used as a maintenance shop, ASTs, the domestic groundwater supply well, six borings were advanced in this area. Five of the 6 borings were not advanced deeper than 2 feet bgs, with one boring advanced to 15 feet bgs. TPH-d, TPH-mo, and lead were reported at elevated concentrations near the former ASTs. Lead, mercury, and zinc were reported at elevated concentrations in the 15-foot sample. Arsenic was reported in an unfiltered water sample collected from the on-site well.
- In the *Pond Area*, from the results of bathymetric surveys it does not appear that the elevation of the pond bottom has significantly changed. Sediment and surface water samples have been collected from the pond. Constituents of concern have generally not been reported at elevated concentrations in surface water or sediment, with the exception of some soluble metals using modified elutriate testing. Based on results of a modified elutriate test (MET), chromium exceeds CTRs in two of 12 samples, and mercury exceeds levels in three of 12 samples. Methylmercury was reported in surface water samples.

SAFCA is currently conducting additional Phase II ESA activities to scope a Corrective Action Plan (CAP) for the site. The CAP will determine actions that must be taken to remove the potential for surface or groundwater impairments or risk to future sensitive receptors. Additional site investigations include soil borings, test pits, surface samples, and groundwater samples in locations that have showed elevated concentrations of constituents of concern. SAFCA would be required to achieve administrative closure of the Department of Toxic Substances Control's Envirostor-listed hazardous waste site prior to use of the site for habitat restoration.

School Facilities

The project locations considered under the Proposed Action do not fall within ¼-mile of any schools. The proposed haul routes for Magpie Creek Project and Lower American River 3B would be within ¼-mile of several schools but no hazardous materials would be transported as part of the Proposed Action. Additionally, LAR C3B erosion protection work is within ¼ mile of OW Erlewine Elementary School but hazardous material would not be stored at this site as part of the Proposed Action.

Airports and Airstrips

The Sacramento - McClellan airport is located approximately 1 mile east of Magpie Creek Project. It is a privately owned airport located on the former site of McClellan Air Force Base. Also, with 2 miles of Sacramento River Erosion Contract 3 is the Sacramento Executive Airport this airport is operated by the County of Sacramento. As part of the analysis, a review of the Sacramento Executive Airport and the Sacramento McClellan Airport do not appear to have current Comprehensive Land Use Plans. Both airports do have Special Land Use Planning documents use part of the Zoning code of Sacramento County. These documents provide for use restrictions and construction development and safety standards for areas around each airport. No

specific aviation related restrictions were note during the review of these standards as they apply to both contraction locations.

3.8.2 Applicable Laws, Regulations, Policies, and Plans

Section 3.17 of the ARCF GRR FEIS/FEIR (pages 322-323) identified Federal or State environmental laws and regulations that apply to hazards and hazardous materials. Chapter 5 of the ARCF GRR FEIS/FEIR summarized the environmental laws and regulations that apply to the ARCF Project and described the status of compliance with those laws and regulations. Additional applicable laws and regulations not previously listed in the ARCF GRR FEIS/FEIR are listed below:

Federal

Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act)

The Community Right-to-Know Act was enacted by Congress in 1986 to help local communities protect public health, safety, and the environment from chemical hazards. To implement the Community Right-to-Know Act, Congress requires each state to appoint a State Emergency Response Commission (SERC). The SERCs are required to divide their states into Emergency Planning Districts and to name a Local Emergency Planning Committee (LEPC) for each district.

Broad representation by fire fighters, health officials, government and media representatives, community groups, industrial facilities, and emergency managers ensures that all necessary elements of the planning process are represented.

Relocation Assistance and real Property Acquisition Policies of 1970 (Uniform Act)

The Uniform Act was created to ensure that property owners and tenants are treated fairly, equitably and receive relocation assistance, in the case that federally funded programs or projects require acquiring private property for the development of said program or project.

The Uniform Act provides important protections and assistance for people affected by Federally-funded projects government-wide. To provide guidance and assistance to Federal government agencies, the U.S. Department of Transportation (DOT) was named as the Federal lead agency for the Uniform Act, a role filled by FHWA's Office of Real Estate Services. The Lead Agency is responsible for developing, issuing, and maintaining government-wide regulations, as well as providing assistance to Uniform Act Federal agencies and providing an annual report to Congress.

Department of Transportation Hazardous Materials Transportation Act

The U.S. Department of Transportation governs the transport of chemicals and hazardous materials under CFR Title 49, which stipulates the types of containers, labeling, and other restrictions that must be used to move such material on interstate highways.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act provides a Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through this act, EPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup State.

Hazardous Waste Control Act of 1972

The Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.) creates the framework for managing hazardous wastes in California. It requires that a Statewide hazardous waste program be developed to administer and implement the provisions of the Federal RCRA. The Hazardous Waste Control Act also designates California-only hazardous wastes and includes standards (regulations) that are equal to or, in some cases, more stringent than Federal requirements. The act lists allowable exemptions and requirements for recycled materials and for other materials, such as launderable rags.

DTSC administers and implements the provisions of the Hazardous Waste Control Act at the State level, pursuant to EPA's authorization. Certified unified program agencies, which are typically local agencies, implement some provisions of the act locally.

DTSC requires preparation of written programs and response plans, such as hazardous materials business plans. DTSC's programs also include aftermath cleanup caused by improper management of hazardous waste; evaluation of samples taken from sites; enforcement of regulations regarding use, storage, and disposal of hazardous materials; and encouragement of pollution prevention.

California Accidental Release Response Plan Programs

The California Accidental Release Response Plan (CalARP) requires certain facilities (referred to as "stationary sources") which handle, manufacture, use, or store any regulated substances above threshold quantities to take actions to proactively prevent and prepare for accidental releases. Facilities subject to CalARP requirements must submit a Risk Management Plan (RMP).

The California Environmental Protection Agency (CalEPA) oversees the implementation of the CalARP program at the state level, while Certified Unified Program Agencies (CUPAs) and/or Participating Agencies (PAs) implement the CalARP program at the local level.

Occupational Safety and Health Administration (OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) is primarily responsible for developing and enforcing workplace safety regulations in the State. Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace (CCR Title 8) require employers to provide safety training and safety equipment, conduct accident and illness prevention programs, warn against hazardous-substance exposure, and prepare emergency action and fire prevention plans.

Cal/OSHA also enforces hazard-communication program regulations that contain training and information requirements. Companies must establish procedures to identify and label hazardous substances, communicate information about hazardous substances and their handling, and prepare health and safety plans to protect workers and employees at hazardous-waste sites. Employers must make material safety data sheets available to employees and document employee information and training programs.

California Emergency Services Act

The California Emergency Services Act provides the basic authority for conducting emergency operations following a proclamation of emergency by the governor and/or appropriate local authorities. Local government and district emergency plans are considered to be extensions of the California Emergency Plan, established in accordance with the Emergency Services Act.

The California Emergency Management Agency (Cal EMA) is the State agency responsible for establishing emergency response and spill notification plans related to hazardous materials accidents. CAL EMA regulates businesses by requiring specific businesses to prepare an inventory of hazardous materials (CCR Title 19). CAL EMA is also the lead State agency for emergency management and is responsible for coordinating the State-level response to emergencies and disasters.

Central Valley Regional Water Quality Control Board – Site Cleanup Program

The Site Cleanup Program (SCP) regulates and oversees the investigation and cleanup of contaminated sites. The primary mission of the SCP is to protect water quality, regulate practices which have the potential to pollute water, and enforce state and federal laws and policies. To do this SCP staff must identify contaminated sites, provide technical and regulatory oversight of cleanup activities, and ensure that remedies result in site restoration and protection of human health, the environment and water quality. Staff overseeing investigation and cleanup actions at sites that have been impacted by releases of pollutants to soil, soil gas, groundwater, surface water, sediments, and indoor air. SCP sites include large industrial facilities, military bases, oil refineries, factories, and smaller facilities such as dry cleaners and plating shops.

Local

Sacramento County 2021 Multi-jurisdictional Local Hazard Mitigation Plan Update

This 2021 Local Hazard Mitigation Plan (LHMP) Update serves to update the 2016 Federal Emergency Management Agency (FEMA) approved Sacramento County LHMP. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. The established Hazard Mitigation Planning Committee (HMPC) which includes key County representatives, and other local and regional stakeholders, conducted a risk assessment that identified and profiled hazards that pose a risk to the County and participating jurisdictions. Floods, earthquakes, drought, levee failures, landslides, wildfires, and other severe weather events are among the hazards that can have a significant impact on the County.

Based on the results of the risk assessment, the participating jurisdictions and the HMPC developed a mitigation strategy for reducing the County's and all participating jurisdictions' risk and vulnerability to hazards. The resulting Mitigation Strategy for the Sacramento County Planning Area is comprised of LHMP goals and objectives and a mitigation action plan which includes a series of mitigation action projects and implementation measures. Based on the risk assessment, the HMPC identified goals and objectives for reducing the Sacramento County Planning Area's vulnerability to hazards.

Sacramento County 2030 General Plan

The Sacramento County 2030 General Plan's Hazardous Materials Element, most recently updated in September 2017, contains the following hazardous materials goals and policies relevant to the proposed project (Sacramento County 2017):

Objective: Protect the residents of Sacramento County from the effects of a hazardous material incident via the implementation of various public health and safety programs.

- **Policy HM-4:** The handling, storage, and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
- **Policy HM-7:** Encourage the implementation of workplace safety programs and to the best extent possible ensure that residents who live adjacent to industrial or commercial facilities are protected from accidents and the mishandling of hazardous materials.
- **Policy HM-8:** Continue the effort to prevent ground water and soil contamination.
- **Policy HM-9:** Continue the effort to prevent surface water contamination.
- **Policy HM-10:** Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.
- **Policy HM-11:** Protect residents and sensitive facilities from incidents which may occur during the transport of hazardous materials in the County.

3.8.3 Analysis of Environmental Effects

Analysis Methodology

Potential impacts on the environment related to hazards and hazardous materials were evaluated based on the type and location of anticipated project-related construction and O&M activities. The analysis was based on review of publicly available information and databases related to existing land uses, schools, wildfire hazard zones, and known soil and/or groundwater contamination sites within and near the project site.

Basis of Significance

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, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action while providing distinction between direct and indirect effects as required under NEPA

(40 CFR 1508.1(g)). 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:

- a. create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- b. create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities;
- c. emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- d. be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- e. for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- f. impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Effects Not Addressed in Detail

Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (3.8-c)—Construction activities associated with the project would not occur within one-quarter mile of an existing or proposed school. The Magpie Creek Project’s haul route would pass within 700 feet of the Main Avenue Elementary School, but hauling of hazardous materials is not anticipated. Also, project construction and a haul route for LAR C3B erosion protection work is within ¼ mile of OW Erlewine Elementary School, but hazardous material is not anticipated to be hauled or stored at the site as part of the Proposed Action.

The project would not involve hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, this issue is not addressed further in the SEIS/SEIR.

Result in an airport-related safety hazard for excessive noise for people residing or working in the project area. (3.8-e)—A portion of Sacramento River Erosion Contract 3 is located within Referral Area 2 of the Airport Influence Area, as shown in the Sacramento International ALUP. No other project components are located within Airport Influence Areas designated within ALUPs. Referral Area 2 includes locations where airspace protection (other than wildlife hazards) and/or overflight are compatibility concerns, but not noise or safety. Given that no new developments are being considered as part of Sacramento River Erosion Contract 3,

the project component is compatible with the ALUP. Noise effects are analyzed in Section 3.7 of this document.

Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. The Proposed Action is not located in a high severity fire zone or State Responsibility Area (SRA). The Proposed Action includes construction of erosion and flood protection measures along the existing Sacramento County levee system, and the establishment of high quality onsite mitigation. The Proposed Action would not change operations and maintenance at the improvement sites and construction activities would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

No Action Alternative

Under the No Action Alternative, the Proposed Action from the ARCF GRR Final EIS/EIR would be implemented. Construction activities would involve use of hazardous materials such as fuels, oils and lubricants, and cleaners common to construction projects. Contractors would be required to use, store, and transport these materials in compliance with Federal, State, and local regulations during project construction. With the implementation of mitigation measures discussed in the ARCF GRR Final EIS/EIR Section 3.17.6, effects from hazardous materials due to equipment operation would be less than significant.

The project would be constructed within the original footprint described in the ARCF GRR Final EIS/EIR and would not include the portions of Magpie Creek between Vinci Ave and Dry Creek Rd or the new levee east of Raley Blvd. On the Lower American River, the refined erosion protection site locations and tree scour work on Contract 3B, and the berm and associated bike trail reroute on Contract 4A would not be constructed. The Sacramento and American River mitigation sites would not be constructed. Without the additional improvements to the flood protection infrastructure, the project area would still be vulnerable to flooding and the potential for release of hazardous materials caused by flooding would exist. This would include hazardous and toxic waste. The potential for the spread of hazardous wastes from both new and existing sites would be a significant effect under the No Action Alternative and no mitigation would be possible.

Proposed Action Alternative

3.8-a Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

CEQA Significance Conclusion: Less than Significant

NEPA Significance Conclusion: Short-term and Minor effects that are Less than Significant

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Magpie Creek Project, American River Mitigation Site, Sacramento River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant

The construction of the Proposed Action would require the transport, storage, and use of fuels, oils, and lubricants for equipment maintenance and operation. These materials are not classified as acutely hazardous, and the project would not require transport or use of large quantities of these materials beyond what would be required to operate construction equipment. All material transport would be in compliance with Federal, State, and local regulations and effects from using these materials would be less than significant.

3.8-b Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, including hazards associated with existing contaminated soils, asbestos, or existing contaminated groundwater during dewatering activities.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Soil and water testing was conducted as part of Phase II ESAs in the floodplain parcels and between Raley Blvd and Vinci Ave. The samples were collected in the area where earthwork is required on either side of Raley Blvd and cover the footprint for the creek widening and realignment. The results did not find hazardous materials at concentrations that would require disposal of contaminated materials from the site.

The testing along the portion of Magpie Creek between Raley Blvd and Vinci Ave involved collection of soil samples from the surface to 12 feet in depth. Contaminants were not detected above USEPA regional screening levels or California DTSC screening levels for industrial soil. Based on these results, it is unlikely that hazardous materials would be released into the environment from the new canal alignment and widening.

The new levee planned east of Raley Blvd is located on land bordering the former McClellan Airforce Base. The Proposed Action would involve placing of materials hauled onto the site and would not require excavation of existing materials from this area, therefore the risk of releasing hazardous materials into the environment from contaminated soil is low. Nevertheless, 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 possibly expose people or the environment to hazardous materials. This impact would be potentially significant.

If contaminated soil or water are suspected or encountered, Mitigation Measures GEO-1 and HAZ-1, which were previously adopted for the 2016 ARCF Project, would be implemented. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations, reducing the impact to a less-than significant level.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

The Project Partners would require that project sites 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 Recognized Environmental Conditions in a Phase I ESA, a Phase II site investigation should also be conducted.

Timing: Before construction

Responsibility: USACE and Project Partners

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated

The American and Sacramento River erosion protection sites are not known to be associated with sites containing hazardous materials, and release of hazardous materials into the environment from these locations is unlikely. Nevertheless, 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 possibly expose people or the environment to hazardous materials. This impact would be potentially significant.

If contaminated soil or water are suspected or encountered, Mitigation Measures GEO-1 and HAZ-1, which were previously adopted for the ARCF 2016 Project, would be implemented. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations, reducing the impact to a less-than significant level.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 3.8-b, MCP above for the full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE and Project Partners

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

The ARMS is a former industrial site with an approximately 60-acre man-made pond created in the 1960s by aggregate and soil mining in the central portion of the site. The western operations area contains a garage/shop and three shipping containers. The property is used to stage concrete pumping equipment. The southwest corner of the property contains a wooded area. There are approximately 10 stockpiles of construction debris located east and south of the man-made pond.

As part of the Phase II ESA activities, soil, sediment, and water testing has been conducted at the site to determine if occurrence of hazardous materials is present. Data results show that various metals and other constituents of concern are present throughout the site. See Section 3.8.1 “Existing Conditions/Affected Environment” for a full discussion of known hazardous materials

at the site. This impact would be significant. Additional testing will be conducted in accordance with Mitigation Measure HAZ-1, which was previously adopted for the ARCF 2016 Project, to assess whether residual impacts in areas not proposed for disturbance can be left without causing impairment or risk to sensitive receptors, and to evaluate use of borrow material at the site.

The Proposed Action includes use of the Urrutia site as a mitigation site to offset project impacts to Federally listed species and regional habitats. The Proposed Action would include tree and stump removal, elderberry transplantation, grubbing, grading, and creating multi-elevational flow channels. Bank protection measures and replanting would also occur onsite to help protect against future erosion.

The mitigation design for the site has been informed by the locations of known metals and petroleum hydrocarbons that have been identified in soil and groundwater at levels above regulatory thresholds, and the anticipated cleanup plans being pursued with the Central Valley Regional Water Quality Control Board (CVRWQCB) by the non-Federal Sponsor (NFS). According to the Project Partnership Agreement the NFS is responsible for the costs of cleanup and response to hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9675). These known materials will be remediated by capping or removal, or otherwise addressed through project design. Nevertheless, there is a potential that earthmoving activities associated with project construction could encounter contaminated soil or groundwater that was not previously identified, and/or underground utility infrastructure containing hazardous substances, which could possibly expose people or the environment to hazardous materials. The NFS will handle the removal of all hazardous material that qualify under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 during the construction of the mitigation project.

If contaminated soil or water encountered, Mitigation Measures GEO-1 and HAZ-1, which were previously adopted for the ARCF 2016 Project, would be implemented. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, will be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site, reducing the impact to a less-than significant level.

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

Please refer to Impact 3.8-b, MCP above for the full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE and Project Partners

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Minor effects that are Less than Significant with Mitigation Incorporated

Monitoring activities including groundwater testing have been conducted on the Grand Island site per RWQCB's Order WQ-2019-0006-DWQ dated March 20, 2019, that requested Grand Island Landfill be investigated for the presence of perfluoroalkyl and polyfluoroalkyl substances (collectively referred to as PFASs). There were several detections of PFAS compounds in each monitoring well; however, PFASs were not at concentrations exceeding OEHHA recommended Notification Levels. Based on these results, not additional testing appears to be required.

No work is planned at decommissioned landfill located on the eastern side of the SRMS. By avoiding the landfill, there would be a low risk of releasing hazardous materials into the environment from this area. Additionally, testing conducted in 2019-2020 indicated that only low levels of PFASs occur onsite. As part of the environmental soil survey work at ARMS PFAS analysis will be conducted to evaluate the possible presence of PFAS compounds in and soil and groundwater. Nevertheless, 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 possibly expose people or the environment to hazardous materials. This impact would be potentially significant.

If contaminated soil or water are suspected or encountered, Mitigation Measures GEO-1 and HAZ-1, which were previously adopted for the ARCF 2016 Project, would be implemented. These measures include testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations, reducing the impact to a less-than significant level.

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 Appendix B, Section 3.2, "Geologic Resources," for the full text of this mitigation measure

Timing: Before and during construction.

Responsibility: USACE

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

Please refer to Impact 3.8-b, MCP above for the full text of this mitigation measure.

Timing: Before construction
Responsibility: USACE and Project Partners

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Negligible effects that are Less than Significant with Mitigation Incorporated

The piezometer installation requires the drilling of boreholes 6 to 12 inches in diameter to a depth of 40-100 ft. The drilling process would produce soil cuttings and purge water, which will be captured so that the water does not spill onto the site. Each well would be purged three times. There is the potential that contaminated soil or groundwater could be brought to the surface through the drilling process. This impact would be potentially significant.

Purge water and soil cuttings would be stored in labeled and sealed drums at staging areas until the contents are analyzed for contaminants in accordance with state and federal requirements. The analytical results determine the disposal protocol. Uncontaminated soil cuttings would be disposed of in an appropriate landfill, and uncontaminated water would be poured out on site. Each drum would be analyzed and disposed of within 90 days. Implementing Mitigation Measure HAZ-1, which was previously adopted for the ARCF 2016 Project, would reduce the impact to a less-than significant level by testing to determine the presence and extent of any residual contaminants and disposal of materials in accordance with applicable regulations.

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

Please refer to Impact 3.8-b, MCP above for the full text of this mitigation measure.

Timing: Before construction
Responsibility: USACE and Project Partners

3.8-d Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: No Impact

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

NEPA Impact Conclusion (Design Refinements): No Impact

The only known hazardous materials site with the potential to affect the project area is the former McClellan Air Force Base. This potential exists because Magpie Creek and its tributary, Don Juilo Creek, flow through the base upstream of the project area. These streams and surrounding areas have been remediated (AECOM 2016). As previously described in Section 3.8.1, “Existing Conditions/Affected Environment,” Phase I and II ESAs were conducted which included water and sediment testing between Raley Blvd and Vinci Ave. Results indicate the project would not create a significant hazard to the public or the environment because the site has been remediated. Based on soil testing conducted at the site, constituents of concern, except for arsenic (which is known to have higher background concentrations than screening levels in California), are below levels of concern to human health.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Contract 3, Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

These sites are not included on a list of hazardous materials sites; therefore, are not anticipated to create a significant hazard to the public or the environment. There would be no impact.

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

The ARMS is identified on the Cortese list due to historical land uses and soil and groundwater contamination described in more detail in Section 3.8.1, “Existing Conditions/Affected Environment” and Impact 3.8-b. This impact would be significant.

Mitigation Measure GEO-1, which was previously adopted for the ARCF 2016 Project, would be implemented. This measure requires testing to determine the presence and extent of any residual contaminants prior to construction. If hazardous materials are present, they would need to be disposed of in accordance with applicable regulations, reducing the impact to a less-than significant level.

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 Appendix B, Section 3.2, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction
Responsibility: USACE

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

Please refer to Impact 3.8-b, MCP above for the full text of this mitigation measure.

Timing: Before construction

Responsibility: USACE and Project Partners

NEPA Impact Conclusion (Design Refinements): No Impact

For NEPA purposes, there is no impact related to this listing, because the NFS are required to handle the removal of all hazardous material that qualify under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 prior to conveying the site to USACE for use for habitat mitigation.

3.8-f Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

Construction of the crossing structure at Raley Boulevard would close this road for 3 months during either the 2027 or 2028 construction season. This could result in short term interference with emergency response or emergency evacuation plans, as Raley Boulevard offers access to Interstate 80. The proposed Raley Boulevard detour is 1.5 miles long, utilizes Santa Ana Avenue, Dry Creek Road, and Vinci Avenue, and is discussed in Appendix B Section 2.1, “Transportation and Circulation.” There are numerous other cross streets and parallel roads in the area that could be used for emergency access. This temporary impact would be significant. Implementing Mitigation Measures TRANS-1, which was previously adopted for the ARCF 2016 Project, would reduce potential impacts to emergency access to a less than significant level.

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

Please refer to Appendix B, Section 2.1, “Transportation and Circulation,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

The implementation of the transportation control plan, would minimize the Proposed Action’s interference with emergency access to a less than significant level by requiring notification of emergency services providers, establishing detours, and minimizing project disruption of traffic.

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated

The Sacramento County Local Hazard Mitigation Plan was updated in 2021 to reduce or eliminate long-term risk to people and property from hazards and ensure the County’s continued eligibility for federal disaster assistance. The plan identified levee and structural flood management improvements throughout the county and the Magpie Creek flood control project as specific measures to reduce these risks.

For all Proposed Action components except Sacramento River, hauling of materials would occur through city streets and could temporarily slow traffic while the projects are being constructed. The hours of construction would strive to comply with the City of Sacramento’s construction noise ordinances and would be Monday through Saturday from 7:00 a.m. to 6:00 p.m. and Sundays from 9:00 a.m. to 6:00 p.m., and County of Sacramento construction hours, Monday through Friday from 6:00 a.m. to 8:00 p.m. and Saturday from 7:00 a.m. to 8:00 p.m. However, construction activities, including hauling, may occur outside these hours. These activities could interfere with emergency response or an emergency evacuation by increasing travel times along haul route or adjacent city streets during the construction hours. This temporary impact would be significant. Implementing Mitigation Measures TRANS-1, which was previously adopted for the ARCF 2016 Project, would reduce potential impacts to emergency access to a less than significant level by requiring notification of emergency services providers, establishing detours, and minimizing project disruption of traffic.

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

Please refer to Appendix B, Section 2.1, “Transportation and Circulation,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Sacramento Metropolitan Fire District Station 62 uses the Watt Avenue Boat Launch for water rescues, although it is not the station’s primary ramp used for water rescues. Watt Avenue boat

launch is not ideal for use during low flows because of the river depth in the area. Riverbend Park, which is a 5.4-mile drive upstream from the Watt Avenue Boat Launch, is Sacramento Metropolitan Fire District Station 62's primary ramp used for water rescues. Construction of American River Contract 3B South would occur outside of flood season, when flows are the lowest, so water levels would not likely be ideal for water rescues out of the Watt Avenue Boat Launch. However, closure of the Watt Avenue Boat Launch could restrict access for fire services to provide water rescues and cause a significant impact on Sacramento Metropolitan Fire District Station 62 conducting water rescues. Implementing Mitigation Measure HAZ-2, which was previously adopted for the ARCF 2016 Project, would reduce this impact to less than significant level.

Mitigation Measure HAZ-2: Contact Sacramento Metropolitan Fire District Station 62 Prior to Closing Watt Avenue Boat Launch

Prior to construction Project Partners will contact Sacramento Metropolitan Fire District Station 62 about closing the Watt Avenue Boat Launch.

Timing: Before construction

Responsibility: USACE and Project Partners

The implementation of Mitigation Measure HAZ-2 would ensure early coordination on use of the Watt Avenue Boat Launch and allow Sacramento Metropolitan Fire District Station 62 the time to determine other options for river access for water rescues. This would decrease the significant impact from the project on river access for water rescues to a less than significant level.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact

NEPA Impact Conclusion (Design Refinements): No Impact

Construction of the piezometer network would not include significant material hauling or road closures. These project components would have no impact on emergency response or evacuation.

Alternatives Comparison

Alternatives 3a through 3d

Alternative 3a through 3d include an alternative design for improvements to the American River 4A Project Component. In Alternative 3a, a landside berm would be constructed instead of a waterside berm. In Alternative 3b the bike detour would follow parallel to the railroad to the existing location of the bike trail instead of going under the railroad. In Alternative 3c, the bike route would be rerouted a short distance through an existing wetland. In Alternative 4d, the bike detour would go closer to the riverbank and follow the railroad to the existing location of the bike trail. All other project components (American River 3B, Sacramento River Contract 3, Magpie Creek, Sacramento River Mitigation, and American River Mitigation) would have the

same effects as the Proposed Action. Hazards and hazardous materials effects from these alternatives would be the same as for the Proposed Action.

Table 3.8-1. Alternative 3a through 3d Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a: Routine Use of Hazardous Materials	American River 4A	As in the Proposed Action, these Alternatives would have similar potential for accidental release of hazardous materials associated with construction.	GEO-1	Less than significant with mitigation	Short-term and Moderate effects that are Less than Significant with Mitigation
3.8-b: Risk of Accidental Release of Hazardous Materials	American River 4A	As in the Proposed Action, these Alternatives would have similar potential for accidental release of hazardous materials associated with construction.	GEO-1 and HAZ-1	Less than significant with mitigation	Short-term and Minor effects that are Less than significant with mitigation
3.8-d: Risk from Cortese-listed Site	American River 4A	As in the Proposed Action, the American River 4A project site is not on the Cortese List	n/a	No Impact	No Impact
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	American River 4A	As in the Proposed Action, these Alternatives would have similar effects for impairment or physical interference with an emergency response or evacuation plan associated with construction.	TRANS-1 and HAZ-2	Less than significant with mitigation	Short-term and Moderate effects that are Less than Significant with Mitigation

Alternative 4a (CEQA-Only)

Alternative 4a includes a design for the American River Mitigation area that retains a 30-acre portion of the existing man-made pond, while channels would be constructed on 54 acres of floodplain on the eastern portion of the site. The effects to hazards and hazardous materials would be similar to what was discussed in the Proposed Action, but this alternative does not incorporate avoidance of buried debris at the ARMS into the design. All other project components (American River 3B, American River 4A, Sacramento River, Magpie Creek, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

Table 3.8-2. Alternative 4a Effects (CEQA-only)

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.8-a: Routine Use of Hazardous Materials	ARMS	As in the Proposed Action, Alternative 4a would have similar potential for impact from use of hazardous materials during construction.	GEO-1	Less than significant with mitigation
3.8-b: Risk of Accidental Release of Hazardous Materials	ARMS	Alternative 4a would have a greater potential for accidental release of hazardous materials associated with construction compared to the proposed action due to the potential to encounter buried debris that would be avoided by the Proposed Action.	GEO-1 and HAZ-1	Less than significant with mitigation
3.8-d: Risk from Cortese-listed Site	ARMS	As in the Proposed Action, Alternative 7 would have similar potential for accidental release of hazardous materials associated with construction. However, since this Alternative was not designed to avoid or minimize effects associated with buried debris, the initial impact (before implementing mitigation measures) would be greater than for the Proposed Action.	GEO-1 and HAZ-1	Less than significant with mitigation
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	ARMS	As in the Proposed Action, this Alternative would have similar effects for impairment or physical interference with an emergency response or evacuation plan associated with construction.	TRANS-1 and HAZ-2	Less than significant with mitigation

Alternative 4b (CEQA-Only)

Alternative 4b includes a design for the American River Mitigation area that retains a 20-acre portion of the existing man-made pond. Restored habitat would be constructed on the remainder of the Urrutia property, and the proposed habitat was designed to avoid or cap the known hazardous materials present on the property. The effects to hazards and hazardous materials would be similar to what was discussed in the Proposed Action. All other project components (American River 3B, American River 4A, Sacramento River, Magpie Creek, and Sacramento River Mitigation) would have the same effects as the Proposed Action.

Table 3.8-3. Alternative 4b Effects (CEQA-only)

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.8-a: Routine Use of Hazardous Materials	ARMS	As in the Proposed Action, Alternative 4b would have similar potential for impact from use of hazardous materials during construction.	GEO-1	Less than significant with mitigation
3.8-b: Risk of Accidental Release of Hazardous Materials	ARMS	As in the Proposed Action, Alternative 4b would have similar potential for accidental release of hazardous materials during construction.	GEO-1 and HAZ-1	Less than significant with mitigation

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
3.8-d: Risk from Cortese-listed Site	ARMS	As in the Proposed Action, Alternative 4b would have similar potential for accidental release of hazardous materials during construction.	GEO-1 and HAZ-1	Less than significant with mitigation
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	ARMS	As in the Proposed Action, this Alternative would have similar effects for impairment or physical interference with an emergency response or evacuation plan associated with construction.	TRANS-1 and HAZ-2	Less than significant with mitigation

Alternative 5a

Alternative 5a includes an alternative design for improvements to the Sacramento River Mitigation project component. All other project components (American River 3B, American River 4A, Sacramento River, Magpie Creek, American River Mitigation, and the Piezometer Network) would have the same effects as the Proposed Action. Conservation Bank Credits would be used for mitigation.

There would be no new construction or disturbance associated with Alternative 5a, as existing mitigation banks would be used. Consequently, there would be no impacts related to hazardous materials, which would be reduced significance compared to the Proposed Action.

Table 3.8-4. Alternative 5a Effects

Impact Number and Title	Location	Discussion	Mitigation Measure (s)	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a: Routine Use of Hazardous Materials	SRMS	There would be no new construction or disturbance associated with Alternative 5a. Therefore, there would be no impacts.	N/A	No Impact	No Effect
3.8-b: Risk of Accidental Release of Hazardous Materials	SRMS	There would be no new construction or disturbance associated with Alternative 5a. Therefore, there would be no impacts.	N/A	No Impact	No Effect
3.8-d: Risk from Cortese-listed Site	SRMS	There would be no new construction or disturbance associated with Alternative 5a. Therefore, there would be no impacts.	N/A	No Impact	No Effect
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	SRMS	There would be no new construction or disturbance associated with Alternative 5a. Therefore, there would be no impacts.	N/A	No Impact	No Effect

Alternative 5b

Alternative 5b includes an alternative strategy for the Sacramento River Mitigation project component, which included possible use of Watermark Farms to construct habitat mitigation for the Sacramento River. All other project components (American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, American River Mitigation, and the Piezometer Network) would have the same effects as the Proposed Action.

Table 3.8-5. Alternative 5b Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a: Routine Use of Hazardous Materials	SRMS (Watermark Farms)	As in the Proposed Action, these Alternatives would have similar potential for impact due to use of hazardous materials during construction.	GEO-1	Less than significant with mitigation	Short-term and Moderate effects that are Less than Significant with Mitigation
3.8-b: Risk of Accidental Release of Hazardous Materials	SRMS (Watermark Farms)	As in the Proposed Action, these Alternatives would have similar potential for accidental release of hazardous materials associated with construction.	GEO-1 and HAZ-1	Less than significant with mitigation	Short-term and Minor effects that are Less than significant with mitigation
3.8-d: Risk from Cortese-listed Site	SRMS (Watermark Farms)	As in the Proposed Action, the Watermark Farms site is not on the Cortese List	n/a	No Impact	No Impact
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	SRMS (Watermark Farms)	This Alternative would have a greater potential to impair or physically interfere with an emergency response or evacuation plan because construction would occur in proximity to South River Road and would require lane and road closures during reconstruction and realignment of the road.	TRANS-1 and HAZ-2	Less than significant with mitigation	Short-term and Moderate effects that are Less than Significant with Mitigation

Alternative 5c

Alternative 5c includes an alternative design for improvements to the SRMS project component. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, Sacramento River, Magpie Creek, American River Mitigation and the Piezometer Network) would have the same effects as the Proposed Action. Delta Smelt Conservation Bank Credits would be used for mitigation. There will be no new activities done corresponding to the purchased of Delta Smelt Conservation Bank Credits, so there would be no additional land use impacts associated.

In addition, credits will be purchased or funds would be provided for the Sunset Pumps Project. Sunset pumps is being implemented by BOR, DWR, and USFWS and consequently BOR, DWR and USFWS will complete a corresponding CEQA and NEPA document. There would be no additional activities outside of BOR and USFWS NEPA document or DWR’s CEQA document, so there would be no additional impacts from Alternative 5c.

Table 3.8-6. Alternative 5c Effects

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
3.8-a: Routine Use of Hazardous Materials	SRMS	There would be no new construction or disturbance associated with Alternative 5c. Therefore, there would be no impacts.	N/A	No Impact	No Impact
3.8-b: Risk of Accidental Release of Hazardous Materials	SRMS	There would be no new construction or disturbance associated with Alternative 5c. Therefore, there would be no impacts.	N/A	No Impact	No Impact
3.8-d: Risk from Cortese-listed Site	SRMS	There would be no new construction or disturbance associated with Alternative 5c. Therefore, there would be no impacts.	N/A	No Impact	No Impact
3.8-f: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	SRMS	There would be no new construction or disturbance associated with Alternative 5c. Therefore, there would be no impacts.	N/A	No Impact	No Impact

4.1 Vegetation and Wildlife

This section focuses on analysis of vegetation and non-sensitive wildlife. Aquatic resources and fisheries (including special-status fish) are addressed in Appendix B, Section 4.2 and other special-status species are addressed in Appendix B, Section 4.3.

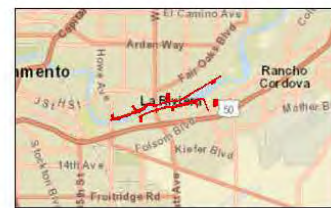
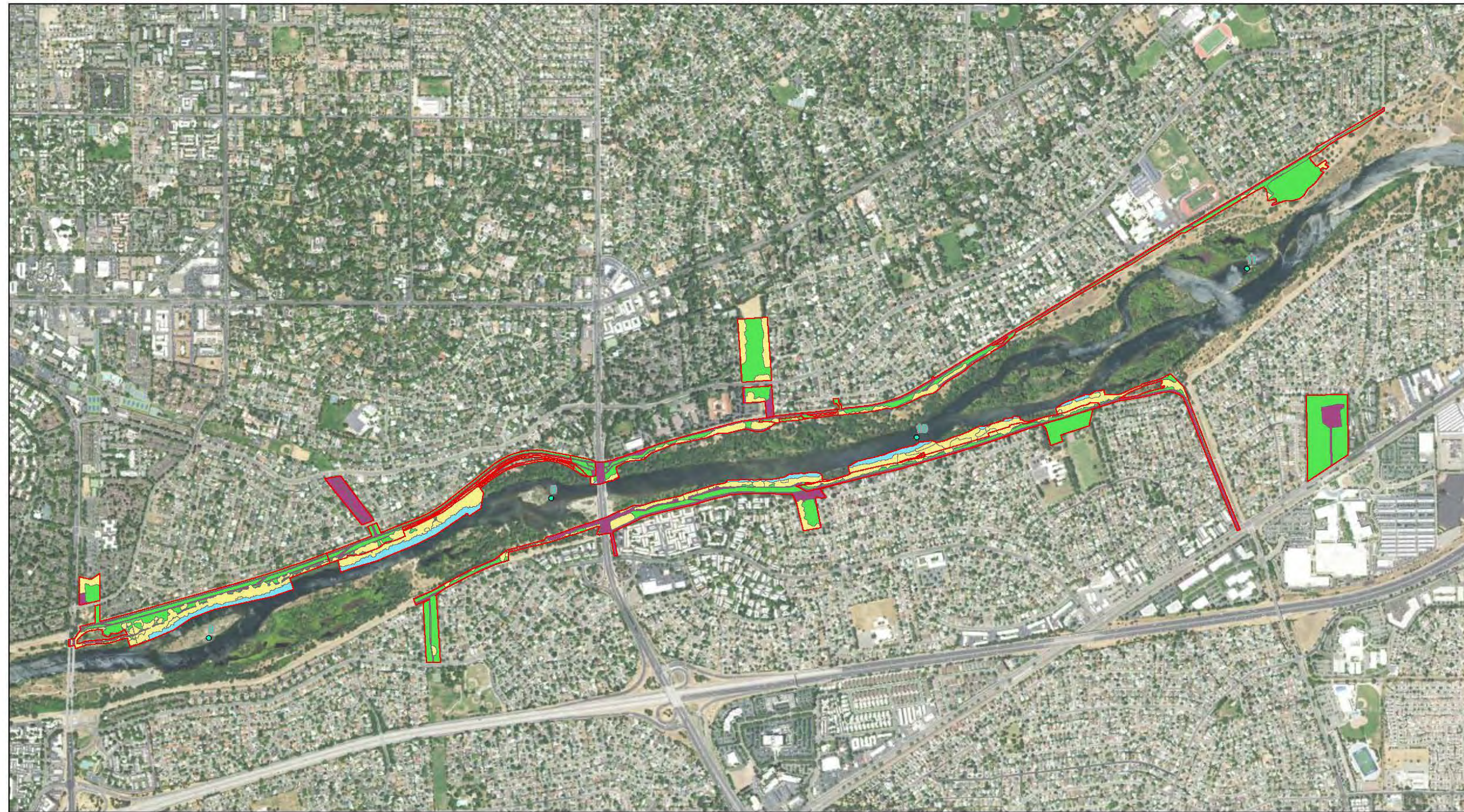
4.1.1 Existing Conditions/Affected Environment

The existing conditions at the American River, Sacramento River, and Magpie Creek Project (MCP) sites are described in Section 3.6, “Vegetation and Wildlife” (pages 109–115), of the ARCF GRR FEIS/EIR. The following provides an overview and update of the current project sites and relevant habitat and land cover types.

Project Site Descriptions

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and American River Erosion Contract 4B

The American River Parkway contains many vegetation types including riparian forest, oak woodland, open water, ruderal herbaceous, wetland, riverine/open water, and limited agriculture. Along the river channel vegetation is primarily considered shaded riverine aquatic (SRA) habitat. Trees adjacent to the channel are mainly valley oak (*Quercus lobata*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) with a thick understory of vines, berry bushes, and willows. The river is bordered by commercial and residential neighborhoods on the landside of the levees and the American River Parkway between the levees. American River Erosion Contract 3B illustrated in Figure 4.1-1 includes the portion of the Lower American River, both above and below the ordinary high-water mark (OHWM). American River Erosion Contract 4A, illustrated in Figure 4.1-2, includes open water in former borrow pit from which material was excavated to create the earlier levees in the area and also serves as an outlet for the stormwater system. Although the constructed levee system and surrounding infrastructure have modified most of the area’s native vegetation types and habitats, remnant stands of native vegetation are present. Wildlife present along the American River Parkway includes deer, coyote, turkeys, racoons, reptiles, and many species of native and migratory birds.



**American River Erosion
Contract 3B (North & South)
and Contract 4B**
Updated 9/21/2023

- River Mile
- Project Footprint
- Riverine/Open Water
- Ruderal Herb/Grassland
- Urban/Developed
- Valley Foothill Riparian

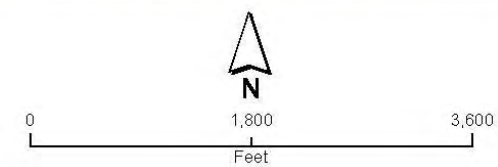
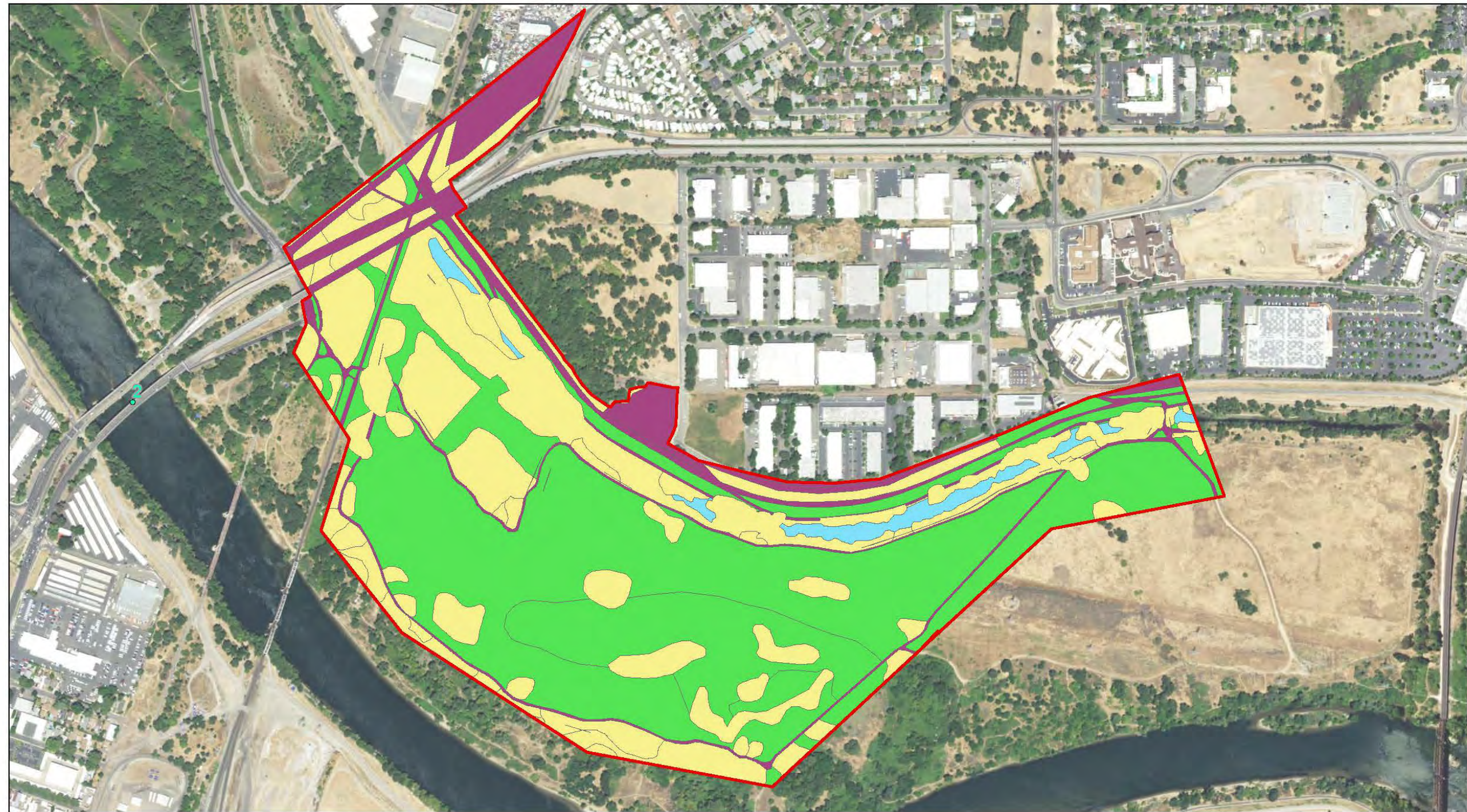


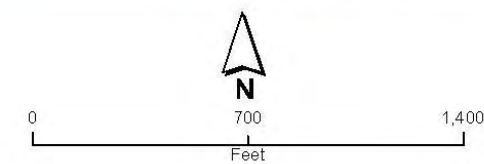
Figure 4.1-1. American River Erosion Contract 3B and 4B Land Cover Types



American River Erosion Contract 4A

Updated 9/21/2023

- Project Footprint
- River Mile
- Riverine/Open Water
- Ruderal Herbaceous/Grassland
- Urban/Developed
- Valley Foothill Riparian



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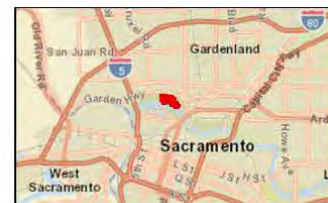
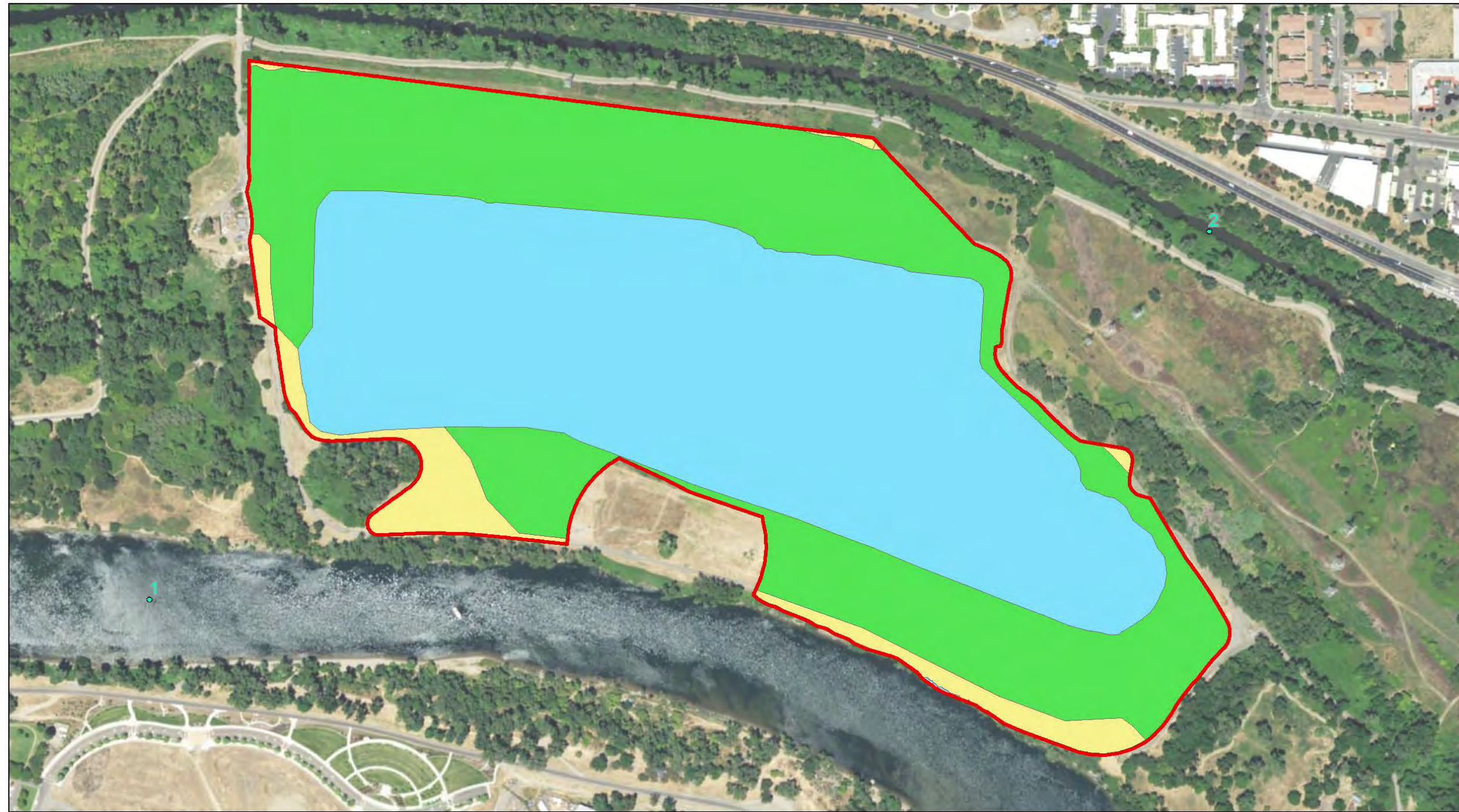
Figure 4.1-2. American River Erosion Contract 4A Land Cover Types

American River Mitigation Site

The proposed American River Mitigation Site (ARMS) was not analyzed in the ARCF GRR FEIS/EIR. As illustrated in Figure 4.1-3, the site contains primarily riparian forest/scrub, open water, and ruderal herbaceous/grassland. Along the riverbank is SRA habitat for fish. The primary tree species are box-elder (*Acer negundo*), Fremont's cottonwood (*Populus fremontii*), Gooddings black willow (*Salix gooddingii*), western sycamore (*Plantanus racemosa*), and valley oak (*Quercus lobata*). Only the riparian forest has a shrub layer, primarily California rose (*Rosa californica*) and California grape (*Vitis californica*). The most common herbaceous plants are mustards (*Sisymbrium* sp.), curly dock (*Rumex crispus*), Selloa pampas grass (*Cortaderia selloana*), bromes (*Bromus* spp.) and milk thistle (*Silybum marianum*) (HDR 2022). The ARMS is a former sand and gravel mine, thus the most prominent feature of the site is approximately 55 acres of open water located approximately 400 feet from the river's edge. This area is perennially filled with water due to groundwater connection with the American River. The proposed work would occur both above and below the OHWM of the American River. The site is between Discovery Park to the west, Camp Pollock to the east, and the river to the south. North of the site is Steelhead Creek, the levee, and commercial and residential development. Wildlife present along the American River Parkway includes deer, coyote, turkeys, racoons, reptiles, and many species of native and migratory birds.

Sacramento River Erosion Contract 3

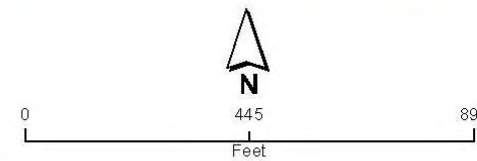
Vegetation in the Sacramento River work area is characterized by mature, well-established trees such as Fremont cottonwood and valley oak with a riparian shrub layer of smaller trees and shrubs, such as sandbar willow (*Salix exigua*) and Himalayan blackberry (*Rubus armeniacus*), as illustrated in Figure 4.1-4. There are intermittent locations along the waterline with no trees due to rock revetment but also some areas of SRA. Project work would occur below the OHWM of the Sacramento River. The levees on the Sacramento River are immediately adjacent to the river channel with a few short stretches that have small benches. Due to the urban development adjacent to the levees in this area wildlife is limited to small mammals and various avian species. Domestic animals from residents are also often seen along the levees in this area of the project.



American River Mitigation Site

Updated 9/21/2023

- Project Footprint
- River Mile
- Riverine/Open Water
- Ruderal Herbaceous/Grassland
- Valley Foothill Riparian



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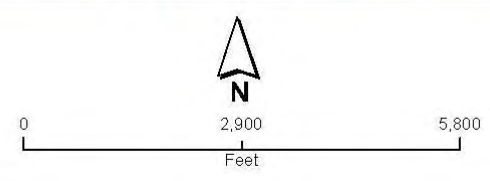
Figure 4.1-3. American River Mitigation Site Land Cover Types



Sacramento River Erosion Contract 3

Updated 10/25/2023

- Project Footprint
- River Miles
- Riverine/Open Water
- Ruderal Herbaceous/Grassland
- Valley Foothill Riparian
- Urban/Developed



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Figure 4.1-4. Sacramento River Erosion Contract 3 Land Cover Types

Sacramento River Mitigation Site

The proposed Sacramento River Mitigation Site (SRMS) was not analyzed in the 2016 ARCF GRR FEIS/EIR. The site is composed of a large flat basin with herbaceous cover in the northern half almost completely dominated by non-native perennial pepperweed (*Lepidium latifolium*). Stands of various riparian trees and shrubs, such as sandbar willow, red willow (*Salix laevigata*), coyote brush (*Baccharis pilularis*), Fremont cottonwood, black locust (*Robinia pseudoacacia*), blue elderberry (*Sambucus nigra* ssp. *cerulea*), and northern California black walnut (*Juglans hindsii*) are also present, particularly in the eastern portion of the site and around the levee perimeter. Vegetation cover is shown in Figure 4.1-5. Cattle grazing is evident throughout the site; however, the site has predominantly remained undisturbed for over 20 years (Coast Ridge Ecology 2021). The shoreline is vegetated with native and nonnative aquatic and terrestrial species. Some areas have steep banks while others have gentler slopes with sand bars stretching away from the point. The site is surrounded by water on three sides, it is at the confluence of the Sacramento River, Cache Slough, and Steamboat Slough, and has been used as a Dredged Material Placement Site (DPMS) since the 1940's and currently managed by USACE. Work here would occur both above and below the OHWM of these waterways as well as potential seasonal wetlands. Wildlife observed onsite was primarily birds; however, the site could provide habitat for rodents, reptiles, and large mammals such as deer or coyote.






Magpie Creek Project Improvements

The MCP footprint has four major land cover types: herbaceous, urban, fallow, and riparian forest/scrub, as illustrated in Figure 4.1-6. Wetlands within and adjacent to portions of the project footprint are shown in Figures 4.1-7 and 4.1-8. A sample of the plant species present at this site are Fremont cottonwoods and Goodding's black willow trees, as well as cocklebur (*Xanthium* spp.), iris leaved rush (*Juncus xiphioides*), slender popcorn flower (*Plagiobothrys tenellus*), bulrush (*Schoenoplectus* spp.), blackberry (*Rubus* spp.), and curly dock (ICF 2018). This site is in the floodplain of Magpie Creek and consists of vacant land, a portion of which was formerly in rice production. It has historically been disked and mowed and there is evidence of off-road vehicle use and illegal dumping. Land uses in the surrounding area are primarily light industrial, with some areas of rural residences. The flora of the project area is typical of "old field" sites in the Sacramento Valley. These sites have been historically disturbed by agriculture or other activities, and most of the vegetation cover consists of nonnative species. Based on field surveys conducted in 2018, 58 percent of the plant taxa documented onsite are nonnative (ICF 2018). This site would have impacts to seasonal wetlands and vernal pools/swales as well as Magpie Creek. Wildlife found in the area include wetland and upland invertebrates, rodents, snakes, rabbits, hares, domestic cats, and native and nonnative resident and migratory birds.



Sacramento River Mitigation

Updated 10/25/2023

- | | |
|--|--|
|  Grand Island Study Area |  Open Water |
|  Riparian Forest |  Wetland |
|  Ruderal Herbaceous/Grassland | |

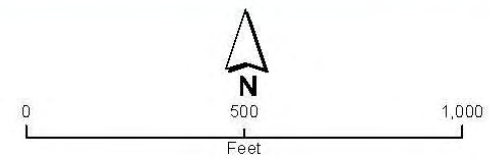
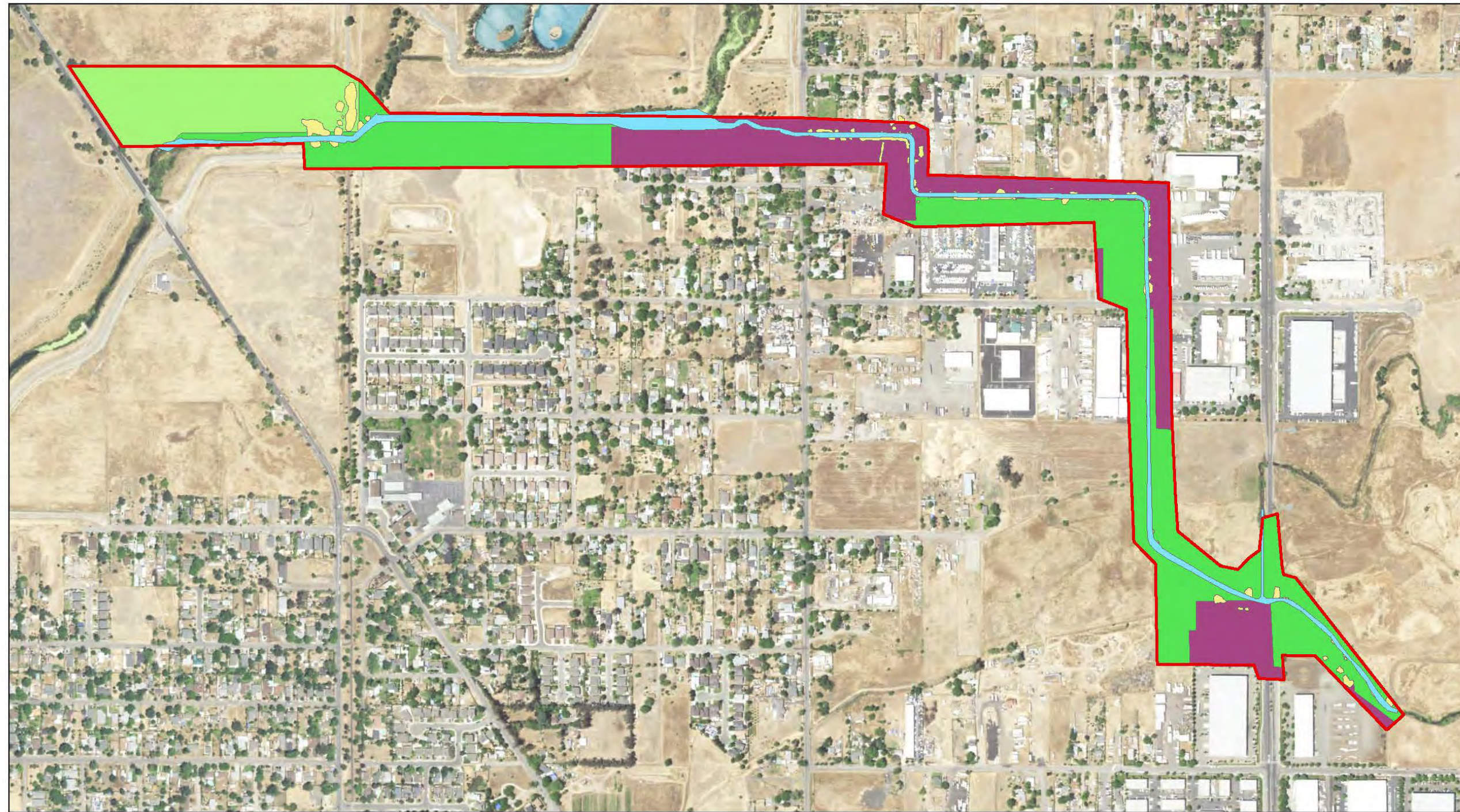


Figure 4.1-5. Sacramento River Mitigation Site Land Cover Types



Magpie Creek Project

Updated 9/21/2023

- Project Footprint
- Agricultural
- Riverine/Open Water
- Ruderal Herbaceous/Grassland
- Urban/Developed
- Valley Foothill Riparian

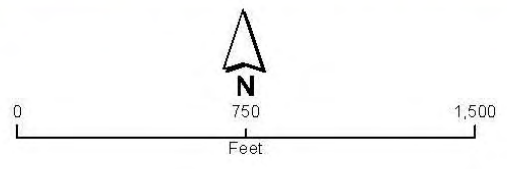


Figure 4.1-6. Magpie Creek Project Improvements Land Cover Types

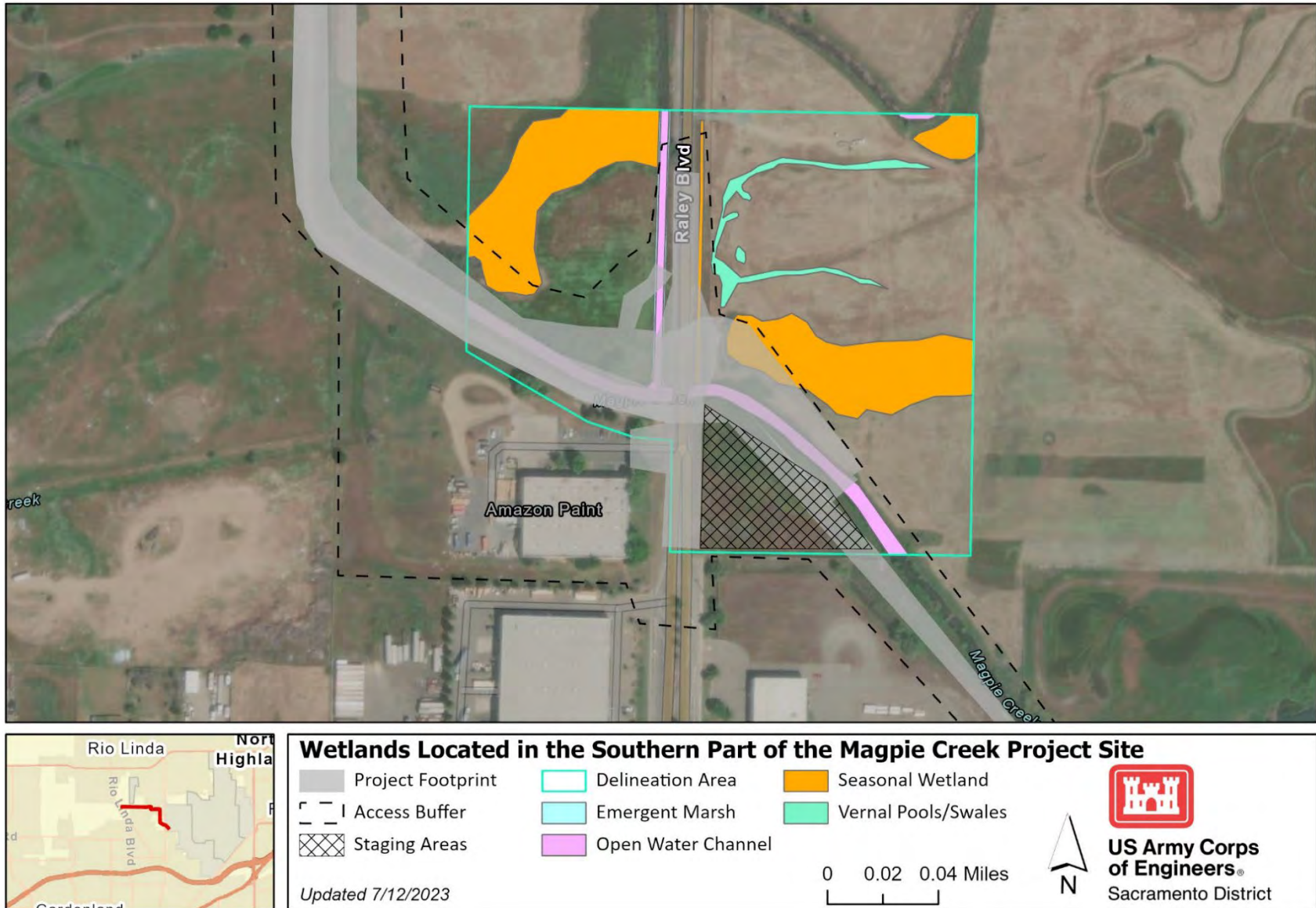


Figure 4.1-7. Wetlands within the Southern Part of the Magpie Creek Project Improvements Area

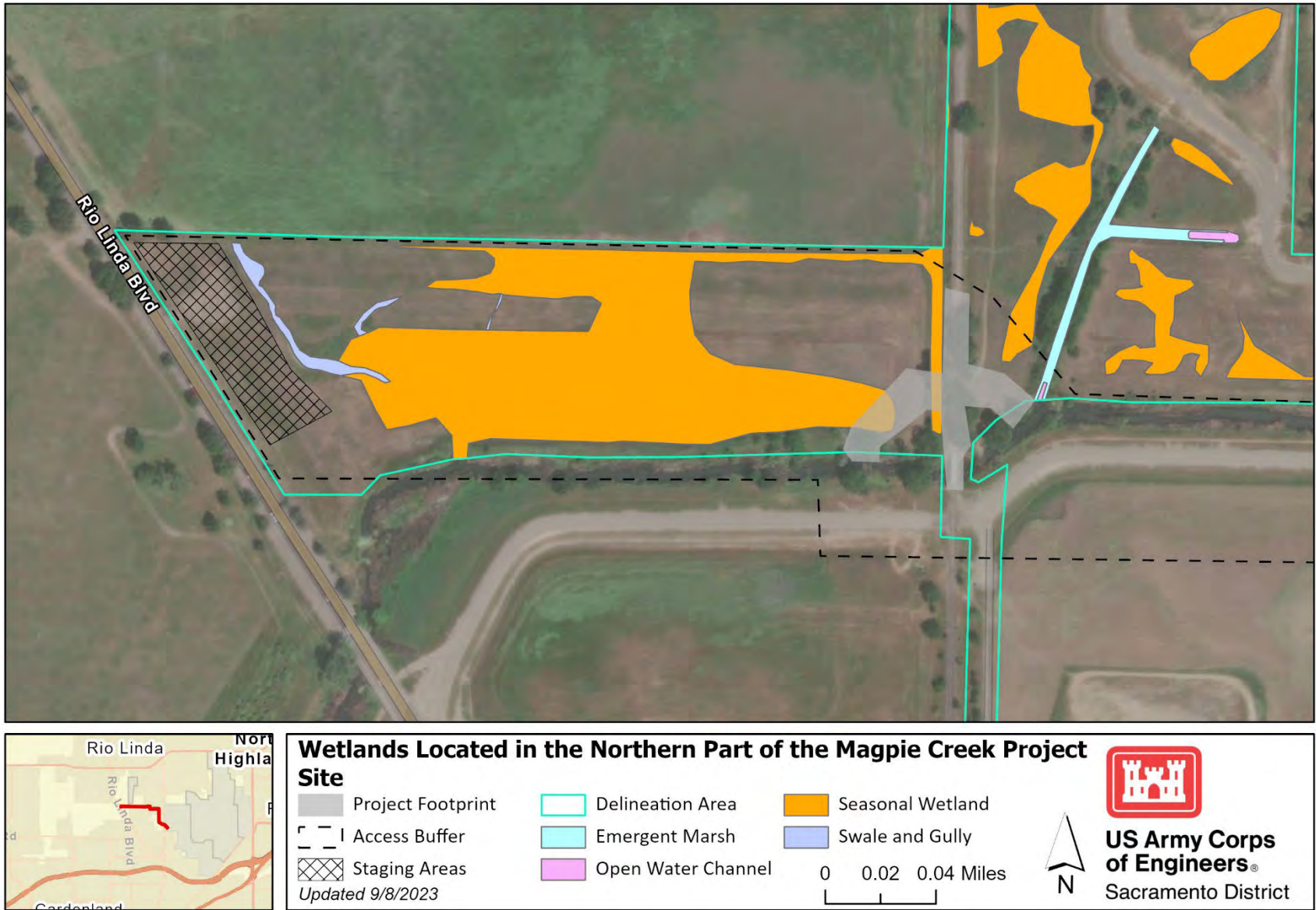


Figure 4.1-8. Wetlands within the Northern Part of the Magpie Creek Project Improvements Area

Alternative 5b – Watermark Farms

The Watermark Farms site is primarily composed of large agricultural parcels with an existing levee and road on the eastern side. Fields that range from fallow with ruderal vegetation to actively cultivated row crops occur on most of the site. The site is surrounded by farmland, the Sacramento River, and a Yolo County facility with its own ring levee. The agricultural land on the landward side of the existing levee gently slopes away from the Sacramento River, and another levee bounds the site on the western side. Tree species present in this area include northern California black walnut, clusters of tree-of-heaven (*Ailanthus altissima*), one single and one cluster of black locust, box elder, and English walnut (*Juglans regia*). Tree-of-heaven and black locust are invasive species. The landside levee slope supports predominantly valley oaks with a nonnative annual grassland understory, and one or more blue elderberry cluster. The waterside levee slope is mostly unvegetated, with a few small trees and some valley oaks, nonnative annual grasses, and gravel from the top of slope to about mid-slope in one area and riprap in another. Vegetation in the waterside riparian zone includes small trees, primarily valley oak and western sycamore (*Platanus racemosa*), with a nonnative grassland understory. A network of farm roads and agricultural drains are present within the interior of the site. An agricultural drain located south of the site connects to a freshwater marsh within the site boundary. The project would impact both above and below the OHWM of the Sacramento River as well as agricultural drainages and seasonal wetlands. Wildlife that can be found along the Sacramento River are deer, coyote, native and migratory birds, opossum, woodrat, ground squirrel and reptiles.

Habitat Descriptions

The existing conditions described in Section 3.6, “Vegetation and Wildlife,” of the ARCF GRR FEIS/EIR is applicable to the resources found within the project site. The ARCF GRR FEIS/EIR used a slightly modified version of the California Wildlife Habitat Relationship System (Mayer and Laudenslayer, Jr. 1988) and includes descriptions of the following habitats: valley foothill riparian forest, oak woodland, ruderal herbaceous, wetland, and SRA habitat. Riverine/open water and agricultural habitat descriptions have been added and all habitats are described below. Table 4.1-1 provides a crosswalk between CWHR and Manual of California Vegetation Alliance natural community types.

Table 4.1-1. Crosswalk table of natural communities from California Wildlife Habitat Relationship (CWHR) System to Manual of California Vegetation Alliance.

Natural Community	CWHR	Manual of California Vegetation Alliance
Annual grassland	Annual grassland	Annual brome grassland
Annual grassland	Annual grassland	Yellow star-thistle fields
Annual grassland	Annual grassland	California annual grasslands
Annual grassland	Annual grassland	Western ragweed meadow
Annual grassland	Annual grassland	Wild oats grassland
Annual grassland	Annual grassland	Poison hemlock or fennel patch
Oak woodland	Coastal oak woodland	Coast live oak woodland
Oak woodland	Valley oak woodland	Valley oak woodland
Oak woodland	Valley oak woodland	Hind’s walnut and related stand
Oak woodland	Montane hardwood	Interior live oak woodland

Natural Community	CWHR	Manual of California Vegetation Alliance
Upland scrub	Coastal scrub	Coyote brush scrub
Upland scrub	Valley foothill riparian	California rose briar patch
Upland scrub	Valley foothill riparian	Coastal bramble
Upland scrub	Valley foothill riparian	Blue elderberry stand
Non-native woodland	Eucalyptus	Eucalyptus–tree of heaven–black locust grove
Riparian woodland	Valley foothill riparian	Fremont cottonwood forest
Riparian woodland	Valley foothill riparian	Box-elder forest
Riparian woodland	Valley foothill riparian	Red willow thicket
Riparian woodland	Valley foothill riparian	Black willow thicket
Riparian woodland	Valley foothill riparian	White alder grove
Riparian woodland	Valley foothill riparian	Valley oak woodland
Riparian woodland	Valley foothill riparian	California sycamore woodland
Riparian woodland	Valley foothill riparian	Oregon ash grove
Riparian scrub	Valley foothill riparian	Sandbar willow thicket
Riparian scrub	Valley foothill riparian	Arroyo willow thicket
Riparian scrub	Valley foothill riparian	Pacific willow thicket
Riparian scrub	Valley foothill riparian	Button willow thicket
Riparian scrub	Valley foothill riparian	Blue elderberry stand
Riparian scrub	Valley foothill riparian	California rose briar patch
Emergent Wetland	Fresh Emergent Wetland	Tule-cattail
Emergent Wetland	Fresh Emergent Wetland	Non-native/invasive forb
Emergent Wetland	Fresh Emergent Wetland	Water hyacinth wetlands

The acreage of existing habitats at each project site are summarized in Table 4.1-2.

Table 4.1-2: Existing Habitats and Land Cover Types (acres)

Item	American River Erosion Contract 3B and 4B	American River Erosion Contract 4A	ARMS	Sacramento River Erosion Contract 3	SRMS	MCP
Vernal Pools	-	-	-	-	-	0.22
Riparian Forest/Scrub	51.32	65.23	14.53	5.04	46.37	-
Oak Woodland	-	-	-	-	45.0	2.60
Rural Herbaceous/ Grassland	71.18	99.51	44.9	1.31	2.80	37.43
Wetlands	-	18.95	2.5	-	47.34	2.4
Riverine/Open Water	12.07	4.02	55.4	20.7	-	-
Agricultural	-	-	-	-	7.67	13.02
TOTAL	134.57	187.71	99.74	27.05	149.18	55.67

AR C3B – Riparian Forest/Scrub composed of Native and Nonnative scrub and woodland. LAR C4A – Riparian Forest/Scrub composed of Native and nonnative scrub and woodland. ARMS - Riparian Forest/Scrub and Oak Woodland is composed of Native and nonnative scrub and woodland. SRE C3 – Riparian Forest/Scrub is composed of Fremont cottonwood forest, sandbar willow thicket, and valley oak woodland. SRMS – Riparian Forest/Scrub is composed of Hardwood Woodland and Scrub. Totals are Estimates.

Valley Foothill Riparian

Most valley foothill riparian habitat in the study area (hereafter referred to as “riparian habitat”) occurs along the American and Sacramento Rivers. The overstory of the riparian habitat consists of mature, well-established trees: Fremont cottonwood, valley oak, Goodding’s willow, and box elder. Though less common in this area, Oregon ash (*Fraxinus latifolia*), western sycamore, and white alder (*Alnus rhombifolia*) are also observed. The shrub layer consists of smaller trees and shrubs; representative species observed were poison oak (*Toxicodendron diversilobum*), sandbar willow, and Himalayan blackberry. Elderberry shrubs, the host plant of the valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), which is Federally listed as threatened, were observed in the riparian habitat along the American and Sacramento Rivers. Riparian habitat is considered to be a sensitive habitat by CDFW. In the vegetation maps (Figures 4.1-1 to 4.1-6), riparian habitat is referred to as hardwood, native and non-native woodland, native and non-native scrub, and riparian forest, depending on the vegetation classifications used by the vegetation field survey team.

Wildlife inhabiting the project area are dependent upon the trees associated with riparian habitats for vegetation diversity; microclimate conditions; and the availability of water, food, and cover. Several species of raptors, including Swainson’s hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper’s hawk (*Accipiter cooperii*), and great horned owl (*Bubo virginianus*), build their nests in the crowns of cottonwood, valley oak, and other large trees that currently exist on both the landside and waterside of the Sacramento and American River levees within the project area. Natural cavities and woodpecker holes provide nesting sites for cavity-nesting species, including wood duck (*Aix sponsa*), common merganser (*Mergus merganser*), American kestrel (*Falco sparverius*), tree swallow (*Tachycineta bicolor*), and western screech owl (*Megascops kennicottii*).

Due to the urban development adjacent to the levees in the project area, wildlife is limited primarily to small mammals and various avian species, especially those species that are adapted to human disturbance. Additionally, several Federally listed species are reliant on riparian corridors, including VELB and the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

Riparian Scrub

Riparian scrub is a sub-category of valley foothill riparian in this analysis. It supports large numbers of insects and attracts passerines, including several species of warblers and hummingbirds. Riparian scrub is typically associated with the toe of levees and along the banks of rivers and streams and other drainages in the program study area. This land cover type is distinguished from riparian forest by the dominance of shrubs and smaller trees (i.e., less than 20 feet tall), particularly willows, and it lacks a well-developed overstory of tall trees. Dominant species are frequently arroyo willow (*Salix lasiolepis*), Goodding’s black willow, and sandbar willow. Other species commonly observed in riparian scrub are California buttonbush (*Cephalantus occidentalis*), California wild rose, California blackberry (*Rubus ursinus*), Himalayan blackberry, and blue elderberry.

Shaded Riverine Aquatic

SRA habitat was a distinct habitat type described in section 3.6 “Vegetation and Wildlife” in the 2016 ARCF GRR FEIS/EIR. SRA is included as a sub-category of valley foothill riparian in this analysis because it includes features from both the riverine and riparian zones. SRA occurs throughout the study area as the transition between the riverine/open water habitat described below and the adjacent upland habitats. SRA is defined as the nearshore aquatic area occurring at the interface between a river and adjacent woody riparian habitat. The principal attributes of this valuable cover type include: (1) the adjacent bank being composed of natural, eroding substrates supporting riparian vegetation that either overhangs or protrudes into the water; and (2) the water containing variable amounts of woody debris, such as leaves, logs, branches, and roots, as well as variable depths, velocities, and currents.

SRA provides foraging and refuge habitat for great blue herons (*Ardea herodias*) and snowy egrets (*Egretta thula*), a variety of amphibians and juvenile fishes. The slower water is often shallower providing protection from predators below and the vegetation provides shade and refuge keeping the waters cooler and creating camouflage.

Oak Woodland

Valley oak woodland is dominated by valley oak, interior live oak (*Quercus wislizeni*), box elder, white alder, Oregon ash, and black walnut. Shrubs in this habitat type include California grape, Himalayan blackberry, coyote brush, and blue elderberry. Oak woodlands are typically found on higher or upland portions of the study area than the riparian habitat discussed above. Oak woodland is considered to be a sensitive habitat by CDFW.

Oak woodland supports a variety of wildlife, including acorn woodpeckers (*Melanerpes formicivorus*) that use the habitat for almost all their life requirements, wild turkey (*Meleagris gallopavo*) that forage in the understory, and mule deer (*Odocoileus hemionus*) that use the habitat as full-time home and migratory corridors.

Ruderal Herbaceous/Grassland

The ruderal herbaceous habitat type consists primarily of non-native annual grasses. Within the study area, this habitat type is typically found on and around the levee slopes and anticipated staging areas, borrow sites, and disposal sites. The largest extent of non-native annual grassland occurs at the combined American River sites; it is also the dominant habitat at the SRMS. The non-native annual grassland is dominated by naturalized annual grasses with intermixed perennial and annual forbs. Grasses commonly observed in the study area are foxtail barley (*Hordeum murinum* ssp. *Leporinum*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), and soft chess (*Bromus hordeaceus*). Other grasses observed include wild oats (*Avena* spp.), Bermuda grass (*Cynodon dactylon*), and rattail fescue (*Vulpia myuros* var. *myuros*). Forbs commonly observed in annual grasslands in the study area are yellow star-thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), bristly ox-tongue (*Picris echioides*), and sweet fennel (*Foeniculum vulgare*). Other forbs observed are perennial pepperweed, Italian thistle (*Carduus pycnocephalus*), horseweed (*Conyza canadensis*), black mustard (*Brassica nigra*), and fireweed (*Epilobium brachycarpum*). In the vegetation maps (Figures 4.1-1 to 4.1-6),

ruderal herbaceous habitat is identified as native and non-native herbaceous and grassland habitats.

Ruderal herbaceous and grassland habitats support unique food webs that thrive in California's grasslands. For example, numerous insects feed species such as California vole (*Microtus californicus*) and gopher snakes (*Pituophis catenifer*) that are prey for white-tailed kite (*Elanus leucurus*) and red-tailed hawk.

Wetland

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979). There are many types of wetlands. The most common types within the project area are seasonal wetlands, areas that meet the three criteria above; vernal pools, a special status habitat that is a type of seasonal wetland; fringe wetlands that occur along the edge of open water or riverine; and forested wetlands which are seasonally wet areas with primary vegetation of woody trees. Within the study area, wetlands also include features such as drainage ditches and farm canals, and open water habitat such as rivers and creeks. Wetlands and vernal pools are considered sensitive habitats under CEQA.

Representative species observed in seasonal wetlands include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass, water pepper (*Persicaria hydropiperoides*), and alkali mallow (*Malvella leprosa*). Wetlands in the study area represent potentially jurisdictional waters of the United States that may be subject to regulation under Clean Water Act (CWA) Section 404 and waters of the State that may be subject to regulation under CWA section 401 or the Porter-Cologne Water Quality Control Act. Prior to construction, wetland delineations would be conducted at locations of potentially jurisdictional wetlands within the project sites to confirm the presence of these sensitive habitats.

Wetlands provide habitat for crustaceans such as fairy shrimp (*Anostraca*) and seasonal water sources for ducks, and geese. Unlike the ducks, the fairy shrimp spend their entire life cycle relying on the seasonal waters, unable to relocate if the local environment becomes disturbed or eliminated. Many migratory waterfowl use seasonal wetlands as a place to find food and rest before continuing their migrations.

Riverine/Open Water

Riverine/open water habitat consists of inundated areas such as rivers, creeks, and ponds, including the American River, Sacramento River, and Magpie Creek. Many bird species use riverine and open waters for resting, foraging, and escape cover. Common species include gulls, waterfowl, and osprey (*Pandion haliaetus*). Shorelines provide hunting grounds for wading birds such as herons and egrets, and for kingfisher, waterfowl, and shorebirds. Flycatchers, swallows, and other insectivorous birds catch their prey over water. Mammal species that occur in this habitat type include river otter (*Lontra canadensis*) and beaver (*Castor canadensis*). Instream

woody structure along the shoreline of riverine habitat provides perching habitat for bird species such as black phoebe (*Sayornis nigricans*) and resting or basking habitat for other species (e.g., western pond turtle [*Actinemys marmorata*] and river otter).

Agricultural

Agricultural lands occur at the outer boundary of the MCP and SRMS, landside of levees. These lands include orchards, vineyards, row and field crops (e.g., sweet corn, tomatoes, alfalfa), and pasturelands. Pasturelands typically contain a variety of native and nonnative grasses and forbs such as tall fescue (*Festuca arundinaceae*), white clover (*Trifolium repens*), dallis grass (*Paspalum dilatatum*), and chicory (*Chichorium intybus*). Agricultural fields provide similar habitat to that of grasslands for wildlife but typically support lower species diversity.

Nonnative Invasive Species

Section 3.6, “Vegetation and Wildlife,” of the ARCF GRR FEIS/EIR describes invasive non-native plant species. Areas dominated by non-native vegetation include abandoned, fallow, and active agricultural fields; borrow and staging areas; dredger mine tailings; levee slopes; previous construction sites; and areas subject to fire, frequent flood inundation, or scour. Invasive plants have also naturalized in nearby riparian, woodland, grassland, and agricultural plant communities. The California Invasive Plant Council inventory is updated to identify nonnative, invasive and noxious plant species of concern.

Page 113 of the ARCF GRR FEIS/EIR states:

“These invasive species typically outcompete native plant species and must be controlled aggressively including mitigation and restoration areas. Since 2001, Sacramento County and SAFCA have collaborated on invasive plant management planning efforts, which have guided local efforts towards eradication of all populations of giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), French broom (*Genista monspessulana*), Scotch broom (*Cytisus scoparius*), Pampas grass (*Cortaderia selloana*), red sesbania (*Sesbania punicea*), Chinese tallow tree (*Triadica sebifera*), oleander (*Nerium oleander*), and pyracantha (*Pyracantha* spp.).”

Sensitive Natural Habitats

Sensitive natural plant communities are vegetation cover types that are especially diverse, regionally uncommon, or of special concern to local, state, and federal agencies. Waters of the United States (riverine, wetlands and vernal pools), riparian habitat, and mixed-oak communities qualify as sensitive natural communities, while the riparian herbaceous community generally does not (CDFW 2022).

4.1.2 Applicable Laws, Regulations, Policies, and Plans

Federal

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires an agency to consult with USFWS if the agency plans to conduct, license, or permit an activity involving the impoundment, diversion, deepening,

control, or modification of a stream or body of water. The Act also requires consultation with the head of the state agency that administers wildlife resources in the affected state. The purpose of this process is to promote conservation of wildlife resources by preventing loss of and damage to such resources and to provide for the development and improvement of wildlife resources in connection with the agency action. USFWS prepared a Fish and Wildlife Coordination Act report for the ARCF 2016 Project (USFWS 2015), and recommendations from the Coordination Act Report have been incorporated into project design and mitigation measures.

Federal Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act applies to the parts of the Proposed Action along the American River, specifically all construction work and some staging associated with American River scour and erosion work and Contract 3B, Contract 4A, and the ARMS.

The Wild and Scenic Rivers Act (16 USC 1217 et seq.) was enacted to preserve selected rivers or sections of rivers in their free-flowing condition to protect the quality of river waters and to fulfill other national conservation purposes. The Lower American River, below Nimbus Dam, has been included in the Federal Wild and Scenic Rivers system since 1981 and was designated for its outstanding fisheries and recreational value. The American River Parkway Plan is the management plan for the Wild and Scenic Rivers Act. The policies of the American River Parkway Plan require that flood management agencies maintain and improve the existing flood control system and manage vegetation in the Parkway to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood risk reduction.

Migratory Bird Treaty Act of 1918 (16 U.S.C. § 703, et seq.)

The Migratory Bird Treaty Act (MBTA) implements a series of international treaties (U.S., Canada, Japan, Mexico, and Russia) that provide for migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird” (16 USC § 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 (50 CFR 10.13) 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. Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is in compliance with the MBTA. Generally, all survey-detected, nesting birds would be avoided with the species-appropriate buffer during construction.

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

The CWA is the primary Federal law governing water pollution. It established the basic structure for regulating discharges of pollutants into waters of the United States and gives the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs. In California, the USEPA has delegated authority to regulate the CWA to state agencies such as the Central Valley Regional Water Quality Control Board (CVRWQCB) and State Water Resources Control Board (SWRCB). Section 401 of the CWA regulates the water

quality for any activity that may result in any in-water work or discharge into navigable waters. These actions must not violate Federal water quality standards. The CVRWQCB administers Section 401 of the CWA in California, and either issues or denies water quality certifications. Water quality certifications typically include project-specific requirements to ensure attainment of water quality standards. USACE obtained a Programmatic CWA 401 water quality certification (Order No. 5A34CR00819) on July 13, 2021, for the ARCF project. Each individual project will request coverage under this overall permit and this permit will expire July 12, 2026.

Section 404 of the CWA requires that a permit be obtained from USACE when an action would result in the discharge of dredged or fill material into wetlands and waters of the United States. The 404(b)(1) guidelines specify that “no discharge of dredged or fill material shall be permitted if there is a practical alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences” (40 C.F.R. § 230.10[a]). When conducting its own civil works projects, USACE does not issue permits to itself. Rather, USACE complies with the guidelines and substantive requirements of the CWA, including Section 404 and Section 401. The Proposed Action would require discharge of fill material into waters of the United States, therefore a Section 404(b)(1) analysis will be conducted on the project’s alternatives and included in the Final SEIS/SEIR. The discharge of fill material would comply with the 404(b)(1) guidelines with the inclusion of appropriate measures to minimize pollution or adverse effects on the aquatic ecosystem.

Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d)

The Bald and Golden Eagle Protection Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of eagles, including their parts (feathers), nests or eggs. USFWS adopted new amendments to policies regarding implications of the Bald and Golden Eagle Protection Act; however, these changes do not substantially change the application of NEPA to proposed plan (USFWS 2019). Mitigation Measures VEG-1, VEG-2, and BIRD-1 would ensure the Proposed Action is in compliance.

Executive Order 13112: Invasive Species Regulation

EO 13112, issued in 1999, 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.

USACE Invasive Species Policy, dated February 2023.

This policy requires that civil works projects will include measures to either prevent or reduce the establishment of invasive and non-native species. O&M will include strategies for invasive species management. Efforts require continuous collaboration across USACE and with Federal, Tribal, State, and local governments, non-government organizations, and partners. Executive Order 13751 directs action to continue coordinated Federal prevention and control efforts of invasive species. Section 7001(b)(20) of the Fish and wildlife Coordination Act call for increased

coordination across agencies and stakeholders. The Aquatic Plant Control Program (33 U.S.C. 610) supports prevention, early detection, monitoring, and research to reduce the impact of invasive species across Civil Works Programs.

State

State Wild and Scenic Rivers Act (PRC Section 5093.50-5093.70)

The California legislature passed the State Wild and Scenic Rivers Act in 1972 (PRC Section 5093.50-5093.70). The legislature said that it was the State's intent that "certain rivers which possess extraordinary scenic, recreation, fisheries, or wildlife values shall be preserved in their free-flowing state, together with their immediate environment, for the benefit and enjoyment of the people of the State." The 23-mile portion of the American River that extends from below Nimbus Dam to the confluence with the Sacramento River has been designated as a Wild and Scenic River for its recreational uses under both the State and Federal Wild and Scenic Rivers Acts. Additionally, the American River Parkway's recreational uses are designated as an outstanding remarkable value of the river under the Federal Wild and Scenic Rivers Act. In 2008, the County of Sacramento finalized the American River Parkway Plan to provide a guide to land use decisions affecting the Parkway and specifically addressing the Parkway's preservation, use, development, and administration. The Parkway Plan acts as the management plan for the Federal and State Wild and Scenic Rivers Acts.

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations. Mitigation Measure PLANT-1: 'Implement Measures to Protect Special-Status Plants' would ensure compliance with this law.

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act requires each of the state's nine regional water quality control boards (RWQCBs) to prepare and periodically update basin plans for water quality control. The jurisdiction of each RWQCB 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. The Proposed Action would comply with this law concurrently with Section 401 of the CWA by obtaining a Water Quality Certification.

California Fish and Game Code

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.

Section 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory nongame bird, as designated in the Federal MBTA (16 USC 703 et seq.) before January 1, 2017; any additional migratory nongame bird designated in the MBTA after that date; or any part of a migratory nongame bird described in Fish and Game Code Section 3513, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA, unless those rules or regulations are inconsistent with the Fish and Game Code.

Local

American River Natural Resource Management Plan

The Sacramento County Board of Supervisors approved the American River Parkway Natural Resources Management Plan (NRMP) on February 28, 2023. “The NRMP was prepared as a guidance document for management of the natural resources of the American River Parkway. The NRMP is framed by and supplements the American River Parkway Plan (ARPP), which is the state and federal Wild and Scenic River management plan, to ensure that the American River Parkway’s (Parkway) resources, its environmental quality and natural values are protected. The NRMP management activities represent a coordinated and cooperative effort that incorporates feedback from local stakeholders and agencies with jurisdiction within the Parkway” (Sacramento County 2023).

Sacramento County General Plan of 2005 to 2030, Conservation Element

In 2016 Policy CO-105a was added: “Encourage flood management designs that respect the natural topography and vegetation of waterways while retaining flow and functional integrity.”

The General Plan is a set of goals, objectives, policies, implementation measures and maps that form a blueprint for physical development in the unincorporated County. The plan addresses important community issues such as new growth, housing needs and environmental protection. Policies are instrumental in planning infrastructure to accommodate future growth. The State mandates that the County’s General Plan include a Conservation Element which will enable the County to analyze its resources and determine policies for their use and conservation (Sacramento County 2017).

4.1.3 Analysis of Environmental Effects

Analysis Methodology

Impacts to vegetation and wildlife within the project area are evaluated based on data collected during surveys conducted from 2011 to 2023, Google Earth, USFWS’s Information for Planning and Consultation (IpaC), California Department of Fish and Wildlife’s (CDFW) California Natural Diversity Database (CNDDDB) and Vegetation Classification and Mapping Program (VegCAMP), and the American River Parkway Plan. These resources provide a comprehensive overview of the vegetation that exists within the project area and were used to evaluate the impacts of the Proposed Action and project alternatives. The goals and objectives of the ARPP and associated NRMP were also considered for the impact analysis, and how implementing the Proposed Action would impact those goals and objectives.

Impacts to wildlife were evaluated based on construction activities and changes in habitat types after construction of the project. Table 4.1-3 presents habitat impact acreages of the CEQA Proposed Action in comparison to what is stated in the ARCF GRR FEIS/EIR and Table 4.1-4 presents habitat impact acreages of the NEPA Design Refinements in comparison to what is stated in the ARCF GRR FEIS/EIR. These acreages were estimated by overlaying the footprint of anticipated project components onto aerial photographs or land use polygons and calculating the habitat within the footprint.

USACE continues to refine project designs with the aim of reducing impacts. Prior to the start of construction, the final impact extents would be used to refine the mitigation requirements and designs. Additional coordination with the resource agencies would occur at this time, if necessary.

The 2016 ARCF GRR FEIS/EIR project description stated that USACE would receive a design deviation (formally known as vegetation variance) from addressing waterside vegetation under the requirement of ETL 1110-2-583. The vegetation free zone is a three-dimensional corridor surrounding all federal flood protection projects that must be kept accessible to ensure adequate maintenance, monitoring, and flood fighting. The current understanding is if vegetation is to remain in the vegetation free zone, then a design deviation would be required. Vegetation on the levee slopes, within the vegetation free zone, outside of the construction footprints is not being addressed by Sacramento River Erosion Contract 3 or Lower American River Erosion Contract 3A and 4A. However, it is covered in a system wide improvement framework (SWIF) which allows vegetation in the vegetation free zone, not impacted by ARCF, to be addressed by the LMA through standard operation and maintenance actions over time.

Table 4.1-3: CEQA Vegetation Impacts for ARCF GRR SEIS – Proposed Action

Location	Valley Foothill Riparian (acres)	Oak Woodland (acres)	Ruderal Herbaceous/Grassland (acres)	Wetland (acres)	Riverine/Open Water (acres)	Agricultural (acres)	Urban/Developed (acres)
American River Erosion Contract 3b	30.29	-	19.34	-	11.89	-	10.56 Ditch: 0.19
American River Erosion Contract 4A – Proposed Action	7.95	-	6.70	Forested Wetland: 0.60	-	-	3.70
American River Erosion Contract 4A – Alt 3a	0.41	-	-	-	-	-	0.54
American River Erosion Contract 4A – Alt 3b	5.88	-	6.87	Forested Wetland: 0.60	-	-	3.16
American River Erosion Contract 4A – Alt 3c	Parkway detour: 15.63 Street detour: 2.95	-	Parkway detour: 17.40 Street detour: 2.10	Forested Wetland: Parkway detour: 1.02 Street detour: 0.98	Parkway detour: 0.23	-	Parkway detour: 4.56 Street detour: 3.86
American River Erosion Contract 4A – Alt 3d	14.10	-	16.80	Forested Wetland: 0.47	0.23	-	3.86
American River Erosion Contract 4B – Tree Scour	1.58	-	0.26	-	-	-	0.14 Ditch: 0.19
Sacramento River Erosion Contract 3	4.68	-	0.23	-	20.70	-	-
MCP	-	2.60	10.67	0.41	-	0.35	6.35
ARMS	14.53	-	44.9	2.5	55.4	-	7.8
SRMS	-	-	-	-	-	-	-

Note: ARMS and SRMS would emphasize restoration to native floodplain wetland and riparian habitats. It is anticipated that there would be a large net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023), resulting in a gain in aquatic resource area and functions. SRMS veg impacts will be determined after surveys are completed; values will be added to the table before the document is finalized.

Table 4.1-4: NEPA Vegetation Impacts for ARCF GRR SEIS – Proposed Action

Location	Valley Foothill Riparian (acres)	Oak Woodland (acres)	Ruderal Herbaceous/Grassland (acres)	Wetland (acres)	Riverine/Open Water (acres)	Agricultural (acres)	Urban/Developed (acres)
American River Erosion Contract 3b	4.94	-	8.58	-	5.33	-	3.50 Ditch: 0.19
American River Erosion Contract 4A – Proposed Action	7.95	-	6.70	Forested Wetland: 0.60	-	-	3.70
American River Erosion Contract 4A – Alt 3a	0.41	-	-	-	-	-	0.54
American River Erosion Contract 4A – Alt 3b	5.88	-	6.87	Forested Wetland: 0.60	-	-	3.16
American River Erosion Contract 4A – Alt 3c	Parkway detour: 15.63 Street detour: 2.95	-	Parkway detour: 17.40 Street detour: 2.10	Forested Wetland: Parkway detour: 1.02 Street detour: 0.98	Parkway detour: 0.23	-	Parkway detour: 4.56 Street detour: 3.86
American River Erosion Contract 4A – Alt 3d	14.10	-	16.80	Forested Wetland: 0.47	0.23	-	3.86
American River Erosion Contract 4B – Tree Scour	1.58	-	0.26	-	-	-	0.14 Ditch: 0.19
Sacramento River Erosion Contract 3	0.15	-	-	-	0.75	-	-
MCP	-	1.66	4.48	0.16	-	0.35	5.69
ARMS	14.53	-	44.9	2.5	55.4	-	7.8
SRMS	-	-	-	-	-	-	-

Note: ARMS and SRMS would emphasize restoration to native floodplain wetland and riparian habitats. It is anticipated that there would be a large net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023), resulting in a gain in aquatic resource area and functions. RMS veg impacts will be determined after surveys are completed, values will be added to the table before the document is finalized.

Scoping Comments

The public submitted comments during the public scoping period from October 7 to December 31, 2022. Most of the comments received expressed concerns related to mitigation. Water resources, mitigation, and monitoring comments were received from USEPA, Sacramento County Department of Regional Parks, Save the American River Association, and private individuals. Topics included: direct, indirect and cumulative impacts to surface and ground water; mitigation site selection, long-term and adaptive management of mitigation; habitat consistency in the parkway; compliance with the American River Parkway Plan and the NRMP; and alternate designs for ARMS to include a pond for recreation and migratory bird use. See Appendix B Section 2.4 “Land Use and Prime and Unique Farmland” for a discussion regarding the Proposed Action’s consistency with the American River Parkway Plan, as well as policies outlined in the American River Parkway Plan that apply to the Proposed Action. The American River Parkway Plan identifies the ARMS parcel as a site to be acquired and restored or enhanced to improve the fish and wildlife values, to accommodate historical and cultural activities, and to support recreation. The proposed mitigation will comply with applicable policies outlined in this document and will include enhancing the upland areas and utilizing the open water or a portion thereof for fishing and non-motorized boating. The retention of open water would continue to provide off-channel roosting and foraging habitat for migratory birds. Additional discussion on consideration of alternative designs is included in Sections 3.3, and 8.1.2 of the SEIS/SEIR. The Scoping Report is included as Appendix A.

Basis of Significance

The thresholds, and the impact analysis that follows, take into consideration the significance of an action in terms of the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). 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, as amended. The Proposed Action was determined to result in a significant impact related to vegetation and wildlife if it would do any of the following:

- a. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- b. Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community;
- c. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- d. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Effects Analysis

No Action Alternative

Under the No Action Alternative (see Section 3.4 for detailed description) only the components described in the ARCF GRR FEIS/EIR and supplement documents would be built. The American River and SRMS would not be built, and site conditions at those locations would remain as they are now. The ARMS would remain a man made pond. As a depleted mine site, the area is subject to State of California Surface Mining and Reclamation Act (SMARA). SMARA requires that former mines be “reclaimed to a usable condition which is readily adaptable for alternate land uses” (SMARA, Public Resources Code, Sections 2710-2796). Under SMARA, the site should be reclaimed to include the removal of hazards and hazardous materials, site contouring, and restoration (Sacramento County 2008). In addition, the SRMS would remain an active Dredged Material Placement Site managed by USACE. However, USACE would still be required to mitigate for ARCF 2016 Project habitat impacts by other means, such as purchasing mitigation bank credits or constructing mitigation sites elsewhere.

Riparian

Under the ARCF GRR FEIS/EIR, approximately 65 acres of riparian habitat would be removed throughout the American River, 71 acres throughout the Sacramento River, and zero acres around Magpie Creek. The removal of riparian habitat would be mitigated in accordance with the CAR (or in accordance with the Section 7 ESA Biological Opinions if the area is also considered VELB habitat) by planting new riparian habitat onsite or at USFWS-approved mitigation sites.

Section 3.3.4 of the ARCF GRR FEIS/EIR states that the launchable rock trench measure would allow for the protection of the existing SRA habitat by constructing erosion protection measures against the waterside levee toe. This measure would require the removal of upland riparian scrub habitat and grasses close to the levee to construct the trench. However, this measure would also incorporate mitigative features through the installation of plantings on the surface of the trench. Once the vegetative features reach full growth, the rock trenches would provide a natural appearance to the site and the affected habitat values would be fully restored.

Oak Woodland

The analysis in the ARCF GRR FEIS/EIR determined that 2 acres of non-riparian oak woodland would be impacted. The impacted oak woodland would be mitigated in accordance with the CAR either onsite or offsite through habitat creation or through the purchase of agency-approved mitigation bank credits.

Ruderal Herbaceous

The analysis in the ARCF GRR FEIS/EIR determined that approximately 135 acres of ruderal herbaceous habitats would be impacted. Ruderal Herbaceous was defined as levees, patrol roads

and open lands with no trees. The disturbed areas would be returned to pre-project conditions to the maximum extent feasible. As a result, the impacts to these areas would be less than significant with mitigation.

Wetland

The analysis in the ARCF GRR FEIS/EIR determined that 0.40 acre of seasonal wetland and 0.25 acre of vernal pools would be impacted. Both aquatic resource types would be mitigated for in accordance with the CAR and CWA either onsite or offsite through habitat creation or through the purchase of agency-approved mitigation bank credits.

Shaded Riverine Aquatic

The analysis in the ARCF GRR FEIS/EIR determined that constructing new bank protection features would involve launchable rock trenches created by removing grasses, shrubby vegetation, riparian woodland, and instream woody material, resulting in the loss of 80,825 linear feet of SRA habitat, a key component of salmonid habitat. SRA is defined as the unique near-shore area, where the water meets the land; it includes over-hanging and aquatic vegetation. Therefore, SRA is no longer broken down into a separate habitat type and is incorporated into the riparian and riverine habitat types. The impacts to SRA habitat were addressed in the ESA Section 7 Biological Opinions and appropriate mitigation was identified.

Riverine/Open Water

The ARCF GRR FEIS/EIR did not evaluate riverine or open water; however, the impacts would be the same as those described in Alternative 2. The maintenance of the levees would result in discharge of fill material into the Sacramento River, American River, and Magpie Creek. Those impacts cannot be avoided with the fix-in-place nature of the project. Impacts would be mitigated for under section 401 and 404 of the CWA either with the purchase of bank credits or with the compensatory mitigation created on and off site.

Proposed Action

4.1-a. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

4.1-b. Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term Moderate effects that are Less than Significant with Mitigation Incorporated

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, American River Mitigation Site, Sacramento River

Erosion Contract 3, Sacramento River Mitigation Site, Magpie Creek Project, and Piezometer Network

CEQA Impact Conclusion 4.1-a and 4.1-b (Entire Proposed Action): Less Than Significant with Mitigation Incorporated.

The proposed action would not interfere substantially with the movement of native or migratory wildlife or use of nursery sites, nor would it substantially reduce a population or cause a threat to an entire plant or animal community. Vegetation removal at project sites where habitat would not be replaced onsite, would permanently reduce the amount of habitat available. However, because the project sites are located within larger corridors of similar habitat, this would not result in a substantial overall habitat reduction. Following project completion, a vegetation management plan consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan developed for the ARCF GRR FEIS/EIR and internal guidance would be developed and implemented in coordination with USFWS and NMFS. In addition, the Proposed Action would follow updated 2023 USACE Invasive Species Policy Guidance in fulfillment of Section 501 of WRDA 2020. Invasive plant species incursions would be controlled as early as possible to prevent wide-scale establishment and minimize control efforts such as pesticide usage. Implementing the vegetation management plan, which would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan developed for the 2016 ARCF GRR FEIS/EIR, would ensure that native riparian plantings installed within the planting benches are protected, managed, monitored, and maintained for a period of 3-5 years following installation and ensure that they are on an ecologically sustainable trajectory.

All project sites would require ongoing operations and maintenance (O&M). Routine O&M activities for levee features by the LMA would be similar to existing O&M practices, so any impacts associated with O&M would also be similar to existing conditions. O&M activities are anticipated to include but are not limited to inspections, weed abatement with mowers and weed whackers/trimmers, removal of encroachments and high-hazard vegetation to ensure levee integrity, replacement, and re-working of displaced or launched revetment following large flood events, and maintenance of adequate levee access along the levee toe road. O&M activities for the onsite and offsite mitigation features could vary from ongoing O&M practices but would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan developed for the 2016 ARCF GRR FEIS/EIR. These activities would be short term and would have a minor overall effect on habitat conditions and wildlife use.

None of the bank protection sites are anticipated to support wildlife nursery sites, but the onsite plantings would provide suitable habitat for nesting by a variety of native and migratory bird species. Vegetation removal and other construction activities could result in direct removal or disturbance of birds nesting near construction areas and potentially result in nest failure or reduced productivity. Depending on the number of nests affected, this could result in a temporary reduction in the local nesting population. It would not, however threaten the long-term survival of the population. Implementing Mitigation Measure BIRD-1: “Avoid and Minimize Effects on Nesting Birds”, which was adopted for the 2016 ARCF Project, would reduce the short-term impacts of project construction associated with Impact 4.1-b to the local nesting bird population to less than significant. Disturbance distance from the bald eagle at the ARMS would be enforced during nesting season with a biological monitor onsite if work is occurring within the

660-foot buffer. The nest tree would not be removed as part of the project. ARMS, once mature, would provide rearing habitat for juvenile salmonid and steelhead in the first 2 miles of the American River as well as multistory vegetation that could be used as nesting or stop over habitat for birds.

Construction activities could interfere with local movement of native resident or migratory wildlife species. Impacts associated with staging areas, borrow sites, disposal sites, and haul routes would be relatively minor because of the typical nature of these sites. Staging areas would be placed in areas to avoid sensitive native habitats, utilizing ruderal herbaceous habitat, landscaped areas, or developed land. Tree removal and trimming, minor grading, paving, and adding aggregate base could occur at staging areas and along haul routes. Staging areas and haul routes would be restored to pre-project conditions. This may include reseeding with native grasses and forbs, planting with native vegetation, or working with recreational agencies to determine which trees would be removed and replanted. Some access ramps would be retained to allow access for the maintaining agency. Disposal areas would be existing landfills with the appropriate licensing, as close to the project as possible. All permits or fees associated with their use would be the responsibility of the contractor. All borrow materials would be sourced from a commercial supplier or provided by the contractors.

Grading, other ground-disturbing activities and temporary fencing for public safety could temporarily disrupt wildlife movement but would not completely block movement pathways or migratory corridors. Most wildlife species are anticipated to continue to move to and through adjacent unaffected habitat away from active construction activities during construction. Effects of the project on access of these species to the affected habitat areas would be temporary and these species would be expected to return to areas affected by construction once such work is completed. Noise from construction of the Proposed Action could temporarily alter the foraging patterns of resident wildlife species but is not anticipated to substantially interfere with foraging.

Night work has the greatest potential to disrupt wildlife movement, because many species are most active at night when disturbance levels are lowest. Consecutive nights of construction activities with high levels of noise, lighting, and visual disturbance could have a substantial but temporary adverse effect on movement of some wildlife. Implementing Mitigation Measure VIS-2: “Minimize Disturbance to Wildlife from Nighttime Lighting”, which was previously adopted for the ARCF 2016 Project, would reduce Impact 4.1-a to less than significant.

The mitigation sites would disturb existing vegetation in the short term with construction activities, noise, human presence, vegetation removal, grubbing and grading of the landscape. However, once completed they would provide more habitat for migratory birds and higher functioning habitat for fisheries. Mature mitigation sites would connect habitat fragments, encourage additional food production, and overall add valuable habitat to a highly impacted migratory corridor. ARMS is currently operated as a sand and gravel business, so post project conditions would have less disturbance than the current use.

For the reasons discussed above, with implementation of Mitigation Measure VIS-2, impacts of the Proposed Action would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. With implementation of Mitigation

Measure BIRD-1, impacts of the Proposed Action would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. Therefore, Impact 4.1-a would be less than significant with Mitigation Measure VIS-2 incorporated and Impact 4.1-b would be less than significant with Mitigation Measure BIRD-1 incorporated.

NEPA Impact Conclusion 4.1-a (Design Refinements): Short-term to Medium-Term and Moderate effects that are Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion 4.1-b (Design Refinements): Short-term to Medium-Term and Moderate effects that are Less than Significant with Mitigation Incorporated.

The discussion of impacts on plant and wildlife communities and wildlife movement above under the CEQA impacts also applies to NEPA. There could be short-term significant impacts related to wildlife movement disturbance (Impact 4.1-a) and local nesting bird populations (Impact 4.1-b). Implementing Mitigation Measures VIS-2 and BIRD-1, which were previously adopted for the ARCF 2016 Project, would reduce these impacts to less than significant.

Mitigation Measure VIS-2: Minimize Disturbance to Wildlife from Nighttime Lighting

Please see Mitigation Measure VIS-2 in Appendix B, Section 3.1, “Aesthetics and Visual Resources,” for full text of this mitigation measure.

Timing: During nighttime construction

Responsibility: Project Partners

The potential short-term significant impacts related to wildlife disturbance during nightwork would be reduced to less than significant with implementation of Mitigation Measure VIS-2 because nighttime work and associated lighting would be minimized, and light would be shielded and have correlated color temperatures less impactful to wildlife.

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.

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

- Before on-site project activities begin, all construction personnel would participate in a worker environmental awareness program. A qualified biologist would inform all construction personnel about the life history of Swainson’s hawk and other nesting birds and the importance of nest sites.
- Tree and shrub removal and other clearing, grading, and construction activities that remove vegetation would not be conducted during the nesting season (generally February 15 to August 31, depending on the species and environmental conditions for any given year) to the maximum extent feasible.

- If vegetation removal would occur during the nesting season, surveys would be conducted to identify active bird nests and measures would be implemented to avoid and minimize impacts on active nests. For special-status species, a survey would also be conducted for active nests within 500 feet of construction activities. For all other migratory birds, the survey would cover active nests within 100 feet of construction activities. All surveys would be completed following the latest techniques and protocols. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removing or pruning trees and shrubs, the project can commence.
- For any active bird nest found, regardless of the season, a protective buffer would be established and implemented until the nest is no longer active. The size of the buffer would 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 would 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.
- For bald eagles, the typical maximum buffer distance between a bald eagle nest and construction activities is 660 feet (USFWS, 2007). If any bald eagle nests are discovered during the field surveys, regardless of whether a nest is classified as active, inactive/alternate, or abandoned, the Project will comply with the National Bald Eagle Management Guidelines.
- For bank swallows, if avoidance of bank swallow nests is not possible, design measures to minimize impacts, including reducing the construction footprint to protect the upper bank from encroachment, will be considered. If nesting habitat is directly impacted, mitigation could include removal of existing rock at a former bank protection site, acquisition of a permanent easement, or participation in a conservation easement on an appropriate landform.
- For purple martin and white-tailed kite, a survey would also be conducted for active nests within 500 feet of construction activities. These surveys could be conducted concurrent with Swainson's hawk surveys, so long as one survey is 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 removing or pruning trees and shrubs, the project can commence.

Timing: Before and during construction

Responsibility: Project Partners

The potential significant impacts related to loss of active bird nests would be reduced to less than significant with implementation of Mitigation Measure BIRD-1 because vegetation removal during the nesting season would be avoided to the extent feasible, surveys would be conducted to

identify active nests on and near the project sites and buffers would be implemented to minimize potential for nest disturbance.

4.1-c Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

CEQA Significance Conclusion: Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

NEPA Significance Conclusion: Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated.

American River Erosion Contract 3B North and South and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The Proposed Action would impact riparian vegetation, including SRA habitat. Riparian vegetation would be removed to construct the flood risk reduction features. Some waterside trees would be removed due to the topography and location of the erosion protection features. In addition, near the American River Erosion Contract 3B North and South sites, higher up on the levee in some spots, trees have been determined to be at risk for causing localized scour around the base of the tree. Under American River Erosion Contract 4B, trees would either be removed because they are at risk for causing erosion, are non-native, would prevent installation of erosion protection measures and/or could not survive the addition of erosion protection measures. If not removed, these trees would be armored to reduce the risk of erosion. During design, each tree would be assessed to determine if it can be saved without increasing levee erosion risk; trees would be left in place were determined feasible. To further reduce long-term riparian impacts, the design includes soil-filled planting benches incorporated into the rock revetment in areas where site conditions allow to riparian vegetation to be reestablished. In general, the launchable toe with planting bench would be used in place of the berms for bank protection described in the ARCF GRR FEIS/EIR. This design allows for soil placement, creating gradual slopes, and vegetation growth, resulting in riparian and SRA habitat. In addition, areas with bank protection would generally have soil-filled revetment to allow for vegetation to be replanted onsite. The launchable trench features would be buried to allow vegetation to be planted over the erosion protection features. Along the river margin at American River Erosion Contract 3B North and South, instream woody material (IWM) structures consisting of whole trees with intact rootwads would be installed to provide fine-textured woody material for juvenile salmonid rearing habitat.

Riparian woodland and riparian scrub would be removed from the erosion protection footprint. Riparian habitat would also be damaged and removed within construction access areas and haul routes. Estimated acreages of impacts can be found in Table 4.1-3. To date 33.14 acres of riparian habitat have been impacted by American River Erosion Contracts 1, 2, and 3A. The total riparian impact for completion of all American River Erosion contracts is anticipated to be 73

acres, which would be above the 65 acres of impact that was estimated in the ARCF GRR FEIS/EIR. The impact analysis presented in the ARCF GRR FEIS/EIR, which concluded there would be significant unavoidable impacts on vegetation and wildlife from project construction, is applicable to the level of impact expected from the CEQA Proposed Action.

The analysis in the ARCF GRR FEIS/EIR determined that even with waterside planting benches and retaining IWM to the extent practical, effects on sensitive natural communities, would remain because of the lag time between planting vegetation and maturing to a functionally equivalent point. Once the plantings become established, they would provide riparian habitat that is expected to be of higher quality than existing habitat. Habitat features that benefit native species would be included in the design, and the sites would be managed for the establishment and persistence of native trees, shrubs, and herbaceous plants. Over the long-term, the Proposed Action would not substantially reduce the quality or quantity of riparian habitat, despite the temporary habitat loss.

Overall, the Proposed Action would cause significant and unavoidable short-term adverse impacts to riparian habitat. These impacts would be minor in the long-term after vegetation is reestablished and after implementation of Mitigation Measure VEG-1: “Compensate for Riparian Habitat Removal” and Mitigation Measure VEG-2 “Retain, Protect, and Plant Trees On-Site”, which were previously adopted for the ARCF 2016 Project. Therefore, the long-term impact of the Proposed Action on riparian habitat would be less than significant with mitigation.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Negligible with Mitigation Incorporated.

The discussion of impacts on sensitive natural communities above under the CEQA impacts also applies to NEPA. Impacts on riparian vegetation would be less than described in the 2016 ARCF GRR FEIS/EIR because a launchable toe with planting bench would be used in place of the berms for bank protection. Therefore, the design refinements reduce the impact extent. However, there would still be a short-term significant and unavoidable impact on riparian habitat. Implementing Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the 2016 ARCF Project, would result in a long-term, negligible impact on riparian habitat.

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

To compensate for riparian habitat removal, replacement habitat will be created in accordance with the 2015 ARCF GRR Fish and Wildlife Coordination Act Report or the Endangered Species Act consultation with USFWS and NMFS, depending on the type of habitat. The mitigation will be implemented at a USFWS-approved location.

Timing: Before, during and after construction

Responsibility: Project Partners

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site

Project designs will be refined to reduce impacts on vegetation and wildlife to the extent practicable. Refinements implemented to reduce the loss of riparian habitat will include

reducing the impact footprint, constructing bank protection rather than launchable rock trench whenever feasible, and designing planting benches. Where practicable, trees will be retained in locations where the bank protection and planting benches is constructed. Trees will be protected in place along the natural channel during rock placement. Additional plantings will be installed on the newly constructed benches to provide habitat for fish and avian species. The planting benches will be used where practicable to minimize impacts on fish and wildlife species. Where practical, soil filled revetment would be used to allow plantings and erosion protection features like launchable trench would be buried to allow plantings. The on-site habitat will be created in accordance with the ARCF GRR Habitat Mitigation, Monitoring, and Adaptive Management Plan, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.

Timing: Before and during construction

Responsibility: Project Partners

The short-term significant impacts of riparian habitat loss would be minimized by retaining and protecting trees where possible, but the impact would remain significant and unavoidable because of the extent of required riparian vegetation removal. However, the long-term significant impacts would be reduced to less than significant with implementation of Mitigation Measures VEG-1 and VEG-2. Mitigation would be implemented onsite to the maximum extent feasible to replace habitat that is removed and IWM would compensate for the temporal habitat loss while the replacement habitat matures.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The Proposed Action would impact riparian habitat. The berm design for American River Erosion Contract 4A is small but requires the site to be regraded, which would result in the removal of riparian vegetation. This site is not suitable for onsite mitigation outside of herbaceous revegetation, to ensure the appropriate function of the flood risk feature and to prevent blocking the rerouted bike trail with vegetation.

Riparian woodland and riparian scrub would be removed from the erosion protection footprint. Riparian habitat would also be damaged and removed within construction access areas and haul routes. Estimated acreages of impacts can be found in. To date 33.14 acres of riparian habitat have been impacted by American River Erosion Contracts 1, 2, and 3A. The total riparian impact for completion of all American River Erosion contracts is anticipated to be 73 acres, which would be above the 65 acres of impact that was estimated in the 2016 ARCF GRR FEIS/EIR. The impact analysis presented in the ARCF GRR FEIS/EIR, which concluded there would be significant unavoidable impacts on vegetation and wildlife from project construction, is applicable to the level of impact expected from the CEQA Proposed Action.

Overall, the Proposed Action would cause short-term significant and unavoidable adverse impacts to a small area of riparian habitat. These impacts would be mitigated after vegetation is reestablished and after implementation of Mitigation Measure VEG-1: “Compensate for Riparian Habitat Removal”, which was previously adopted for the 2016 ARCF 2016 Project. Therefore, the long-term impact of the Proposed Action on riparian habitat would be less than significant with mitigation.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The discussion of impacts on sensitive natural communities above under the CEQA impacts also applies to NEPA. Impacts on riparian vegetation would be less than described in the 2016 ARCF GRR FEIS/EIR overall but more than initially anticipated in this location. However, there would still be a short-term significant and unavoidable impact on riparian habitat. Once Mitigation Measures VEG-1 is implemented and vegetation establishes there would be a long-term, less than significant impact on riparian habitat.

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

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

The short-term significant impacts of riparian habitat loss would be significant and unavoidable because of the extent of required riparian vegetation removal. However, Implementing Mitigation Measure VEG-1, which was previously adopted for the ARCF 2016 Project, would reduce the long-term significant impacts to less than significant. Mitigation would be implemented offsite to replace habitat that is removed.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The placement of quarry stone revetment on-grade along the riverbank between the riverbed and the summer water surface elevation would impact riparian habitat. Estimated acreages of impacts can be found in Table 4.1-3. Shrubs would be cleared to provide a clean surface. This stone would feature soil fill to cover the voids in the rock and would be hydroseeded with grasses and forbs. For the reestablishment of riparian vegetation, soil-filled planting benches would be incorporated into the rock revetment in areas, though due to the lack of a waterside bench in most places along the Sacramento River there would not be enough space in most locations. IWM consisting of whole trees would be anchored into the bank revetment at the summer water surface elevation to provide shelter and shading for fish. Project activities for this contract would

include constructing the bank protection improvements, installing IWM, and applying erosion control seeding of disturbed areas.

The anticipated method of construction for the Proposed Action would still include equipment stationed on barges, but equipment would also leave the barges to place rock along the shoreline. Equipment would not be permitted to drive outside the rock placement footprint. The work area would be cleared and grubbed, including removing trees, other vegetation, and encroachments along the levee embankment. Tree clearing would occur during the fall or winter immediately prior to each segment's construction.

Project activities would require all trees to be removed within the rock placement footprint to allow equipment to operate efficiently when working on the shoreline. Designs would include planting benches, similar to those described for the American River. There would be no woody vegetation or trees planted in the vegetation free zone (VFZ) on the water side of the levee, which is approximately 15 feet from the levee toe.

Overall, the Proposed Action would result in short-term significant and unavoidable adverse impacts to riparian habitat. These impacts would be less than significant in the long-term after vegetation is reestablished and after implementation of Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Effects that are Less than Significant with Mitigation Incorporated.

The design refinements would increase impacts to riparian habitat when compared to the 2016 ARCF GRR FEIS/EIR. The 2016 ARCF GRR FEIS/EIR stated that trees would be conserved by placing rock around them. Page 124 of the 2016 ARCF GRR FEIS/EIR states:

Because a vegetation variance would be obtained approximately 930 large trees would be left in place on the lower one-half waterside slope, and rock would be placed around the base of the trees. The trees that would remain in place are scattered over approximately 50,000 linear feet and 50 acres.

However, the design refinements would require all trees to be removed within the rock placement footprint to allow equipment to operate efficiently when working on the shoreline. Designs would include planting benches, similar to those described for the Lower American River. There would be no woody vegetation or trees planted in the VFZ on the water side of the levee, which is approximately 15 feet from the levee toe.

There would be a short-term significant and unavoidable impact on riparian habitat. Once Mitigation Measures VEG-1 and VEG-2 are implemented and vegetation establishes, there would be a long-term, less than significant impact on riparian habitat.

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

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The Proposed Action would impact 2 more acres of riparian habitat than stated in the 2016 ARCF GRR FEIS/EIR. In the location of the canal realignment, vegetation has grown due to the lack of required maintenance. The canal would be cleared, resulting in a permanent long-term loss of riparian vegetation. This loss would result in less-than-significant long-term impacts because compensatory mitigation plantings would be implemented offsite, in accordance with Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Negligible Effects that are Less than Significant with Mitigation Incorporated.

The NEPA Design Refinements would be identical to the Proposed Action because the current contract description for MCP has completely changed from the 2016 ARCF GRR FEIS/EIR. Therefore, impacts of the NEPA Design Refinements are the same as described above for the CEQA Impacts. There would be a short-term significant and unavoidable impact on riparian habitat. Implementing Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the 2016 ARCF Project, would result in a long-term, negligible impact on riparian habitat.

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

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing:	Before and during construction
Responsibility:	USACE

Sacramento River Mitigation, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Short-term Less than Significant; Long-term no Impact.

The habitat restoration at ARMS would be designed to consider historical site conditions and adapt existing conditions to restore, enhance, and maximize habitat for three focal species: salmonids, yellow-billed cuckoo, and VELB. In the post-project condition, it is anticipated that there would be a net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023). The estimated impact acreages for ARMS are provided in Table 4.1-3. Site grading would require the removal of riparian trees. Any trees planted onsite would take years to mature to provide the same value as those removed. However, ARMS would result in a net increase of riparian habitats and the temporal loss would be relatively minor in the context of the overall site and surrounding habitat. Therefore, this impact is considered to be less than significant in the short term and no effect in the long term because these sites mitigate for project-wide impacts.

Existing habitat at SRMS includes riparian forest, riparian scrub-shrub, oak woodland, ruderal herbaceous/grassland, and wetlands. The estimated acreage of impacts that could result from mitigation implementation are provided in Table 4.1-3. Creation of riparian habitat onsite would offset loss of riparian vegetation that must be removed during restoration activities. Any riparian trees planted onsite would take years to mature to provide the same value as those removed. However, many trees are anticipated to be retained and the temporal loss would be relatively minor in the context of the overall site. Therefore, this impact is considered to be less than significant in the short term and no effect in the long term because these sites mitigate for project-wide impacts.

Neither mitigation site has other sensitive natural communities identified in local or regional plans policies, regulation. The American River Parkway Plan and Natural Resource Management Plan both recommend naturalizing the area around the ARMS, which the project would achieve. Planned land use at the SRMS is identifies as natural preserve/marsh in the Delta Plan.

NEPA Impact Conclusion (Design Refinements): Short-term Moderate effects that are Less than Significant; Long-term No Effect.

The NEPA Design Refinements for both the SRMS and ARMS would be identical to the Proposed Action because the 2016 ARCF GRR FEIS/EIR did not include analysis for mitigation

sites. Therefore, impacts of the NEPA Design Refinements are the same as described above for the CEQA impacts. There would be a moderate short-term impact on riparian habitat, but the long-term impact would be no effect because these sites mitigate for project-wide impacts.

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Short-term and Long-term Less than Significant.

Approximately 100 piezometers would be installed at various locations along each levee, with piezometers on either the levee crown or near the landside levee toe. This is a fairly low impact activity because of the small size of the piezometers, 6-inches diameter with an associated cement pad and housing box, and their proposed location on the levee crown or near the landside levee toe. Limited tree and vegetation trimming may be necessary to install the piezometer or access the drilling location, but this impact would be less than significant.

NEPA Impact Conclusion (Design Refinements): Short-term Less than Significant, temporary impact from the temporal loss of vegetation and wildlife habitat until the time when trimmed vegetation has regrown and compensatory plantings have fully matured. Negligible long-term impact with mitigation incorporated.

The NEPA Design Refinements would be identical to the Proposed Action because the 2016 ARCF GRR FEIS/EIR did not include analysis of a piezometer network. Therefore, impacts of the NEPA Design Refinements are the same as described previously for the CEQA Impacts. There would be a less than significant, short-term impact and long-term, negligible impact on riparian habitat

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

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

4.1-d Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

CEQA Significance Conclusion: Short-term Significant and Unavoidable; Long-term Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

American River Erosion Contract 3B North and South and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The project would place bank protection below the OHWM of the American River. The 2016 ARCF GRR FEIS/EIR greatly underestimated the amount of material that would need to be placed below the OHWM of the American River. The design refinements have shifted the bank protection away from the toe of the levee, favoring designs that avoid heritage oaks and provide better habitat onsite, but increase the discharge of fill material. A 404(b)(1) Alternatives Analysis will be completed and included in the Final SEIS/EIR. Erosion protection has been designed to avoid and minimize impacts to waters of the United States and waters of the State to the maximum extent possible. Even though impacts have increased over time, the Proposed Action is still the least environmentally damaging alternative. The construction of the erosion protection measures would not impact state or federally protected wetlands. However, some staging areas and access locations have not been surveyed for wetlands because access is not yet available. Prior to being used for staging or access, these areas would be surveyed; if wetlands are present, they would be fenced and avoided. Effects to the American River would be significant and unavoidable in the short term, but with implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the impact would be less than significant in the long term.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The discussion of wetland impacts below the OHWM described above under the CEQA impacts also applies to NEPA. Impacts on wetlands would be minimized to the maximum extent possible; however, the extent of unavoidable impacts resulting from the design refinements would be much greater than estimated in the 2016 ARCF GRR FEIS/EIR for this location. With implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the long-term impact would be less than significant.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

In compliance with the CWA, the Project Partners will compensate for fill of State and Federally protected waters to ensure no net loss of functions and values. Water quality certification pursuant to Section 401 of the CWA will be obtained from the Central Valley RWQCB before starting project activities subject to Section 401. Any measures determined necessary during the permitting processes will be implemented, such that there is no net loss of functions and values of jurisdictional waters.

Mitigation may be accomplished through habitat replacement, enhancement of degraded habitat, off-site mitigation at an established mitigation bank, contribution of in-lieu fees, or other methods acceptable to the regulatory agencies, ensuring there is no net loss of waters of the United States. If compensation is provided through permittee-responsible mitigation with additional NEPA and CEQA documentation, a mitigation plan will be developed to detail appropriate compensation measures determined through consultation with USACE and Central Valley RWQCB. These measures will include methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails.

Timing:	Before and after construction
Responsibility:	USACE

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less Than Significant with Mitigation Incorporated.

The proposed berm would affect a wetland (mapped as open water in Figure 4.1-2) which parallels the levee and Jedediah Smith Memorial Bike Trail both upstream and downstream of the State Route 160 bridge. While most of the 11.5-acre wetland would remain intact, a small portion (Table 4.1-3) would be filled in order to construct the berm. One end of the wetland would be filled, which would not block any surface water connectivity or fundamentally alter the wetland’s hydrology. Staging areas and access that have not yet been surveyed for wetlands because of access restrictions will be surveyed before construction begins. If any wetlands are present, the wetlands would be fenced off and avoided. Appropriate compensation for unavoidable wetland impacts would occur through permittee-responsible offsite mitigation or through the purchase of credits at a USFWS approved mitigation bank, in accordance with Mitigation Measure WATERS-1. Implementing Mitigation Measure WATERS-1, which was previously adopted for the 2016 ARCF Project, would reduce impacts to wetlands to less than significant.

NEPA Impact Conclusion (Design Refinements): Less than Significant with Mitigation Incorporated.

The discussion of wetland impacts above under the CEQA impacts also applies to NEPA. Impacts on wetlands would be minimized to the maximum extent possible; however, they were

not anticipated and not evaluated in the 2016 ARCF GRR FEIS/EIR for this location. With implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, this impact would be less than significant.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Impact 4.1-d American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

There would be no impact to state or federally protected wetlands. However, the project would place bank protection below the OHWM of the Sacramento River. The 2016 ARCF GRR FEIS/EIR greatly underestimated the amount of material that would need to be placed below the OHWM of the Sacramento River. The design changes that occurred since the original document have reduced the overall length of the bank protection impacts, but they have been shifted down the levee slope and further into the Sacramento River, increasing the discharge of fill material. A 404(b)(1) Alternatives Analysis will be completed and included in the Final SEIS/EIR. Bank protection has been designed to avoid and minimize impacts to and waters of the United States and of the State to the maximum extent possible. Even though impacts have increased over time, the Proposed Action is still the least environmental damaging alternative. Effects to the Sacramento River would be significant and unavoidable in the short term, but with implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the impact would be less than significant in the long term.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The discussion of wetland impacts above under the CEQA impacts also applies to NEPA. There would be no impact to state or federally protected wetlands; however, the extent of unavoidable impacts to land below the OHWM resulting from the design refinements would be greater than estimated in the 2016 ARCF GRR FEIS/EIR for this location. With implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the long-term impact would be less than significant.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Impact 4.1-d American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

Sacramento River Mitigation Site, American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

The estimated acres of aquatic resources expected to be impacted at each mitigation site is shown in Table 4.1-3. ARMS would restore connection to the LAR, include a diverse planting palette, and incorporate habitat benches that would restore floodplain habitat for salmonids at various elevations. In addition, the site would continue to accommodate flood events and overflow from the LAR main channel and Steelhead Creek. ARMS would emphasize restoration to native floodplain wetland and riparian habitats, consideration of river dynamics, and adaptive management of the features as described in the Parkway Plan and NRMP. In the post-project condition, it is anticipated that there would be a large net increase in freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, while a reduction in grassland/upland and pond habitats would occur (HDR 2023). This would be considered the re-establishment of a former aquatic resource, resulting in a gain in aquatic resource area and functions, which does not require mitigation. With implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the long-term impact would be less than significant.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Impact 4.1-d American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The existing seasonal wetlands around the SRMS would be impacted when the levee is degraded to create the flow through side channels, however the channels would be planted with similar vegetation and would provide similar habitat in greater amounts than what is being impacted. The land around the channels would be graded to accommodate different water elevations of both tidally influenced and seasonally influenced wetlands. The reactivation of the river with SRMS would greatly enhance the site and result in a net benefit of wetland habitat and riverine

functions. With the implementation of this mitigation, which was previously adopted for the ARCF 2016 Project, effects on aquatic resources would be less than significant.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate effects that are Less than Significant with Mitigation Incorporated; Long-term negligible effects.

The NEPA Design Refinements for both the SRMS and ARMS sites would be identical to the Proposed Action because the 2016 ARCF GRR FEIS/EIR did not include analysis for mitigation sites. Therefore, impacts of the NEPA Design Refinements are the same as described above for the CEQA impacts. With implementation of Mitigation Measure WATERS-1, which was previously adopted for the 2016 ARCF Project, this impact would be less than significant.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Impact 4.1-d American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Short-term Significant and Unavoidable; Long-term Less Than Significant with Mitigation Incorporated.

The design refinements would cause minor impacts to hydrology. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.40 acres of this wetland. However, construction of the realignment would not significantly alter the area's topography relative to the remaining 2.4-acre wetland and impacts to local hydrology would be less than significant.

The culvert construction under Raley Boulevard would impact the Robla Creek drainage canal, which can be characterized as emergent marsh. To the west, installing the culverts and the associated staging area at Rio Linda Boulevard would impact the southeast corner of a 5.54-acre seasonal wetland, but would not affect the hydrology of the remaining wetland area.

In addition, the bed and bank of Magpie Creek would be cleared of vegetation to increase flow capacity. The soils would be hydroseeded with a native plant mix and non-woody emergent vegetation may be allowed to regrow. This activity would not result in channel fill, but the channel would be temporarily affected by vegetation clearing. The O&M manual would prohibit the establishment of woody vegetation.

Impacts on wetlands adjacent to Magpie Creek would be significant and unavoidable in the short term, but with implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the impact would be less than significant in the long term.

NEPA Impact Conclusion (Design Refinements): Short term Significant and Unavoidable; Negligible Long-term Effects that are Less than Significant with Mitigation Incorporated.

The NEPA Design Refinements would be identical to the Proposed Action, as the current contract description has substantially changed from the 2016 ARCF GRR FEIS/EIR. Therefore, impacts of the NEPA Design Refinements are the same as described above for the CEQA Impacts. Impacts on wetlands adjacent to Magpie Creek would be significant and unavoidable in the short term, but with implementation of Mitigation Measure WATERS-1, which was previously adopted for the ARCF 2016 Project, the impact would be negligible in the long term.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Impact 4.1-d American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact.

NEPA Impact Conclusion (Design Refinements): No Impact.

Piezometers would not be installed in state or federal protected waters, including wetlands.

4.1-e Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Negligible effects that are Less than Significant with Mitigation Incorporated

American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, American River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Negligible effects that are Less than Significant with Mitigation Incorporated.

Implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to Section 12.56.080 (F) of the City of Sacramento Municipal Code. Therefore, there would be no conflict with the City of Sacramento Tree preservation policy or ordinance. The American River Parkway Plan states, in Policy 4.12, that “Vegetation in the Parkway should be appropriately managed to maintain the structural integrity and conveyance capacity of the flood control system, consistent with the need to provide a high level of flood protection to the heavily urbanized floodplain along the lower American River and in a manner that preserves the environmental, aesthetic, and recreational quality of the Parkway.” The Sacramento County Tree Preservation Ordinance requires “A Tree Pruning or Tree Removal Permit...to prune or remove any public tree and certain private trees.” Project Partners would include Sacramento County tree removal work to ensure compliance with county ordinance.

With the on-site replacement of riparian habitat, the Proposed Action would ensure that there would be no net impacts on lands designated by the American River Parkway Plan as Protected Areas or Nature Study Areas. Although an initial loss of riparian habitat within the Parkway would occur, this impact would be minimized by implementing Mitigation Measure VEG-2, which was previously adopted for the ARCF 2016 Project, and eventually the Parkway would experience a net increase in the extent of riparian habitat. This long-term increase in riparian vegetation is consistent with Terrestrial Resource Policy 3.2 of the Parkway Plan, which calls for the protection, enhancement, and expansion of the Parkway’s native willow, cottonwood, and valley oak–dominated riparian and upland woodlands that provide important SRA, seasonal floodplain, and riparian habitats. Consequently, the impact of the CEQA Proposed Action and NEPA Design Refinements on local conservation plans, such as the Parkway Plan, would be less than significant.

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Impact 4.1-c American River Erosion Contract 3B North and South and American River Erosion Contract 4B discussion above for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Sacramento River Erosion Contract 3, Sacramento River Mitigation Site, Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): No Impact.

NEPA Impact Conclusion (Design Refinements): No Impact.

Implementation of flood protection activities by public agencies does not require a tree removal permit pursuant to Section 12.56.080 (F) of the City of Sacramento Municipal Code. Therefore, there would be no conflict with the City of Sacramento Tree preservation policy or ordinance.

The Sacramento County Tree Preservation Ordinance requires “A Tree Pruning or Tree Removal Permit...to prune or remove any public tree and certain private trees.” Project Partners would include Sacramento County tree removal work to ensure compliance with county ordinance.

4.1-f Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

CEQA Significance Conclusion: No Impact

NEPA Significance Conclusion: No Impact

American River Erosion Contract 3B North and South, American River Erosion Contract 4A and 4B, American River Mitigation Site, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact.

NEPA Impact Conclusion (Design Refinements): No Impact.

Sacramento River Erosion Contract 3, Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): No Impact.

NEPA Impact Conclusion (Design Refinements): No Impact.

The Delta Plan includes regulations supporting coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Delta Stewardship Council administers the Delta Plan. CVFPB has determined that the Proposed Action is a “covered action” under the Delta Plan, because it would occur in part within the boundaries of the Legal Delta, would be approved and funded in part by State and local agencies, could have a significant impact on implementation of a government-sponsored flood control program, and would be covered by regulatory policies in the Delta Plan. Prior to implementing the Proposed Action, CVFPB would confirm the Proposed Action is consistent with the Delta Plan by submitting a Certification of Consistency with the Delta Plan in accordance with section 85225 of the California Water Code. Therefore, the CEQA Proposed Action and NEPA Design Refinements would not conflict with the Delta Plan and there would be no resulting impact.

Magpie Creek Project

CEQA Impact Conclusion (Design Refinements): No Impact.

NEPA Impact Conclusion (Entire Proposed Action): No Impact.

There is not a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan that includes the MCP.

The Magpie Creek Floodplain Conservation Project (SAFCA 2021) provides provisions to the SAFCA-owned parcel to the east of Raley Boulevard. Flood control is the primary purpose, and

the Proposed Action and Design Refinements would not conflict with this plan. In addition, the Sacramento McClellan Airport has a habitat conservation plan that is adjacent to but does not overlap with the Project Area. Therefore, the CEQA Proposed Action and NEPA Design Refinements would not conflict with either of these plans and there would be no resulting impact.

Alternatives Comparison

Alternative 3a

Under Alternative 3a for the American River Erosion Contract 4A Project Component, instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR). This would avoid wetland impact. All other project components (American River Erosion Contracts 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action. Table 4.1-3 and Table 4.1-4 shows differences in vegetation impacts between alternatives. Impacts of Alternative 3a are summarized in Table 4.1-5 below.

Table 4.1-5: Alternative 3a Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3a would include night-time effects on wildlife movement	VIS-2	Less than significant with mitigation incorporated	Short-term moderate effects that are less than significant with mitigation incorporated
4.1-b	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3a could temporarily reduce local bird populations	BIRD-1	Less than significant with mitigation incorporated	Short-term moderate effects that are Less than significant with mitigation incorporated
4.1-c	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3a would include substantial riparian habitat impacts	VEG-1, VEG-2	Significant and unavoidable short-term, less than significant long-term with mitigation incorporated	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated
4.1-d	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Alternative 3a would avoid wetland impacts	N/A	No Impact	No Impact

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-e	American River Erosion Contract 4A	CEQA: Similar to the Proposed Action, Alternative 3a would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated
4.1-f	American River Erosion Contract 4A	CEQA: Would not impact any conservation plans.	N/A	No Impact	No Impact

Alternative 3b

Alternative 3b for the American River Erosion Contract 4A Project Component would be similar to the Proposed Action but would use a different permanent bike trail reroute. Instead of going under the railroad and reconnecting to the bike trail near Del Paso Blvd, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR). The route would be slightly longer than the Proposed Action. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving, and possible construction of a bridge. All other project components (American River Erosion Contracts 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action. Table 4.1-3 and Table 4.1-4 shows differences in vegetation impacts between alternatives. Impacts of Alternative 3b are summarized in Table 4.1-6.

Table 4.1-6: Alternative 3b Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	American River Erosion Contract 4A	NEPA and CEQA: Similar to the Proposed Action, Alternative 3a would include night-time effects on wildlife movement	VIS-2	Less than significant with mitigation incorporated	Short-term moderate effects that are less than significant with mitigation incorporated
4.1-b	American River Erosion Contract 4A	NEPA and CEQA: Similar to the Proposed Action, Alternative 3b could temporarily reduce local bird populations	BIRD-1	Less than significant with mitigation incorporated	Short-term moderate effects that are Less than significant with mitigation incorporated

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-c	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3b would include substantial riparian habitat impacts	VEG-1, VEG-2	Significant and unavoidable short-term, less than significant long-term with mitigation incorporated	Significant and unavoidable short-term; long-term, moderate effects that are less than significant with mitigation incorporated
4.1-d	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3b would include substantial wetland impacts	WATERS-1	Less than significant with mitigation incorporated	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated
4.1-e	American River Erosion Contract 4A	<i>CEQA:</i> Similar to the Proposed Action, Alternative 3b would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated
4.1-f	American River Erosion Contract 4A	<i>CEQA:</i> Would not impact any conservation plans.	N/A	No Impact	No Impact

Alternative 3c

Alternative 3c for the American River Erosion Contract 4A Project Component would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR). A larger area of the wetland would need to be filled for the new alignment. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving, and possible construction of a bridge. All other project components (American River Erosion Contracts 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action. Table 4.1-3 and Table 4.1-4 shows differences in vegetation impacts between alternatives. Impacts of Alternative 3c are summarized in Table 4.1-7.

Table 4.1-7: Alternative 3c Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3c would include night-time effects on wildlife movement	VIS-2	Less than significant with mitigation incorporated	Short-term moderate effects that are less than significant with mitigation incorporated

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-b	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3c could temporarily reduce local bird populations	BIRD-1	Less than significant with mitigation incorporated	Short-term moderate effects that are Less than significant with mitigation incorporated
4.1-c	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3c would include substantial riparian habitat impacts	VEG-1, VEG-2	Significant and unavoidable short-term, less than significant long-term with mitigation incorporated	Significant and unavoidable short-term; Long-term and Moderate effects that are less than significant with mitigation incorporated
4.1-d	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3c would include substantial wetland impacts	WATERS-1	Less than significant with mitigation incorporated	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated
4.1-e	American River Erosion Contract 4A	<i>CEQA:</i> Similar to the Proposed Action, Alternative 3c would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated
4.1-f	American River Erosion Contract 4A	<i>CEQA:</i> Would not impact any conservation plans.	N/A	No Impact	No Impact

Alternative 3d

Alternative 3d for the American River Erosion Contract 4A Project Component would change the permanent bike trail route to a paved bike trail closer to the river along an existing off-road bike trail (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR). This route would be longer than the Proposed Action. Installing this route would require some additional vegetation trimming, vegetation clearing, regrading, and paving. All other project components (American River Erosion Contracts 3B and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, and Piezometer Network) would have the same effects as the Proposed Action. Table 4.1-3 and Table 4.1-4 shows differences in vegetation impacts between alternatives. Impacts of Alternative 3d are summarized in Table 4.1-8.

Table 4.1-8: Alternative 3d Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3d would include night-time effects on wildlife movement	VIS-2	Less than significant with mitigation incorporated	Short-term moderate effects that are less than significant with mitigation incorporated
4.1-b	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3d could temporarily reduce local bird populations	BIRD-1	Less than significant with mitigation incorporated	Short-term moderate effects that are Less than significant with mitigation incorporated
4.1-c	American River Erosion Contract 4A	Similar to the Proposed Action, Alternative 3d would include substantial riparian habitat impacts.	VEG-1, VEG-2	Significant and unavoidable short-term, less than significant long-term with mitigation incorporated	Significant and unavoidable short-term; Long-term and Moderate effects that are less than significant with mitigation incorporated
4.1-d	American River Erosion Contract 4A	Similar to the Proposed Action, Alternative 3d would include substantial wetland impacts.	WATERS-1	Less than significant with mitigation incorporated	Short-term to medium-term, moderate effects that are less than significant with mitigation incorporated
4.1-e	American River Erosion Contract 4A	<i>CEQA:</i> Similar to the Proposed Action, Alternative 3d would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated	Negligible effects that are less than significant with mitigation incorporated
4.1-f	American River Erosion Contract 4A	<i>CEQA:</i> Would not impact any conservation plans.	N/A	No Impact	No Impact

Alternatives 4a and 4b (CEQA only)

Alternative 4a for the ARMS would retain an approximately 30-acre portion of the existing pond, and Alternative 4b would retain an approximately 20-acre portion of the pond. Under Alternative 4a and 4b, a berm with a top width of 30 feet would be constructed to retain the western or southern portion of the existing pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. Alternative 4a would result in impacts to the bald eagle nest onsite. Figure 3.7.1-1 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR illustrates Alternative 4a and Figure 3.7.2-1 illustrates Alternative 4b. Relying on Alternative 4a or 4b would require additional mitigation be constructed elsewhere in the parkway, or that credits be purchased from an approved mitigation bank. All other project components (American River Erosion Contracts

3B, 4A, and 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and Piezometer Network) would have the same effects as the Proposed Action. Table 4.1-3 and Table 4.1-4 shows differences in vegetation impacts between alternatives. Impacts of ARMS Alternatives 4a and 4b are summarized in Table 4.1-9.

Table 4.1-9: Alternative 4a and 4b Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
4.1-a	ARMS	CEQA: Impacts to fish and wildlife migration and movement would be minimal and are not anticipated to affect use of migratory corridors or nursery sites.	N/A	Less than significant.
4.1-b	ARMS	CEQA: Impacts on plant and wildlife habitats and populations would be minor in the short term and no effect for most species in the long term.	N/A	Less than significant.
4.1-c	ARMS	CEQA: Similar to the Proposed Action, these alternatives would include the restoration of riparian habitat but would also retain freshwater habitat.	N/A	Less than significant short-term, no effect long-term.
4.1-d	ARMS	CEQA: Similar to the Proposed Action, these alternatives would include the restoration of floodplain channel habitat but would also retain freshwater habitat.	WATERS-1	Less than significant with mitigation incorporated.
4.1-e	ARMS	CEQA: Similar to the Proposed Action, Alternative 4a and 4b would impact riparian habitat prioritized for protection in the American River Parkway Plan but would result in an overall increase in riparian and other high-priority habitats.	VEG-2	Less than significant with mitigation incorporated
4.1-f	ARMS	CEQA: Would not impact any conservation plans.	N/A	No Impact

Alternative 5a

Under Alternative 5a, the SRMS would not be constructed. Instead, all remaining required mitigation credits would be purchased from USFWS and/or NMFS Approved Conservation Banks, whose service areas cover the ARCF project impacts. There would be no direct resource impacts from this action. The USFWS and/or NMFS Approved Conservation Bank would complete an independent NEPA/CEQA analysis prior to implementation.

Table 4.1-10. Alternative 5a Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.1-a 4.1-b 4.1-c 4.1-d 4.1-e 4.1-f	Sacramento River Mitigation Site – Watermark Farms	<i>NEPA and CEQA:</i> No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks	N/A	No Impact	No Impact

Alternative 5b

Under Alternative 5b, the SRMS of the Proposed Action would be completed at Watermark Farms, located along the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25. The site is characterized by agricultural and ruderal herbaceous habitat types. Similar to the Proposed Action, Alternative 5b would benefit vegetation and wildlife resources at Watermark Farms by restoring important shallow water and riparian habitats. Depending on the size and design of the mitigation area, the overall resulting increase in native habitats may be greater at Watermark Farms than under the Proposed Action because the SRMS supports existing riparian habitat. Because the goal of activities at the site would be restoration of native habitats suitable for sensitive species, it would not conflict with the Yolo Habitat Conservation Plan/Natural Community Conservation Plan. The Watermark Farms project would complete an independent NEPA/CEQA analysis prior to implementation.

Table 4.1-11: Alternative 5b Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-a	Sacramento River Mitigation – Watermark Farms	<i>NEPA and CEQA:</i> Impacts to fish and wildlife corridors and movement would be minimal and are not anticipated to affect use of migratory corridors or nursery sites.	N/A	Less than significant short-term, no effect long-term	Negligible short-term, no effect long-term
4.1-b	Sacramento River Mitigation – Watermark Farms	<i>NEPA and CEQA:</i> Impacts on plant and wildlife habitats and populations would be minor in the short term and no effect for most species in the long term.	N/A	Less than significant short-term, no effect long-term	Negligible short-term, no effect long-term
4.1-c	Sacramento River Mitigation – Watermark Farms	<i>CEQA and NEPA:</i> Similar to the Proposed Action, this alternative would include the restoration of riparian habitat but less existing riparian vegetation is anticipated to be impacted.	N/A	Less than significant short-term, no effect long-term.	Negligible short-term, no effect long-term.

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.1-d	Sacramento River Mitigation – Watermark Farms	<i>CEQA and NEPA:</i> Similar to the Proposed Action, this alternative would include the restoration of floodplain channel habitat but impacts on existing aquatic habitat is anticipated to be less.	WATERS-1	Less than significant with mitigation incorporated.	Short-term, moderate effects that are less than significant with mitigation incorporated.
4.1-e	Sacramento River Mitigation – Watermark Farms	<i>CEQA:</i> Few if any trees are anticipated to require removal and implementation is not anticipated to conflict with any Yolo County policies protecting biological resources.	N/A	No Impact	No impact
4.1-f	Sacramento River Mitigation – Watermark Farms	<i>CEQA:</i> Implementing this alternative would generally support goals of the Yolo Habitat Conservation Plan/Natural Community Conservation Plan because native habitats would be restored for the purpose of species conservation.	N/A	Less than significant	Less than significant

Alternative 5c

Alternative 5c would combine two approaches to complete the SRMS requirements: 1) purchasing Delta Smelt Conservation Bank Credits from a USFWS approved banks and 2) providing funding for the removal of the weir at Sunset Pumps and updating the pumping facility. The Sunset Pumps project has been identified on NMFS recovery plans and is listed as high priority for Reclamation, DWR and USFWS. The Sunset Pumps project would complete an independent NEPA/CEQA analysis prior to implementation.

Table 4.1-12. Alternative 5c Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.1-a 4.1-b 4.1-c 4.1-d 4.1-e 4.1-f	Sacramento River Mitigation Site – Watermark Farms	<i>NEPA and CEQA:</i> No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks and Sunset Pumps Project.	N/A	No Impact	No Impact

4.2 Aquatic Resources and Fisheries

This section focuses on analysis of aquatic resources and fisheries, including special-status fish. Vegetation and non-sensitive wildlife are addressed in Appendix B, Section 4.1 of this SEIS/SEIR, and special-status plant and wildlife species are addressed in Appendix B, Section 4.3.

4.2.1 Existing Conditions/Affected Environment

Sacramento River and American River

As described in the 2016 ARCF GRR Final EIS/EIR, existing conditions and the affected environment for the Proposed Action in the Sacramento and American Rivers are as follows (USACE 2016):

Native species present in the Sacramento and American Rivers can be separated into anadromous species and resident species. Native anadromous species include four runs of Chinook salmon, steelhead trout, green and white sturgeon, and Pacific lamprey, which are discussed in detail in the Special Status Species Section of this EIS¹. Native resident species include Sacramento pikeminnow, Sacramento splittail, Sacramento sucker, hardhead, California roach, and rainbow trout² and can be found throughout the study area in various habitats that include, but are not limited to, deep pools, riffles, side channels, swift moving cool water, and slow-moving warm water habitats. A list of the species that can be found in the waterways within the study area can be seen on Table 16³...

Important attributes of the aquatic habitat within the American and Sacramento Rivers are aquatic vegetation and SRA⁴ habitat. Aquatic vegetation is represented by floating, submerged, and emergent vegetation. Aquatic vegetation serves as hiding cover and an invertebrate food production base for nearly all aquatic species. The percent of aquatic vegetation cover varies throughout the study area.

SRA is represented by overhead canopy cover. Overhanging SRA provides shade which is a form of cover important to the survival of many aquatic organisms, including fish. Overhanging vegetation moderates water temperatures, which is an important factor for various life stages of native fish species. The vegetation provides food and habitat for both terrestrial and aquatic invertebrates, which in turn serves as food for several fish species. Aquatic vegetation, or in-water cover, provides a diversity of microhabitats which allows for high species diversity, abundance, and a food source for instream invertebrates, which in turn are eaten by several native fish species. Thus, a broad food

¹ USACE 2016

² While discussed in the 2016 ARCF GRR Final EIS/EIR as a separate non-listed species, “rainbow trout” is considered the resident (non-anadromous) form of related anadromous form “steelhead trout” (*Oncorhynchus mykiss*), as per the National Marine Fisheries Service (NMFS) Endangered Species Act (ESA) listing, as well as ongoing research on the subject (Williams et al 2007).

³ USACE 2016, p. 132-133

⁴ shaded riverine aquatic

base and extensive cover and habitat niches are supported by in-water cover. These values in turn create high fish diversity and abundance...

The existing overhead shade cover within the study area varies by location and along each waterway. The amount of SRA within the study area was calculated using aerial photography and determining which areas have overhanging vegetation and trees adjacent to the natural channel and which areas do not. Generally, greater shade cover occurs during summer when full tree canopies are present. Analysis of total linear feet of SRA was conducted using Google Earth Pro for the reaches associated with bank protection on the American and Sacramento Rivers in the ARCF study area...

Throughout the program area⁵ watersheds, altered flow regimes, flood control, and bank protection efforts have reduced sediment transport, channel migration, and instream woody material (IWM) recruitment, and have isolated the channel from its floodplain. Historically the floodplain provided areas for riparian vegetation recruitment and for rearing of native and special-status fish species. Levees and armored banks prevent fish from accessing productive floodplain habitats and limits nutrient exchange between the river and flooded riparian areas... The Lower American River is also a designated Wild and Scenic River under both the State and Federal Wild and Scenic Rivers Acts. The anadromous fisheries resources along the Lower American River are one of the designated extraordinary values of the river under this Act.

Native fish with potential to occur in the portions of the Sacramento and American Rivers that would be impacted by the Proposed Action are listed below (Table 4.2-1). Native non-listed fish species (Table 4.2-1; ARCF GRR FEIS/EIR Table 16) occupy various habitats in the Sacramento and American Rivers including, but not limited to: deep pools, riffles, side channels, swift moving cool water, and slow-moving warm water (USACE 2016).

In general, native non-listed species utilize similar habitats and are affected by the same issues as listed native fish species, including lack of access to native spawning habitat and/or temperature and water quality degradation within their typical range. Numerous nonnative fish species may have the potential to occur in the Proposed Action areas are discussed in the ARCF GRR FEIS/EIR (Table 16).

Table 4.2-1. Native fish with potential to occur in Proposed Action areas in both the Sacramento and American Rivers (USACE 2016).

Common Name	Scientific Name	Listing Status
Green Sturgeon	<i>Acipenser medirostris</i>	FT
White Sturgeon	<i>Acipenser transmontanus</i>	SSC
Sacramento Sucker	<i>Catostomus occidentalis</i>	-
Prickly Sculpin	<i>Cottus asper</i>	-
Threespine Stickleback	<i>Gasterosteus aculaetus</i>	-
Delta Smelt	<i>Hypomesus transpacificus</i>	FT, SE
Tule Perch	<i>Hysteroecarpus traski</i>	-

⁵ “Program area” within this block quote is terminology used in the original ARCF GRR FEIS/EIR and instead refers to “study area” as used in the main text of this document.

Common Name	Scientific Name	Listing Status
Lamprey	<i>Lampetra spp.</i>	SSC
Hitch	<i>Lavinia exilicauda</i>	SSC
California Roach	<i>Hesperoleucus⁶ symmetricus</i>	SSC
Hardhead	<i>Mylopharodon conocephalus</i>	SSC
Chum Salmon	<i>Oncorhynchus keta</i>	-
Steelhead/Rainbow Trout – Central Valley DPS ⁷	<i>Oncorhynchus mykiss</i>	FT
Chinook Salmon (Sacramento River Winter-Run ESU ⁸ ; Central Valley Spring-Run ESU; Central Valley Fall/Late-fall Run ESU)	<i>Oncorhynchus tshawytscha</i>	winter run: FE, SE spring run: FT, ST fall/late-fall run: SSC
Sacramento Blackfish	<i>Orthodom micolepidotus</i>	-
Sacramento Splittail	<i>Pogonichthys macrolepidotus</i>	SSC
Sacramento Pikeminnow	<i>Ptychocheilus grandis</i>	-
Speckled Dace	<i>Rhinichthys osculus</i>	-

Listing/Status Key:

FT: Federal Threatened

FE: Federal Endangered

ST: State Threatened

SE: State Endangered

SSC: California Species of Special Concern

These following sites fall within designated critical habitat for California Central Valley (CV) steelhead (*Oncorhynchus mykiss*), and Essential Fish Habitat (EFH) for fall-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*): American River Erosion Contract 3B North and South, American River Erosion Contract 4A, American River Erosion Contract 4B, and American River Mitigation Site (ARMS). The ARMS is located downstream of the SR-160 bridge and is within designated critical habitat for the Southern Distinct Population Segment (sDPS) of North American green sturgeon (*Acipenser medirostris*). The SR-160 bridge is the upstream limit of this critical habitat designation within the American River. American River Erosion Contract 3B North and South, American River Erosion Contract 4A and American River Erosion Contract 4B are located upstream of the SR-160 bridge and outside of critical habitat for green sturgeon. In addition, work for both American River Erosion Contract 4A and 4B are located above the Ordinary High-Water Mark (OHWM).

While green sturgeon have not been documented in the lower American River, CV steelhead have been documented spawning as far downstream on the Lower American River as Paradise Beach, approximately 3.8 miles upstream from the upstream extent of the ARMS (Hannon 2013; NMFS 2009). In addition, fall-run Chinook salmon have been documented spawning in the Lower American River (from the American River's confluence with the Sacramento River, upstream to the upper extent of anadromous fish habitat at Nimbus Dam), especially in years of

⁶ Please note that this species genus has been reclassified since the completion of the 2016 ARCF GRR Final EIS/EIR. Previously the species shared the same genus as hitch (*Lavinia*) but has been reclassified to its own as of this report.

⁷ DPS: Distinct Population Segment; a vertebrate population, or group of populations, that is discrete from other populations of the species and significant in relation to the entire species (NOAA 2022).

⁸ ESU: Evolutionary Significant Unit; a Pacific salmon population, or group of populations, that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species.

cold-water releases from the Folsom Reservoir that coincide temporally with spawning periods. Between 2000 and 2008, an estimated 13,500-178,000 fall-run Chinook salmon returned annually to the Lower American River (Healey and Redding 2008), while the Nimbus Hatchery received an estimated 4,500-26,000 fall-run Chinook salmon in the same time period. Chinook salmon that reach the hatchery diversion weir, but do not enter, are assumed to move downstream to spawn. In further support of their spawning efforts, recent gravel augmentations to the Lower American River have created better quality spawning habitat (GEI 2019). Salmonids that spawn upstream of the American River ARCF project sites can utilize the Lower American River below the Nimbus Dam for juvenile rearing and juvenile emigration as well.

Historically, the Sacramento River winter-run Chinook salmon Evolutionary Significant Unit (ESU) have not spawned in the American River. However, confirmed winter-run Chinook salmon juveniles have been documented in rotary screw traps in the Lower American River (PSMFC 2014a,b; Snider et al 1998; Snider and Titus 2000, 2001). Juvenile winter-run Chinook salmon likely complete non-natal rearing in this area between the months of December and April. Alternatively, while CV spring-run Chinook salmon historically spawned in the American River, they no longer do so due to inaccessibility of spawning grounds upstream of the Nimbus and Folsom dams. However, like the winter-run Chinook salmon ESU, confirmed CV spring-run Chinook salmon juveniles have been documented in rotary screw traps in the Lower American River downstream of the Nimbus Dam (PSMFC 2014a,b; Snider et al 1998; Snider and Titus 2000, 2001). Juvenile CV spring-run Chinook salmon likely complete non-natal rearing in this area between the months of December and May.

The Sacramento River Erosion Contract 3 site and Sacramento River Mitigation Site (SRMS) are within EFH for CV fall-run Chinook Salmon and designated critical habitat for Sacramento River winter-run Chinook Salmon, CV spring-run Chinook Salmon, CV steelhead, Green Sturgeon and Delta Smelt (*Hypomesus transpacificus*). The Sacramento River is a migratory corridor for many native fish (Table 4.2-1) including salmonids and Green Sturgeon, as well as juvenile non-natal rearing habitat. Delta smelt may use nearshore areas for foraging and spawning within its critical habitat designated area.

Magpie Creek Project

As described in the 2016 ARCF GRR Final EIS/EIR, existing conditions and the affected environment for the Proposed Action in the Magpie Creek Project (MCP) is as follows (USACE 2016):

The East Side Tributaries provide fish spawning, rearing, and/or migratory habitat for a diverse number of native, nonnative, and special status species (Table 16)⁹. Many of the nonnative resident fish species are more tolerant of warm water, low dissolved oxygen, and disturbed environments than native species as encountered in the East Side Tributaries during most of the year. In general, they are adapted to warm, slow-moving, and nutrient-rich waters...

⁹ USACE 2016, p. 132-133

Due to lack of quality SRA habitat in the MCP and Dry/Robla Creek project areas it would be considered of minimal quality for native fish species.

Analysis of total linear feet of SRA in the East Side Tributaries was not evaluated because no bank erosion protection is planned and there is minimal, if any, SRA associated with these reaches.

Because Magpie Creek was included generally in the “East Side Tributaries” group of project sites in the original 2016 ARCF GRR FEIS/EIR, Magpie Creek’s specific suitability for special-status fish (specifically salmonids) was not described. Since that time further investigation was conducted and has been determined that the site is ill-suited for all native fish species (both listed and non-listed; see Table 4.2-1; ARCF GRR FEIS/EIR Table 16) due to the managed flow regime (i.e., flood releases/pulses do not correspond with anadromous fish migration) and intense anthropogenic disturbance surrounding the MCP site. The National Marine Fisheries Service (NMFS) consulted on the Sacramento Area Flood Control Agency’s (SAFCA) “Magpie Creek Diversion Channel Enhancement Project” (June 15, 2005). NMFS concluded the project was not likely to adversely affect Sacramento River winter-run Chinook, CV spring-run Chinook, or CV steelhead in Magpie Creek as the three species and their corresponding critical habitat were not present in the project area (which includes the site of the Proposed Action for Magpie Creek for this SEIS/SEIR; ICF 2018). In addition, NMFS concluded that EFH was not present in Magpie Creek and did not recommend any conservation measures for Chinook salmon or steelhead (ICF 2018).

4.2.2 Applicable Laws, Regulations, Policies, and Plans

Federal

Federal Endangered Species Act

Under the Federal Endangered Species Act (ESA; Title 16, Section 1531 and following sections of the U.S. Code [16 USC 1531 et seq.]), USFWS and NMFS have regulatory authority over species listed or proposed for Federal listing as threatened or endangered and over projects that may result in take of Federally listed species. In general, the ESA prohibits “take” of endangered or threatened fish and wildlife species and take of endangered or threatened plants in areas under Federal jurisdiction or in violation of State law.

The ESA defines take as, “...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” “Harass” is further defined as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. “Harm” is further defined as an act which kills or injures wildlife. This may include significant habitat modification or degradation where it kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of the ESA outlines procedures for Federal interagency cooperation to protect and 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, or destroying or adversely modifying designated critical habitat. For projects where Federal action is not involved and take of a listed species may occur, a project proponent may seek an incidental take permit.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires an agency to consult with USFWS if the agency plans to conduct, license, or permit an activity involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. The Act also requires consultation with the head of the state agency that administers wildlife resources in the affected state. The purpose of this process is to promote conservation of wildlife resources by preventing loss of and damage to such resources and to provide for the development and improvement of wildlife resources in connection with the agency action. USFWS prepared a Fish and Wildlife Coordination Act report for the ARCF 2016 Project (USFWS 2015), and recommendations from the Coordination Act Report have been incorporated into project design and mitigation measures.

National Wild and Scenic Rivers Act

The National Wild and Scenic Rivers System (ND) was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska in order to protect river-related values.

Rivers are classified as wild, scenic, or recreational:

- Wild River Areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- Scenic River Areas – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- Recreational River Areas – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases not all land within boundaries is, or will be, publicly owned, and the Act limits how much land the federal government is allowed to acquire from willing sellers. Visitors to these rivers are cautioned to be aware of and respect private property rights.

The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the federal government over waters as determined by established principles of law.

The Lower American River has been designated a “Recreational River” under both the California Wild and Scenic Rivers Act and the National Wild and Scenic Rivers Act. The Lower American River Watershed begins at Folsom Dam and flows 30 miles to its confluence with the Sacramento River near downtown Sacramento. This segment of the river includes the American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, as well as the ARMS.

Clean Water Act Section 404

Section 404 of the Clean Water Act (CWA) requires a project proponent to obtain a permit from USACE before engaging in any activity that involves discharge of dredged or fill material into waters of the United States, including wetlands. On August 31, 2021, the U.S. District Court for the District of Arizona vacated and remanded the Navigable Waters Protection Rule in the case of the Pascua Yaqui Tribe v. the Environmental Protection Agency (EPA). Following the decision, EPA and USACE halted implementation of the Navigable Waters Protection Rule and are currently interpreting “waters of the United States” consistent with the pre-2015 regulations and associated guidelines and case law, including the Supreme Court decision *Rapanos v. United States*, 547 U.S. 715 (2006). On December 7, 2021, the EPA and USACE published the proposed rule to revise and restore the definitions of “waters of the United States” consistent with the 1986 regulations informed by Supreme Court case law.

Waters of the United States (with the exception of wetlands) are currently defined as territorial seas and waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; interstate waters, including wetlands; other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; impoundments of waters otherwise defined as waters of the United States; and wetlands adjacent to waters identified above. Wetlands are areas that are

inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. During review of a project, USACE must ensure compliance with applicable Federal laws, including EPA's Section 404(b)(1) Guidelines. USACE regulations require impacts on waters of the United States to be avoided and minimized to the maximum extent practicable, and that unavoidable impacts be compensated (33 CFR 320.4[r]). For wetlands, the U.S. Supreme Court in *Sackett v. EPA* (SCOTUS 2022) recently announced the continuous surface connection test, which requires direct adjacency between the waterbodies. USACE and the EPA revised the definition of "Waters of the United States" in the Federal Register (September 8, 2023).

Clean Water Act Section 401

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate State agency stating that the intended dredging or filling activity is consistent with the State's water quality standards and criteria. In California, the State Water Resources Control Board (SWRCB) delegates the authority to grant water quality certification to the nine Regional Water Quality Control Boards (RWQCBs); the CVRWQCB has jurisdiction over the San Joaquin Valley. The CVRWQCB issued a Clean Water Act Section 401 Water Quality Certification and Order in 2021 which contains avoidance and minimization measures and compensatory mitigation requirements (CVRWQCB 2021). If any of the ARCF 2016 Projects extend past the orders sunset date of July 12, 2026, USACE would be required to either amend its current permit or obtain a new permit from the CVRWQCB. Separate 401 Water Quality Certifications would be obtained for offsite mitigation sites. In addition, a new National Pollutant Discharge Elimination System (NPDES) permit would be obtained for any dewatering that would occur at MCP and American River Erosion Contract 4A.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (FCMA), as amended (16 U.S.C. 1801 et seq.) established:

- A fishery conservation zone between the territorial seas of the United States and 200 nautical miles offshore;
- An exclusive U.S. fishery management authority over fish within the fishery conservation zone (excluding highly migratory species);
- Regulations for foreign fishing within the fishery conservation zone through international fishery agreements, permits, and import prohibitions; and
- National standards for fishery conservation and management and eight regional fishery management councils apply those national standards in fishery management plans.

Congress enacted the 1996 amendments to the Act, known as the Sustainable Fisheries Act (P.L. 104-297), to address the substantially reduced fish stocks that declined as a result of direct and indirect habitat loss. The Sustainable Fisheries Act requires agencies consultation with NMFS concerning actions that may adversely impact Essential Fish Habitat (EFH).

In 2007, the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 was signed. It mandates the use of annual catch limits and accountability measures to end overfishing, provides for fishery management by a limited access program, and calls for increased international cooperation (Bureau of Ocean Energy Management No Date).

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act; California Water Code Section 13000 et seq.) requires that each of the State's nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. RWQCB jurisdiction includes Federally protected waters and areas that meet the definition of "waters of the state." Waters of the state include all surface water and groundwater, including saline waters, within the State's boundaries. The RWQCBs have discretion to take jurisdiction over areas not Federally regulated under Section 401, provided they meet the definition of waters of the State. Mitigation requiring no net loss of wetlands functions and values of waters of the State is typically required by the RWQCB.

California Endangered Species Act (CESA)

CESA ([CFGF]2050 et seq.) directs State agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that CDFW, together with DWR and any State lead agency, must develop reasonable and prudent alternatives consistent with conserving the species, while maintaining the project purpose to the greatest extent possible. Take of State-listed species incidental to otherwise lawful activities requires a permit, pursuant to Section 2081(b) of CESA. Project-related impacts of the authorized take must be minimized and fully mitigated, and adequate funding must be in place to implement mitigation measures and monitor compliance and effectiveness. Mitigation can include land acquisition, permanent protection and management, and/or funding in perpetuity of compensatory lands.

Local

City of Sacramento General Plan

The City of Sacramento 2035 General Plan Environmental Resources Element contains the following fisheries-related goals and policies relevant to the Proposed Action (City of Sacramento 2015):

Goal ER 2.1 Natural and Open Space Protection: Protect and enhance open space, natural areas, and significant wildlife and vegetation in the city as integral parts of a sustainable environment within a larger regional ecosystem.

- **Policy ER 2.1.4: Retain Habitat Areas.** The City shall retain plant and wildlife habitat areas where there are known sensitive resources (e.g., sensitive habitats, special-status,

threatened, endangered, candidate species, and species of concern). Particular attention shall be focused on retaining habitat areas that are contiguous with other existing natural areas and/or wildlife movement corridors.

- **Policy ER 2.1.5: Riparian Habitat Integrity.** The City shall preserve the ecological integrity of creek corridors, canals, and drainage ditches that support riparian resources by preserving native plants and, to the extent feasible, removing invasive nonnative plants. If not feasible, adverse impacts on riparian habitat shall be mitigated by the preservation and/or restoration of this habitat in compliance with State and Federal regulations or at a minimum 1:1 ratio, in perpetuity.
- **Policy ER 2.1.6: Wetland Protection.** The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands, to the extent feasible. If not feasible, the mitigation of all adverse impacts on wetland resources shall be required in compliance with State and Federal regulations protecting wetland resources, and if applicable, threatened or endangered species. Additionally, the City shall require either on- or off-site permanent preservation of an equivalent amount of wetland habitat to ensure no-net-loss of value and/or function.
- **Policy ER 2.1.9: Wildlife Corridors.** The City shall preserve, protect, and avoid impacts to natural, undisturbed habitats that provides movement corridors for sensitive wildlife species. If corridors are adversely affected, damaged habitat shall, be replaced with habitat of equivalent value or enhanced to enable the continued movement of species.
- **Policy ER 2.1.10: Habitat Assessments.** The City shall consider the potential impact on sensitive plants and wildlife for each project requiring discretionary approval. If site conditions are such that potential habitat for sensitive plant and/or wildlife species may be present, the City shall require habitat assessments, prepared by a qualified biologist, for sensitive plant and wildlife species. If the habitat assessment determines that suitable habitat for sensitive plant and/or wildlife species is present, then either (1) protocol-level surveys shall be conducted (where survey protocol has been established by a resource agency), or, in the absence of established survey protocol, a focused survey shall be conducted consistent with industry-recognized best practices; or (2) suitable habitat and presence of the species shall be assumed to occur within all potential habitat locations identified on the project site. Survey Reports shall be prepared and submitted to the City and the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Service (USFWS) (depending on the species) for further consultation and development of avoidance and/or mitigation measures consistent with state and federal law.
- **Policy ER 2.1.11: Agency Coordination.** The City shall coordinate with State and Federal resource agencies (e.g., California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers, and United States Fish and Wildlife Service (USFWS) to protect areas containing rare or endangered species of plants and animals.
- **Policy ER 2.1.14: Climate Change-related Habitat Shifts.** The City shall support the efforts of The Natomas Basin Conservancy and other habitat preserve managers to adaptively manage wildlife preserves to ensure adequate connectivity, habitat range, and

diversity of topographic and climatic conditions are provided for species to move as climate shifts.

- **Policy ER 2.1.15: Climate Change-related Habitat Restoration and Enhancement.** The City shall support active habitat restoration and enhancement to reduce impact of climate change stressors and improve overall resilience of habitat within existing parks and open space in the city. The City shall support the efforts of Sacramento County to improve the resilience of habitat areas in the American River Parkway.

Sacramento County General Plan

The Sacramento County General Plan contains the following fisheries-related goals and policies relevant to the Proposed Action:

Conservation Element (Adopted December 1993, amended September 2017)

Goal: Preserve and manage natural habitats and their ecological functions throughout Sacramento County.

- **Policy CO-58:** Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.
- **Policy CO-59:** Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function:
 - vernal pools
 - wetlands
 - riparian
 - native vegetative habitat
 - special status species habitat
- **Policy CO-61:** Mitigation should be consistent with Sacramento County-adopted habitat conservation plans.

Goal: Preserve, protect, and enhance natural open space functions of riparian, stream and river corridors.

- **Policy CO-88:** Where removal of riparian habitat is necessary for channel maintenance, it will be planned and mitigated to minimize unavoidable impacts upon biological resources.
- **Policy CO-89:** Protect, enhance and maintain riparian habitat in Sacramento County
- **Policy CO-90:** Increase riparian woodland, valley oak riparian woodland and riparian scrub habitat along select waterways within Sacramento County.
- **Policy CO-91:** Discourage introductions of invasive non-native aquatic plants and animals.
- **Policy CO-92:** Enhance and protect shaded riverine aquatic habitat along rivers and streams.

- **Policy CO-99:** Encourage habitat restoration and recreational opportunities as an integral part of bank and levee stabilization efforts.
- **Policy CO-101:** Stabilize the banks of rivers and streams in a manner that increases flood protection and increases riparian habitat functions.
- **Policy CO-105:** Channel modification projects shall be considered for approval by the Board of Supervisors only after conducting a noticed public hearing examining the full range of alternatives, relative costs and benefits, and environmental, economic, and social benefits.
 - **CO-105a.** Encourage flood management designs that respect the natural topography and vegetation of waterways while retaining flow and functional integrity. (Added 2016)
- **Policy CO-109:** Channel modifications should not prevent minimum water flows necessary to protect and enhance fish habitats, native riparian vegetation, water quality, or ground water recharge.
- **Policy CO-110:** Improvements in watercourses will be designed for low maintenance. Appropriate Manning's "n" ¹³ values will be used in design of the watercourses to reflect future vegetative growth (including mitigation plantings) associated with the low maintenance concept.
- **Policy CO-111:** Channel modifications shall retain wetland and riparian vegetation whenever possible or otherwise recreate the natural channel consistent with the historical ecological integrity of the stream or river.
- **Policy CO-112:** The use of concrete and impervious materials is discouraged where it is inconsistent with the existing adjacent watercourse and overall ecological function of the stream.
- **Policy CO-113:** Encourage revegetation of native plant species appropriate to natural substrate conditions and avoid introduction of nonindigenous species.
- **Policy CO-114:** Protect stream corridors to enhance water quality, provide public amenities, maintain flood control objectives, preserve, and enhance habitat, and offer recreational and educational opportunities.
- **Policy CO-121:** No grading, clearing, tree cutting, debris disposal or any other despoiling action shall be allowed in rivers and streams except for normal channel maintenance, restoration activities, and road crossings.
- **Policy CO-122:** River and stream maintenance should allow natural vegetation in and along the channel to assist in removal of nutrients, pollutants, and sediment and to increase bank stabilization, while minimizing impacts on conveyance.
- **Policy CO-123:** The use of native plant species shall be encouraged on revegetation plans.

- **Policy CO-124:** Maintain and manage rivers and streams to encourage special status species.
- **Policy CO-125:** Restore concrete sections of rivers and streams to natural or naturalized channels, where feasible for increased flood or conveyance capacity and groundwater recharge.
- **Policy CO-127:** Protect, preserve, and restore migratory routes for anadromous species.
- **Policy CO-130:** Protect, enhance and restore riparian, in-channel and shaded riverine aquatic habitat for:
 - spawning and rearing of fish species, including native and recreational nonnative, non-invasive species, where they currently spawn;
 - potential areas where natural spawning could be sustainable; and
 - supporting other aquatic species

Open Space Element (Adopted December 1993, Amended September 2017)

Goal: Open space lands in Sacramento permanently protected through coordinated use of regulation, education, acquisition, density transfer and incentive programs.

- **Policy OS-1:** Actively plan to protect, as open space, areas of natural resource value, which may include but are not limited to wetlands preserves, riparian corridors, woodlands, and floodplains associated with riparian drainages.
- **Policy OS-2:** Maintain open space and natural areas that are interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement and sustain ecosystems.

American River Parkway Plan 2008

The purpose of the Parkway Plan is to provide a guide to land use decisions affecting the Parkway (the area along the Lower American River from Folsom Lake, downstream to the American River’s confluence with Sacramento River, including land owned/managed by Sacramento County Regional Parks or the State of California); specifically addressing its preservation, use, development and administration (County of Sacramento 2008). Policies relating to fisheries and fisheries-related resources within the American River Parkway Plan are as follows:

Aquatic Communities Policies:

- **Policy 3.7:** The parkway shall be managed to preserve, protect and/or restore riparian and in-channel habitat necessary for spawning and rearing of fish species, including native Chinook salmon (fall-run), steelhead, and Sacramento splittail, and recreational non-native striped bass and American shad. Priority shall be on providing diversity and complexity of habitat, consistent with recreational safety needs.

- **Policy 3.8:** It is the intent of this plan that available water provide adequate seasonal river flows and water temperatures to achieve and maintain viable populations and life stages of federal or state listed species, such as the CV steelhead trout. In addition, species of primary concern include: naturally spawning Chinook salmon (fall-run) and Sacramento splittail; non-native American shad and striped bass; and their macroinvertebrate food sources in the Lower American River.
- **Policy 3.9:** Responsible local and state agencies shall, and federal agencies should, discourage introductions of invasive non-native aquatic plants and animals.
- **Policy 3.10:** In-stream woody material shall be managed to provide fish habitat in the Lower American River consistent with recreational safety needs.
- **Policy 3.11:** Agencies managing the parkway shall identify, enhance and protect:
 - areas where maintaining riparian vegetation will benefit the aquatic and terrestrial resources;
 - current shaded riverine aquatic habitat; and
 - other areas that can support a shaded riverine aquatic habitat, as time and resources permit, especially as associated with flood control or federally/state mandated species protection projects.
- **Policy 3.12:** In order to reduce stranding and predation of anadromous fish, minor grading and dredging should be conducted to provide positive drainage from floodplain ponds to the low flow channel of the American River.

American River Parkway Natural Resources Management Plan

The American River Parkway Natural Resources Management Plan (NRMP) is intended to provide relevant and defensible information to Sacramento County Regional Parks (SCRP) for making informed decisions for managing, maintaining, and enhancing Parkway resources (SCRP et al 2023). In general, the NRMP provides an understanding of existing Parkway resources, the effects of disturbances such as flood, fire, invasive species, and human impacts, as well as opportunities for protections and enhancements (SCRP et al 2023). The NRMP advises resource management for promoting healthy ecosystems and resource protections, while balancing concurrent Parkway goals of flood control, recreational opportunities, and public safety (SCRP et al 2023).

While monitoring may be conducted by others, it is the responsibility of SCRP to coordinate and integrate any monitoring efforts into the monitoring and reporting associated with the NRMP (SCRP et al 2023). Because the ARMS fall under the umbrella of the NRMP and its goals, SCRP is an appropriate entity to plan, manage, delegate, and/or coordinate the monitoring of the onsite ARMS success as per requirements for other standard conservation or mitigation bank easements. Appendix D of the NRMP includes a comprehensive monitoring plan that may be used for this purpose (SCRP et al 2023).

4.2.3 4.2.3 Analysis of Environmental Effects

Analysis Methodology

An analysis of effects from implementation of the Proposed Action was conducted on fisheries and fisheries-related resources. The analysis focuses on evaluating impacts with the potential to adversely affect special-status species and their habitats and other habitats considered sensitive by Federal, State, or local agencies. This evaluation considers temporary and permanent habitat loss and disturbance and potential for direct or indirect injury or death of individuals. Impact conclusions consider the habitat quality, impact extent, impact duration, and impact intensity (e.g., level of harm, injury/loss, or degradation suffered by the resource).

Basis of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G and Section 15065 of the State CEQA Guidelines, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). Implementing the project would have a significant impact on aquatic resources and fisheries if it would result in any of the following:

- a. Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS;
- b. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.

Environmental Effects

No Action Alternative

The No Action Alternative for this SEIS/SEIR is Alternative 2, the authorized project from the 2016 GRR Final EIS/EIR (USACE 2016, p. 45-58). Alternative 2 included all the levee improvements discussed in Alternative 1 of the 2016 GRR Final EIS/EIR (USACE 2016, p. 31-45), however the extent of the levee raises along the Sacramento River were significantly less due to the widening of the Sacramento Weir and Bypass included in Alternative 2.

As described in the 2016 ARCF GRR Final EIS/EIR, this SEIS/SEIR's No Action Alternative authorized the following impacts in the American River, Sacramento River, and Magpie Creek (USACE 2016, p. 45-46):

“Instead of implementing the majority of levee raises included in Alternative 1...The levees along the American River... and Magpie Creek, are planned to be improved to address identified seepage, stability, erosion, and height concerns through the methods

described under Alternative 1 of the 2016 GRR Final EIS/EIR. The levees along the Sacramento River are planned to be improved to address identified seepage, stability, and erosion concerns through the measures described under Alternative 1 of the 2016 GRR Final EIS/EIR¹⁰. Due to environmental, real estate, and hydraulic constraints within the American River North and South basins, the majority of the levees are planned to be improved within the existing levee footprint to the extent practicable.”

Section 3.7.4 of the 2016 ARCF GRR Final EIS/EIR (USACE 2016) analyzes the environmental effects of the No Action Alternative on fisheries for this ARCF Comprehensive SEIS/SEIR. In summary, these environmental effects related to fisheries at the erosion protection sites along the Sacramento and American Rivers. (MCP, American River Erosion Contract 3B North and South, and Sacramento River Erosion Contract 3) include those described in Appendix B Table 4.2-2. Fisheries impacts related to improvements at the ARMS, and Sacramento River Mitigation Site (SRMS) [Grand Island] were not included in the No Action Alternative.

Table 4.2-2. Summarized Environmental Effects of the No Action Alternative on Fisheries and Fisheries-related Resources

Site	Project Action	Environmental Effect on Fisheries	Level of Significance According to 2016 ARCF GRR Final EIS/EIR
American River, Sacramento River	Rock placement	Disturb native resident pelagic fish via increase in noise, water turbulence, and turbidity; Native fish using nearshore habitat for cover would be displaced and vulnerable to predation	Less than significant, with mitigation incorporated
American River, Sacramento River	Rock Placement	Natural bank element of SRA habitat would be lost with placement of rock along the levee slope, this will be a temporary impact as sedimentation over time will create natural bank conditions once more	Less than significant
American River, Sacramento River	General construction	Disturbance of soils may increase sedimentation, increased suspended sediments (short term), and increased turbidity (short term) of nearshore aquatic habitat	Less than significant
American River, Sacramento River, MCP	General Ground Disturbing Activities	Could potentially cause erosion/soil disturbance, leading to an increase in sedimentation and turbidity, however creation of planting berms to provide shade and instream woody material elements of SRA habitat would not cause existing conditions to worsen	Less than significant
American River, Sacramento River, MCP	General Ground Disturbing Activities	Water quality impacts on fish physiology, behavior, habitat, and invertebrate prey resources	Less than significant with BMPs incorporated ¹¹
MCP	Cutoff wall and flood wall construction	Potential loss of Shaded Riverine Aquatic (SRA) habitat	Less than significant, with mitigation incorporated

¹⁰ USACE 2016, p. 36

¹¹ Water Quality Section 3.5 of 2016 ARCF GRR Final EIS/EIR

Proposed Action

4.2-a. Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS;

4.2-b. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors; impede the use of native wildlife nursery sites; substantially reduce the habitat of a fish population; or cause a fish population to drop below self-sustaining levels.

CEQA Impact Conclusion: Less than Significant with Mitigation Incorporated

NEPA Impact Conclusion: Short-term to Medium-term and Moderate Effects and Long-term and Minor Effects that are Less than Significant with Mitigation Incorporated.

Magpie Creek Project, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): No Impact.

Construction of the MCP and the piezometer network would not have an adverse effect on native fish, including candidate, sensitive, or special-status species due to a lack of species presence, lack of habitat, a heavily disturbed surrounding and degraded channel. Magpie Creek is not within designated critical habitat or EFH. Previous consultation with regulatory agencies has indicated that no special-status or non-listed native species are habitually present within Magpie Creek (ICF 2018); any potential for these species to occur would only be under high flow conditions and any native species are not expected to reside long-term in the Proposed Action area at the Magpie Creek location. Habitat at the MCP is of very low quality and is highly unlikely to support native fish species (ICF 2018), especially salmonids that are dependent on colder and reliable water flow during their migratory periods. The channel itself largely consists of concrete banks and substrate with limited areas containing natural bed. Magpie Creek is primarily driven by stormwater runoff and only contains a fully connected and wetted channel during and after storm events. Any fish established or present at the MCP are likely nonnative, as the degraded conditions would not support native fish survival and reproduction and would therefore not require any protective measures for conservation. SRA habitat was not quantified in Magpie Creek in the 2016 ARCF GRR Final EIS/EIR but was assumed to be low both in quantity and quality due to the general very poor habitat value of the Creek (USACE 2016). Therefore, no effect would occur to native, candidate, sensitive, or special-status species or their habitats from the construction of the MCP and there is anticipated to be no effect on native fish movement. Piezometer installation would occur above the OHWM and would include very limited ground disturbance. Construction of the Proposed Action would not substantially reduce native fish habitat or populations.

NEPA Impact Conclusion (Design Refinements): No Effect.

The CEQA impact discussion above also applies to NEPA. The design refinements are anticipated to have no new effect on native fish populations and movement, including special-status species, because existing habitat quality is very poor and unlikely to support native fish populations, and no special-status species occur in the creek.

American River Erosion Contract 3B North and South, and American River Erosion Contract 4B

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

American River Erosion Contract 3B North and South includes a different method of erosion protection than was described in the ARCF GRR Final EIS/EIR but would be implemented at similar locations. In addition, the American River Erosion Contract 4B would include velocity work (fluvial erosion protection activities) and tree scour work (which includes activities preventing scouring around trees). However, velocity and tree scour work would occur above the OHWM and would therefore have no impact on native fish species. American River Erosion Contract 3B North and South would disrupt native fish during the construction of erosion protection improvements, including rock placement and IWM installation. Construction activities would temporarily disturb native, resident and migratory fish by increasing noise, water turbulence, and turbidity, causing them to move away from the area of rock placement and put them at a slightly increased risk of predation. Construction of bank protection would disturb soils and lead to increased turbidity in the nearshore aquatic habitat, which may cause benthic invertebrates currently inhabiting rock surfaces/crevices that are prey for native fish, to be buried or otherwise displaced. However, rock placement (described below), would functionally replace this habitat and the impact to benthic invertebrate prey species would be temporary and less than significant, especially given the high rate of invertebrate reproduction. The increase in suspended solids and turbidity would generally be short term. Sedimentation and turbidity increases may affect fish physiology, behavior, and habitat. Fish could also be affected by accidental spill of hazardous material during construction. These impacts could result in a substantial adverse effect on fish movement and health, but potential for such impacts would be reduced to less than significant by implementing avoidance and minimization measures described in Mitigation Measures FISH-3 and GEO-1 below and WATERS-1 and WQ-1 (Appendix B 3.4 Water Quality).

Placement of rock riprap below the OHWM may adversely affect fish that occur in the river, including winter-run Chinook salmon, CV steelhead, and CV spring- and fall-run Chinook salmon due to: (1) incidental take during construction; (2) fragmentation of existing natural bank habitats due to the placement of revetment and IWM; and (3) the potential loss of long-term fluvial functioning necessary for the development and renewal of SRA habitat along the bank.

Impacts to SRA and other salmonid habitat from construction of the American River Erosion Contract 3B North and South are quantified in Appendix B Table 4.2-3.

Table 4.2-3. American River Erosion Contract 3B North and South Fisheries Habitat Impacts.

Type of Habitat	Proposed Action Impact	Design Refinements Impact
Shaded Riverine Aquatic	24.0 acres	7.86 acres

A temporary loss of SRA habitat and disturbance of instream habitat would occur and could result in a significant temporary impact, but over the long term, the erosion protection sites would support higher quality SRA habitat than under existing conditions, resulting in a beneficial long-term effect. Because the project site is expected to recover in the long term and provide improved habitat for fish species, the project would not conflict with the river’s outstandingly remarkable value of fisheries designation under the Federal Wild and Scenic Rivers Act and would not be in conflict with the American River Parkway Plan. In addition, Mitigation Measures FISH-1 and FISH-2 would be implemented to ensure significant impacts on fish habitat are reduced to less than significant by requiring modeling to quantify impacts and compensation for habitat loss,

NEPA Impact Conclusion (Design Refinements): Short-term to Medium-Term and Moderate effects that are Less than Significant with Mitigation Incorporated.

The CEQA impact discussion above also applies to the NEPA design refinements. Appendix B Table 4.2-3 presents the acreage of change for the design refinements. The impacts of the design refinements would therefore be similar to those identified in the ARCF GRR Final EIS/EIR. With implementation of Mitigation Measures FISH-1, FISH-2, FISH-3, and GEO-1, which were previously adopted for the ARCF 2016 Project, there would be a less-than-significant impact on native fish populations and movement, including special-status species, in the American River Erosion Contract 3B North and South work areas.

Mitigation Measure FISH-1: Complete Fish Habitat Assessment and Simulation Model (FHAST).

The FHAST model is an agreed upon Conservation Measure from NMFS that fulfills ESA and Magnuson-Stevens Fishery Conservation and Management Act (MSA) requirements (USACE 2023). FHAST will be a publicly available model for estimating effects on levee protection and habitat mitigation measures for salmonid, sturgeon, and other fish species in the Sacramento River Basin. Following initial model approval, USACE will develop processes for estimating habitat effects in coordination with stakeholders. The FHAST model may be utilized to estimate the effects of levee protection and any habitat mitigation measures for the ARCF 2016 Project. The FHAST estimates will be used to inform all other mitigation measure implementations planned for fisheries and fisheries-related resources associated with ARCF 2016 Project effects.

Timing: During planning, before construction

Responsibility: USACE

Mitigation Measure FISH-2: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.

USACE will implement the following avoidance, minimization, and compensation measures.

- For identified designated critical habitat of listed fish species, where feasible, all efforts will be made to compensate for impacts where they have occurred, or elsewhere in the Sacramento or American River Basins. Effects on designated critical habitat, SRA habitat, and instream components combined, and the compensation value of replacement habitat will be informed by a qualitative assessment of habitat value from the FFAST model. The amount of mitigation will be assessed by calculating the area of effect below the OHWM combined with the qualitative model assessment.
- USACE will compensate for SRA habitat losses either by constructing off-site compensation sites, purchase of credits at a NMFS-approved conservation bank where appropriate, or by implementing a combination of the two, and by funding a cooperative research grant for green sturgeon. USACE will compensate for lost habitat using NMFS-approved mitigation actions at a 1:1 ratio prior to construction, 2:1 ratio during construction, or a 3:1 ratio if mitigation actions occur after construction. SRA habitat compensation sites will be evaluated with the FFAST model and established in coordination with NMFS and USFWS as part of consultation under Section 7 of the Endangered Species Act for the ARCF GRR. On-site created SRA habitat acreage will also be counted toward offsetting lost SRA habitat.
- As described in the Habitat Mitigation, Monitoring, and Adaptive Management Plan (Appendix I of the 2016 ARCF GRR FEIS/EIR), compensation sites will be monitored, and vegetation will be replaced as necessary based on performance standards described in the plan.

Timing: Before, during, and after construction

Responsibility: USACE

Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

To avoid and minimize effects on listed fish species, the following measures will be implemented by the Project Partners:

- In-water construction activities (all activities below the OHWM including placement of rock revetment) will be limited to the work window of July 1 through October 31. The in-water work window (as it applies to the Sacramento River, American River, and Magpie Creek only) could be extended to November 15 with NMFS approval. In addition, NMFS approved an earlier start date of June 1 for earlier contracts that are already under construction, and NMFS would possibly approve this earlier start date for American River Erosion Contract 3B North and South on a case-by-case basis.

- Erosion control measures, or best management practices (BMPs), will be implemented, including a SWPPP and Water Pollution Control Plan, to minimize the entry of soil or sediment into the Sacramento River. BMPs will be installed, monitored for effectiveness, and maintained throughout construction operations to minimize effects on Federally listed fish and their designated critical habitat. Maintenance will include daily inspections of all heavy equipment for leaks.
- USACE will stockpile construction materials, such as portable equipment, vehicles, and supplies, at designated construction staging areas and barges.
- USACE will stockpile all liquid chemicals and supplies at a designated impermeable membrane fuel and refueling station with a 110% containment system (container with 10% extra capacity).
- USACE will limit site access to the smallest area possible to minimize disturbance.
- USACE will minimize ground and vegetation disturbance during project construction, and clearly mark project limits, including the boundaries of designated equipment staging areas; ingress and egress corridors; stockpile areas for spoils disposal, soil, and materials; and equipment exclusion zones.
- USACE and construction contractors will observe a 15-mile-per-hour speed limit or less (depending on constraints placed on the project for other natural resources analyzed as part of the Proposed Action) within construction areas for all project-related vehicles, except on County roads and on State and Federal highways.
- USACE will secure or remove litter and debris from the project daily. Such materials or waste will be deposited at an appropriate disposal or storage site.
- USACE will immediately (within 24 hours) clean up and report any spills of hazardous materials to the USFWS, NMFS, and California Department of Fish and Wildlife (CDFW). Any such spills, and the success of the efforts to clean them up, shall also be reported in post-construction compliance reports.
- USACE will screen any water pump intakes prior to project activities, such as irrigation or dewatering, to maintain an approach velocity of 0.2 feet per second or less when working in areas that may support Federally listed fish species.
- USACE will participate in an existing Interagency Working Group to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF 2016 Project.
- USACE will coordinate with NMFS during pre-construction engineering and design as future flood risk reduction actions are designed to ensure that conservation measures are incorporated to the extent practicable and feasible, and projects are designed to maximize ecological benefits.

- USACE will implement a Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP) with an overall goal of ensuring that the conservation measures achieve a high level of ecological function and value. The HMMAMP would include:
 - Specific goals and objectives and a clear strategy for maintaining all project conservation elements for the life of the project.
 - Measures to be monitored by USACE for 10 years after construction. USACE will update its O&M manual to ensure that the HMMAMP is adopted by the local sponsor to ensure that the goals and objectives of the conservation measures are met for the life of the project.
 - Specific goals and objectives and a clear strategy for achieving full compensation for all project-related effects on listed fish species.
 - The HMMAMP shall include a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with future ARCF GRR projects as described in the Proposed Action.
 - USACE will include, as part of the HMMAMP, a Riparian Corridor Improvement Plan as part of the project, with the overall goal of maximizing the ecological function and value of the existing levee system in the Sacramento metropolitan area.
- USACE will continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting annual meetings and issuing annual reports throughout the construction period as described in the HMMAMP.
- USACE will seek to avoid and minimize adverse construction effects on listed species and their critical habitat to the extent feasible and will implement on-site and off-site compensation actions as necessary.
- For identified designated critical habitat, where feasible, all efforts will be made to compensate for effects where they have occurred or in close proximity. USACE will develop and implement a compensatory mitigation accounting plan and associated monitoring and adaptive management plans for on-site mitigation efforts. To ensure the tracking of compensatory measures associated with implementation of the Proposed Action. Monitoring for the establishment of riparian tree and shrub species within shaded riparian aquatic habitat is expected to last approximately 5 to 8 years, not to exceed 10 years. Establishment success will be based on criteria determined on a site-by-site basis with NMFS. Once the monitoring period is complete, all vegetation maintenance and monitoring will transfer and be the responsibility of the non-Federal sponsor and local maintaining agency. USACE will continue to coordinate with NMFS during all phases of construction, implementation, and monitoring by hosting meetings and issuing annual reports throughout the construction period.

- USACE will minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable. Where appropriate, removed IWM will be anchored back into place, or if not feasible, new IWM will be anchored in place.
- USACE will consider varying the elevation of planting benches and IWM to accommodate a wide variety of water years and ensure there is ample shoreline habitat in different flow scenarios.
- USACE will minimize the removal of existing vegetation during project-related activities. If needed, removed or disturbed vegetation will be replaced with native riparian vegetation. USACE will also ensure that the planting of native vegetation would occur as described in the HMMAMP. All plantings must be provided with the appropriate amount of water to ensure successful establishment.
- USACE will provide a copy of the BOs, or similar documentation, to the prime contractor, making the prime contractor responsible for implementing all requirements and obligations included in the documents and for educating and informing all other contractors involved in the project as to the requirements of the BOs. A notification that contractors have been supplied with this information will be provided to NMFS. A NMFS-approved Worker Environmental Awareness Training Program for construction personnel will be conducted by the NMFS-approved biologist for all construction workers before initiating construction activities. The program will provide workers with information on their responsibilities with regard to Federally listed fish, their critical habitat, an overview of the life-history of all the species, information on take prohibitions, protections afforded these animals under ESA, and an explanation of the relevant terms and conditions of the issued BO. Written documentation of the training will be submitted to NMFS within 30 days of the completion of training.
- USACE will designate a NMFS-approved biologist as the point-of-contact for any contractor who might incidentally take a living, or find a dead, injured, or entrapped threatened or endangered species. This representative will be identified to the employees and contractors during all employee education programs. If lethal take is to occur on any ESA-listed species, USACE and NMFS will be contacted immediately.
- USACE will avoid adverse effects from nighttime construction activities. USACE will use the minimal amount of lighting necessary to safely and effectively illuminate the work areas. USACE will shield and focus lights on work areas and away from the water surface (e.g., Sacramento River), to the maximum extent practicable.
- USACE will monitor turbidity during in-water work activities to ensure levels stay below the allowable thresholds (turbidity measures 1,000 feet downstream of the extent of the site is not to exceed double the upstream of site turbidity measurement). Work will stop if the threshold is exceeded, until turbidity decreases below the threshold and/or activities creating turbidity are altered to create less.

- USACE will continue and to conduct a tagging and monitoring program for previously tagged green sturgeon at ARCF 2016 Project sites pre-construction, during construction, and post-construction on the Sacramento River. USACE will conduct telemetry monitoring of green sturgeon for 3 years post-construction within the ARCF action area. Monitoring results will be reported annually. This is in coordination with the Green Sturgeon Habitat Mitigation Monitoring Plan. USACE will also conduct telemetry monitoring near the confluence of the American River. Monitoring would not be required above the confluence, as previous and on-going monitoring studies and literature citations have shown no green sturgeon documented migrating up the American River. USACE will continue to work in close collaboration with other state and federal research agencies and academia institutions. This collaboration will assist in the further findings of impacts associated with USACE projects and impacts to other listed species as they are being monitored by other research partners.
- USACE will identify all habitats containing, or with a substantial possibility of containing, listed terrestrial, wetland, aquatic, and/or plant species in the potentially affected project areas. The project will minimize effects by modifying engineering design to avoid potential effects.
- USACE will install IWM along all projects associated with the ARCF GRR at 40-80 percent shoreline coverage at all seasonal water surface elevations in coordination with the Interagency Working Group or the Bank Protection Working Group, where site engineering allows. The purpose is to maximize the refugia and rearing habitats for juvenile fish.
- USACE will develop a vegetation design deviation for each site in consultation with NMFS to allow for the protection of existing vegetation in place and the planting of new low-risk vegetation on the lower slope of the levee system.
- USACE will provide NMFS a detailed O&M plan for all aspects of the Proposed Action, to ensure all sites are properly managed and the design deviation allowing vegetation to remain is followed. This plan shall be incorporated into the O&M manual for each site to ensure vegetation removal does not occur in the future.
- USACE will provide NMFS a Long Term Management Plan outlining the maintenance of all on-site and off-site mitigation. The plan will include performance goals, monitoring plans, replanting plans, and adaptive management plan for how mitigation will be addressed if the mitigation site fails.
- USACE will provide NMFS with a site-specific project description prior to advertising for construction contracts at any sites. The project description will include a design at or beyond the 65 percent level, anticipated impacts, and proposed mitigation ratios for the site. NMFS must provide written approval that the site is consistent with the 2021 Biological Opinion for the ARCF GRR prior to construction, NMFS will respond within 14 days of receiving site-specific documents.

- USACE will submit a report to NMFS of any incidental take that occurs as part of the Proposed Action. This report will be submitted no later than December 31 of each reporting cycle.

Timing: Before, during, and after construction

Responsibility: USACE

Mitigation Measure GEO-1: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.

Please refer to Appendix B, Section 3.2, “Geology” for the full text of this mitigation measure.

Timing: During construction

Responsibility: USACE

With the implementation of Mitigation Measures FISH-1, FISH-2, FISH-3, and GEO-1, the significant construction, SRA, and salmonid habitat effects associated with the implementation of the Proposed Action at American River Erosion Contract 3B North and South would be reduced to less than significant. A habitat model would be used to determine the extent of effects and work windows, and construction BMPs would be imposed to reduce disturbance during construction, and compensatory mitigation would be implemented to replace lost habitat value.

American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

Improvements at American River Erosion Contract 4A would be implemented above the OHWM in the American River floodplain. Although the Proposed Action would include construction of a berm and a substantial bike trail reroute, these improvements would be constructed in an area that is extensively disturbed by the SR-160 bridge, a railroad trestle, existing recreational facilities and substantial areas of informal encampments. The existing floodplain habitat is dominated by ruderal herbaceous/grassland and riparian forest/scrub, with some wetland areas. Improved areas including paved and unpaved roads and trails are also present. Construction of the Proposed Action would occur entirely above the OHWM, and the improvements included in the Proposed Action (new berm and relocated bike trail) would not change the nature or quality of critical habitat available to CV steelhead, fall-run and spring-run Chinook salmon, and other native fish during high flow events. Parts of the bike trail reroute may need to be raised which would alter the topography of the area. There is active coordination with NMFS on this issue and a more detailed analysis on the extent of impacts to fish stranding is going to be included in the new Biological Opinion. If it is determined in the new Biological Opinion that there will be significant fish stranding, the Biological Opinion will outline measures that would be incorporated to reduce impacts to a less than significant level.

NEPA Impact Conclusion (Design Refinements): Short-term and Long-term, Moderate Effects that are Less than Significant with mitigation.

The ARCF GRR Final EIS/EIR did not include berms or new bike trail alignments in this area. Therefore, the impact under NEPA would be similar to the CEQA impact discussion above. Implementation of measures in the new upcoming Biological Opinion would reduce possible impacts from raised topography to a less than significant level.

Sacramento River Erosion Contract 3

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

The Sacramento River Erosion Contract 3 includes a different method of erosion protection but implemented at similar locations to the ARCF GRR Final EIS/EIR. The Sacramento River Erosion Contract 3 would disrupt native fish during the construction of erosion protection improvements, including rock placement and IWM installation. Construction activities would temporarily increase local noise and turbidity, causing fish to move away from the area that might be providing habitat and protective cover. As some species and life stages use near-shore habitat for protective cover, the noise and turbidity increases may cause individuals to move away from shore and into the river channel, increasing their predation risk. Construction of bank protection would disturb soils and lead to increased turbidity in the nearshore aquatic habitat, which may cause benthic invertebrates currently inhabiting rock surfaces/crevices and are prey for native fish, to be buried or otherwise displaced. However, rock placement (described below), would functionally replace this habitat and the impact to benthic invertebrate prey species would be temporary and less than significant, especially given the high rate of invertebrate reproduction. The increase in suspended solids and turbidity would generally be short term. Sedimentation and turbidity increases may affect fish physiology, behavior, and habitat. Fish could also be affected by accidental spill of hazardous material during construction. These impacts could result in a substantial adverse effect on fish movement and health, but potential for such impacts would be reduced to less than significant by implementing avoidance and minimization measures described in Mitigation Measures FISH-3 and GEO-1 above and WATERS-1 and WQ-1 (Appendix B 3.4 Water Quality).

Sacramento River Erosion Contract 3 may adversely affect winter-run Chinook salmon, CV steelhead, CV spring- and fall-run Chinook salmon, southern distinct population segment (sDPS) of North American green sturgeon, and delta smelt due to: (1) incidental take during construction; (2) fragmentation of existing natural bank habitats due to the placement of revetment and IWM; and (3) the potential loss of long-term fluvial functioning necessary for the development and renewal of SRA habitat along the bank.

Impacts to delta smelt were calculated according to the 2021 USFWS BO. Effects to delta smelt are presented in Table 4.2-4. The impact to delta smelt habitat would result from the placement of material below the mean higher high tide or OHWM, whichever is at a higher elevation. The placement of rock into nearshore habitats has the potential to convert vegetated shorelines suitable for spawning and rearing to rock. The impact on delta smelt would be significant, but

implementing Mitigation Measures FISH-1, FISH-2, and FISH-3 would reduce this impact to less than significant by requiring modeling to quantify impacts, implementing compensatory mitigation for habitat loss, and minimizing impacts during construction.

Impacts to salmonids and green sturgeon habitat are presented in in Table 4.2-3. The impact to salmonids and green sturgeon would be due to the placement of rock below the mean higher high tide or OHWM, whichever is at a higher elevation. Nearshore areas in the delta are typically used by these species for juvenile rearing, foraging and predator evasion. The placement of rock into nearshore habitats has the potential to permanently degrade the quality of this habitat. This impact would be significant. Implementing Mitigation Measures FISH-1, FISH-2, and FISH-3 would reduce this impact to a less-than-significant level by requiring modeling to quantify impacts and implementing compensatory mitigation for habitat loss.

Table 4.2-4. Sacramento River Erosion Contract 3 Fisheries Habitat Impacts.

Type of Habitat	Proposed Action Impact	Design Refinements Impact
Delta Smelt	12.4 acres	0.40 acres
Salmonids and Green Sturgeon	28.7 acres	1.00 acres

With the implementation of Mitigation Measures FISH-1, FISH-2, FISH-3, and GEO-1, the significant construction-related and long-term impacts on fish habitat, including that of special-status species, associated with the implementation of the Proposed Action for the Sacramento River Erosion improvements would be reduced to less than significant. The FFAST model would be used to determine the extent of effects, work windows and construction BMPs would be imposed to reduce disturbance during construction, and compensatory mitigation would be implemented to replace lost habitat value.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate and Long-Term and Minor Effects that are Less than Significant with Mitigation Incorporated.

The CEQA impact discussion above also applies to the NEPA design refinements. The impacts of the design refinements are generally related to the footprint of improvements and would therefore be similar to those identified in the ARCF GRR Final EIS/EIR. Appendix B Table 4.2-4 presents the acreage of change for the design refinements.

Mitigation Measure FISH-1: Complete Fish Habitat Assessment and Simulation Model (FFAST).

Please refer to Impact 4.2-a and b, Project Components: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B for the full text of this mitigation measure.

Timing: During planning, before construction

Responsibility: USACE

Mitigation Measure FISH-2: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.

Please refer to Impact 4.2-a and b, Project Components: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B for the full text of this mitigation measure.

Timing: Before, during, and after construction

Responsibility: USACE

Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

Please refer to Impact 4.2-a and b, Project Components: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B for the full text of this mitigation measure.

Timing: Before, during, and after construction

Responsibility: USACE

Mitigation Measure GEO-1: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.

Please refer to Appendix B, Section 3.2, “Geology” for the full text of this mitigation measure.

Timing: During construction

Responsibility: USACE

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

The ARMS includes creation of habitat as compensatory mitigation for impacts of the ARCF 2016 Project along the American River. Habitat would include VELB, riparian habitat suitable for western yellow-billed cuckoo, and aquatic and inundated riparian habitat suitable for salmonids that may include CV steelhead and fall-run Chinook salmon. Construction of the ARMS would include in-water work below the OHWM in the American River as well as the existing pond located at the ARMS. When the pond is inundated it does not provide habitat for special-status fish species present in the main channel of the American River. Therefore, any pre-breach/connection work occurring on the landside portion of the embankment of the pond would have no impact on special-status or other native fish species present within the American River. However, any actions below the OHWM on the American River could potentially cause turbidity and effects on fish similar to those described above for American River Erosion Contract 3B

North and South, the American River Erosion Contract 4B and the Sacramento River Erosion Contract 3. Although alteration of the riverbank and habitat creation could result in loss of SRA habitat and salmonid habitat, the restorative components of this portion of the Proposed Action would result in a net gain of SRA and salmonid habitat. Current programmatic level designs for ARMS have not been enumerated to provide quantitative data demonstrating this net gain. Detailed comparison of pre- and post-project fisheries conditions will be disclosed in the Final SEIS/SEIR.

The ARMS would change the conditions in the American River floodplain that would include planting additional riparian vegetation and creating channels and aquatic habitat identified by NMFS and USFWS as acceptable compensatory mitigation for listed fish species. The ARMS would increase the amount and quality of fish habitat when restoration is completed and vegetation is established, thus maintaining the ARMS compliance with the American River Parkway Plan. The ARMS would connect an existing inactive mining pit to the American River during all flow conditions. The ARMS would therefore reduce the future potential for fish stranding. Fisheries impacts for the ARMS during construction may be significant dependent on conditions and presence of fish near the breach location while berm breaching is occurring, but would be reduced to a less-than-significant level by implementing Mitigation Measures FISH-3, GEO-1, WATERS-1 and WQ-1 (Appendix B 3.4 Water Quality), which were previously adopted for the ARCF 2016 Project and would impose work windows and construction BMPs to minimize impacts during construction.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate and Long-term and Minor Effects that are Less than Significant with Mitigation Incorporated.

Construction of compensatory mitigation at the ARMS is not included in the ARCF GRR Final EIS/EIR. Therefore, the CEQA impact discussion above also applies to the NEPA design refinements for this project component. This impact would be less than significant with implementation of mitigation measures to minimize impacts during construction.

Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

Please refer to Impact 4.2-a and b, Project Components: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B for the full text of this mitigation measure.

Timing: Before, during, and after construction

Responsibility: USACE

Mitigation Measure GEO-1: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.

Please refer to Appendix B, Section 3.2, “Geology” for the full text of this mitigation measure.

Timing: During construction

Responsibility: USACE

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

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

Please refer to Appendix B, Section 4.3, “Water Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Sacramento River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

The SRMS includes creation of habitat as compensatory mitigation for impacts of the ARCF 2016 Project along the Sacramento River. Habitat improvements would be similar to those described above for the ARMS. Construction of these improvements would include in-water work below the OWHM in the Sacramento River, Steamboat Slough, and Cache Slough, potentially causing turbidity and effects on fish similar to those described above for American River Erosion Contract 3B North and South, the American River Erosion Contract 4B, and the Sacramento River Erosion Contract 3. Turbidity may cause benthic invertebrates currently inhabiting rock surfaces/crevices and that provide prey resources to native fish, to be buried or otherwise displaced. Habitat impacts to delta smelt, salmonids and green sturgeon habitat are presented in Table 4.2-6.

Table 4.2-6. SRMS Fisheries Habitat Impacts.

Type of Habitat	Proposed Action Impact	Design Refinements Impact
Delta Smelt	acres to be determined during design	acres to be determined during design
Salmonids and Green Sturgeon	acres to be determined during design	acres to be determined during design

The SRMS would include berm breaches and construction in areas that are currently not floodplain or fisheries habitat and would increase the amount and quality of fish habitat when construction is completed, and vegetation is established. This portion of the SRMS would not cause any negative impacts to prey available would be abated and would instead improve accessible foraging habitat for native fish. Fisheries impacts for this project component during construction may be significant but would be reduced to a less-than-significant level by implementing Mitigation Measures FISH-3, GEO-1, WATERS-1 and WQ-1 (Appendix B 3.4 Water Quality), which were previously adopted for the ARCF 2016 Project and would impose work windows and construction BMPs to minimize impacts during construction.

Mitigation Measure FISH-3: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

Please refer to Impact 4.2-a and b, Project Components: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B for the full text of this mitigation measure.

Timing: Before, during, and after construction.

Responsibility: USACE.

Mitigation Measure GEO-1: Analyze Hazardous Materials Spills and Implement Measures to Control Contamination.

Please refer to Appendix B, Section 3.2, “Geology” for the full text of this mitigation measure.

Timing: During construction

Responsibility: USACE

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

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

Please refer to Appendix B, Section 4.3, “Water Quality” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

NEPA Impact Conclusion (Design Refinements): Short-term and Minor Effects that are Less than Significant with Mitigation Incorporated

Construction of compensatory mitigation at the SRMS is not included in the ARCF GRR Final EIS/EIR. Therefore, the CEQA impacts discussion above also applies to the NEPA design refinements for this project component. This impact would be less than significant with implementation of mitigation measures to minimize impacts during construction.

Alternatives Comparison

Alternatives 3a through 3d

Alternatives 3a through 3d would change the location and type of improvements for the American River Erosion Contract 4A project component. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would be unchanged. Alternative 3a and 3b would alter project elements that are located above the OHWM of the American River and would not directly alter fish habitat. The permanent bike trail reroute for Alternative 3d and temporary bike trail reroute for Alternative 3c would include 0.2 acres of work below the OHWM. There would only be a small amount of area on the outskirts of the bike trail would be below the OHWM. With implementation of Mitigation Measures FISH-1, FISH-2, FISH-3, and GEO-1, there would be a less-than-significant impact on native fish populations and movement, including special-status species.

Similar to the Proposed Action Alternatives 3b and 3d would require altering the topography in the floodplain for the bike trail. The change in topography could increase the risk of fish stranding in the area and a more detailed analysis will be incorporated in the new NMFS Biological Opinion. The NMFS Biological Opinion will list measures that must be implemented if it is determined that there is a significant impact to fish stranding. Implementation of any measures for fish stranding associated with LAR C4A that are put in a new NMFS Biological Opinion would reduce impacts associated with fish stranding to less than significant levels. Alternatives 3a and 3c would not require raised bike trail reroutes, so unlike the Proposed Action, there is no risk of fish stranding. Alternative 3a effects to aquatic resources would be less than the Proposed Action. Alternative 3b effects to aquatic resources and fisheries would be similar to the Proposed Action, while Alternatives 3c and 3d adverse effects would be greater than the Proposed Action.

Table 4.2-7. Alternative 3a Effects on Aquatic Resources and Fisheries

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Since work for Alternative 3a is on the landside of the levee, there would be no risk to fish habitat or of fish stranding.	N/A	No Impact	No Impact

Table 4.2-8. Alternative 3b, 3c, 3d Effects on Aquatic Resources and Fisheries

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	American River Erosion Contract 4A	Impacts would be the same as the Proposed Action.	Measures in the New NMFS Biological Opinion	Less than Significant with Mitigation	Short-term and Long-term Moderate Effects that are Less than Significant with Mitigation
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3c may require a temporary detour that would impact 0.2 acres below the OHWM. The temporary detour would not require raising the bike trail, so there would not be a risk for fish stranding.	FISH-1, FISH-2, FISH-3, GEO-1,	Less than Significant with Mitigation	Short-term and Moderate Effects that are Less than Significant with Mitigation
4.2-a and 4.2-b	American River Erosion Contract 4A	Unlike the Proposed Action, Alternative 3c would impact 0.2 acres below the OHWM in order to build the bike trail reroute. The bike trail could need to be raised, which would increase the risk of fish stranding in the area. .	FISH-1, FISH-2, FISH-3, GEO-1, Measures in the New NMFS Biological Opinion	Less than Significant with Mitigation	Short-term and Long-term Moderate Effects that are Less than Significant

Alternatives 4a and 4b (CEQA Only)

Alternatives 4a and 4b include alternative designs for improvements to the ARMS. Both designs would include creation of floodplain habitat that may be utilized by number aquatic and semi-aquatic species, including juvenile salmonids. All other project components (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and SRMS) would have the same effects. Alternative 4a would construct a berm to retain the approximate 30-acre western portion of the existing inactive mining pit as a pond on the ARMS, and Alternative 4b would retain an approximately 20-acre portion as a pond. Alternative 4a would include approximately 51 acres of floodplain habitat below elevation 24.

Under Alternative 4b, a berm would be constructed to retain the approximate 20-acre southern portion of the existing inactive mining pit as a pond on the ARMS, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the man-made pond. Alternative 4b would include approximately 54 acres of floodplain habitat below elevation 24 as well. In addition, Alternative 4b would create approximately 47 acres of salmonid habitat, in addition to meeting mitigation needs for other terrestrial wildlife species. Figure 3.7.1-1 in Chapter 3, "Description of Project Alternatives" of the SEIS/SEIR illustrates Alternative 4a and Figure 3.7.2-1 illustrates Alternative 4b.

Unlike the ARMS, Alternatives 4a and 4b would not remove the existing stranding hazard posed by the man-made pond, and the existing risk of stranding fish in the retained portion of the pond as water recedes across the floodplain following high-water events would remain. Consequently, the presence of the pond at the completed restoration site reduces the overall habitat mitigation

value of the project in regard to salmonids, as the potential stranding of fish in the pond as water recedes creates a population “sink” (recurring loss of individuals in a population due to a single cause).

Table 4.2-9. Alternative 4a and 4b Effects on Aquatic Resources and Fisheries

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
4.2-a and 4.2-b	ARMS	Alternative 4 (a and b) would retain a portion of a man-made pond as a pond on the ARMS. This change would not reduce the existing risk of stranding fish as water receded across the floodplain following high-water events.	VEG-1, VEG-2, FISH-1, FISH-2, FISH-3, GEO-1, WATERS-1, WQ-1	Less than significant with mitigation incorporated

Alternative 5a

Under Alternative 5a, the SRMS would not be constructed. Instead, all remaining required mitigation credits from USFWS Approved Conservation Banks, whose service areas cover the ARCF project impacts. There would be no direct resource impacts from this action. The USFWS Approved Conservation Bank would have completed an independent NEPA/CEQA analysis. All other project components (MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS) would have the same effects compared to the Proposed Action.

Table 4.2-10. Alternative 5a Effects on Aquatic Resources and Fisheries

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and 4.2-b	SRMS	No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks	N/A	No impact	No impact

Alternative 5b

Under Alternative 5b, the SRMS portion would be completed at Watermark Farms, located along the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25. The site is characterized by agricultural and ruderal herbaceous habitat types. This site is in private ownership and would need to be purchased and comprehensively surveyed for sensitive biological resources before being utilized for ARCF mitigation. While there would be in-water work occurring below the OHWM of the Sacramento River (and consequent turbidity and other impacts on native fish species described for the Sacramento River Erosion Improvements), any negative impacts for Alternative 5b would be reduced to less than significant with the implementation of Mitigation Measures FISH-3 and GEO-1. Similar to the SRMS, Alternative 5b would benefit aquatic resources and fisheries at Watermark Farms by restoring important shallow water and SRA habitats. This would result in overall similar effects to aquatic resources and fisheries compared to the Proposed Action.

Table 4.2-11. Alternative 5b Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.2-a and 4.2-b	SRMS	Results in long term increase in aquatic habitat and benefit to special-status and other native fish species through the creation of shallow water and SRA habitat similar to the Proposed Action.	VEG-1, VEG-2, FISH-1 FISH-2 FISH-3 GEO-1 WATERS-1 WQ-1	Short-term less than significant with mitigation incorporated; long-term beneficial	Short-term and moderate effects that are less than significant with mitigation incorporated; long-term and minor effects that are less than significant.

Alternative 5c

Alternative 5c would combine three approaches to complete the ARCF SRMS requirements: 1) purchasing Delta Smelt Conservation Bank Credits from USFWS-approved banks; 2) providing funding for Sunset Pumps, a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, DWR and USFWS; and 3) the removal of the weir at Sunset Pumps and updating the pumping facility. The Sunset Pumps project would undergo its own NEPA/CEQA analysis prior to implementation.

Table 4.2-12. Alternative 5c Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.2-a and 4.2b	SRMS	No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks and Sunset Pumps project.	N/A	No Impact	No Impact

4.3 Special-status Species

This section focuses on analysis of special-status plants and wildlife. Vegetation and non-special-status wildlife are addressed in Appendix B, Section 4.1, and special-status fish are addressed in Appendix B, Section 4.2. For this analysis, special-status species are defined by the following codes:

- Listed, proposed, or candidates for listing under the federal Endangered Species Act (50 Code of Federal Register § 17.11 – listed; 61 FR 7591 – candidates).
- Listed or proposed for listing under the California Endangered Species Act (Fish and Game Code (FGC) §1992 Section 2050 et seq.; 14 California Code of Regulations (CCR) § 670.1 et seq.).
- Designated as Species of Special Concern by CDFW.
- Designated as Fully Protected by CDFW (FGC §§ 3511, 4700, 5050, and 5515).
- Species that meet the definition of rare or endangered under California Environmental Quality Act (CEQA) (14 CCR § 15380) including CNPS List Rank 1B and 2.

4.3.1 Existing Conditions/Affected Environment

Special-status species evaluated for potential to occur in the study area for the Proposed Action were identified based on review of current USFWS species lists (USFWS 2023), resource databases and other information available from NMFS (NMFS 2021), California Natural Diversity Database (CNDDDB) occurrences (CDFW 2023), and the California Native Plant Society (CNPS) online inventory (CNPS 2023). See the end of this appendix for the complete species lists. Additional species addressed in the environmental analysis for projects in the vicinity or in local or State conservation planning efforts were also considered (SRCSD 2014). The CNDDDB search yielded occurrences of a total of 72 special-status plants and animals within the US Geological Survey 9-quad search area (Taylor Monument, Rio Linda, Sacramento West, Sacramento East, Carmichael, Clarksburg, Florin, Isleton, Rio Vista); 64 of these species have been documented within 5 miles of the study area.

USACE has reinitiated consultation on the ARCF project under ESA Section 7. In 2021, USFWS and NMFS issued an amended BO for the ARCF project (USFWS 2021, NMFS 2021). See Table 4.3-1 for information on special-status species with the potential to occur at one or more of the project sites.

Since the issuance of the May 12, 2021 NMFS biological opinion (BO # WCRO-2020-03082), the ARCF program has identified additional mitigation option(s) to be further studied and evaluated. A new Programmatic Biological Assessment (BA) has been drafted to address future mitigation projects that would occur within the allowable ARCF mitigation areas. USACE is currently in discussions with USFWS regarding reinitiation of consultation under the ESA for the MCP, ARMS, and SRMS.

This project was coordinated with USFWS under the Fish and Wildlife Coordination Act. The mitigation measures presented reflect the recommendations presented in the CAR, and has been coordinated with USFWS, NMFS, and CDFW.

4.3.2.1 Special-status Wildlife Species

Table 4.3-1 provides a comprehensive list of the special-status species considered in this analysis. Special-status fish species with potential to occur within the study area are described in Appendix B, Section 4.2, “Aquatic Resources and Fisheries.” Species on the list were assessed on the basis of habitat requirements and distribution relative to the location of and vegetation communities occurring in and around the Project Area.

The “Potential to Occur” categories are defined as follows:

None: The Project Area does not provide habitat and occurs outside of the known extant geographic and/or elevation range for the species.

Unlikely: The Project Area provides only limited and low-quality habitat for a particular species and the known range for a particular species may be outside of the Project Area.

Likely: The Project Area and/or immediate vicinity provides suitable habitat for a particular species.

Present: The species (or evidence of its presence) was observed during biological resources surveys conducted within the Project Area.

Table 4.3-1. Special-status Species with the Potential to Occur in the Project Area.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Mammal	American badger	<i>Taxidea taxus</i>	--/SSC/--	Occurs in a wide variety of open, arid habitats but is most commonly associated with grasslands, savannas, mountain meadows, and open areas of desert scrub; principal habitat requirements appear to be sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground.	Likely. The potential exists for this species to use the Parkway. Although no signs of presence were observed, there were small fossorial mammal burrows and ground squirrel activity. There are two known occurrences within 5 miles; however, the most recent sighting was from 1991.
Mammal	Pallid bat	<i>Antrozous pallidus</i>	--/SSC/--	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	Likely. This species may roost in buildings and bridges in the Project Area; however, roosting is not reported by the CNDDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
Mammal	Western red bat	<i>Lasiurus blossevillii</i>	--/SSC/--	Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley.	Likely. This species may roost in mixed oak woodland habitat in the Project Area; however, roosting is not reported by the CNDDDB within 5 miles of the Project Area or within the nine-quadrangle area that includes the Project Area.
Amphibian	California tiger salamander	<i>Ambystoma californiense</i>	T/T/--	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	None. Poned area and some larger pools provide suitable breeding habitat but species is not known to occur within 5 miles of the project area and the general area is surrounded by development (which would restrict movement into the project area) and there is no connection to other habitat or populations. Species was not observed or captured during 2018 and 2020 vernal pool branchiopod surveys.
Invertebrate	Crotch's bumble bee	<i>Bombus Crotchii</i>	--/C/--	Open grasslands and scrub habitat in California with available underground nesting habitat in fossorial animal burrows.	Likely. Annual grassland and scrub habitats are available and several commonly visited flower species may occur in the Project Area.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Invertebrate	Monarch butterfly	<i>Danaus plexippus plexippus pop. 1</i>	--/C/--	California overwintering population <i>Danaus plexippus plexippus pop 1</i> . can be found in Northern California year-round, wintering on coast and breeding inland, including in the Central Valley.	Likely. Adults may feed on suitable nectar plants and breed in the Project Area if host plants are present. No CNDDB records of <i>Danaus plexippus plexippus pop 1</i> . within the project site (CDFW 2023), though monarchs have been observed throughout the greater Sacramento area (iNaturalist 2023, Western Monarch Milkweed Mapper 2023).
Invertebrate	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T/--/--	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	Present. This species occurs within the project footprint, except Sacramento River Erosion Contract 3.
Invertebrate	Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T/--/--	Common in vernal pools; also found in sandstone rock outcrop pools.	Present. Numerous seasonal wetlands present at MCP and known to occur at McClellan West Nature Area; observed at MCP during 2018 vernal pool branchiopod surveys.
Invertebrate	Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E/--/--	Vernal pools and ephemeral stock ponds.	Likely. Numerous seasonal wetlands present at MCP and known to occur at McClellan West Nature Area.
Reptile	Giant garter snake	<i>Thamnophis gigas</i>	T/T/--	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Unlikely. Limited suitable habitat and brackish water present at the SRMS. Low at other project locations due to lack of suitable habitat.
Reptile	Northwestern pond turtle	<i>Actinemys marmorata</i>	PT/SSC/--	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	Likely. Suitable habitat present near the SRMS and the ARMS. Observed upstream of the LAR project area during 2018 surveys.
Bird	American peregrine falcon	<i>Falco peregrinus anatum</i>	--/FP/--	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations.	Unlikely. Foraging habitat only. Only recorded occurrences in the Delta south of the SRMS within Rio Vista.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Bird	American white pelican	<i>Pelecanus erythrorhynchos</i>	--/SSC/--	In California, nests almost exclusively in large lakes in the Klamath Basin region. On migration and over winter, occurs across much of the state in open wetlands and sheltered bays and lagoons.	Unlikely. Suitable foraging habitat present at SRMS. No CNDDDB occurrences within 5 miles.
Bird	Bald eagle	<i>Haliaeetus leucocephalus</i>	--/E, FP/--	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.	Present. Suitable nesting habitat present; occurs within the ARMS.
Bird	Bank swallow	<i>Riparia riparia</i>	--/T/--	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam.	Likely. Previously observed approximately 0.5 miles downstream of the LAR sites. No bank nesting habitat observed within the Project Area but may use the Project Area for foraging.
Bird	California black rail	<i>Laterallus jamaicensis coturniculust</i>	--/T, FP/--	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations.	Unlikely. Limited suitable nesting and foraging habitat at SRMS and no CNDDDB occurrences within 5 miles.
Bird	California Ridgway's rail	<i>Rallus obsoletus obsoletus</i>	E/E, FP/--	Herbaceous wetlands in saltwater and brackish marshes traversed by tidal sloughs.	None. Region outside of species' known range and the Project Area lacks suitable habitat.
Bird	Golden eagle	<i>Aquila chrysaetos</i>	--/FP/--	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals.	Unlikely. Foraging habitat only. No suitable nesting habitat in the Project Area.
Bird	Grasshopper sparrow	<i>Ammodramus savannarum</i>	--/SSC/--	Dry, dense grasslands with a variety of grasses and tall forbs and scattered shrubs.	Unlikely. Limited suitable nesting and foraging habitat present at SRMS. No CNDDDB occurrences within 5 miles and may be outside of the range for this species.
Bird	Least Bell's vireo	<i>Vireo bellii pusillus</i>	E/E/--	Summer resident in low riparian habitats in Southern California. Previously known to occur throughout the Central Valley. Typically nest in willow or scrub habitat adjacent to waterways.	Unlikely. Marginal nesting habitat in the willow riparian area. Few known occurrences since the early 1900s within 10 miles of the project area.
Bird	Northern harrier	<i>Circus cyaneus</i>	--/SSC/--	Nests and forages in grasslands, meadows, marshes, and seasonal and agricultural wetlands.	Unlikely. Limited suitable nesting and foraging habitat present. No CNDDDB occurrences within 5 miles and may be outside of the range for this species.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Bird	Purple martin	<i>Progne subis</i>	--/SSC/--	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats. Also nests in vertical drainage holes under elevated freeways and highway bridges.	Likely. Known to occur on bridge and overpass structures within 1 mile of American River Erosion Contract 3B North and South and Contract 4A sites.
Bird	Song sparrow (Modesto population)	<i>Melospiza melodia pop. 1</i>	--/SSC/--	Associated with freshwater marshes dominated by tules and cattails and riparian willow thickets. Also nests in riparian forests with blackberry understory and along vegetated irrigation canals and levees.	Likely. Known occurrences at the SRMS.
Bird	Swainson's hawk	<i>Buteo swainsoni</i>	--/T/--	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	Likely. Occurs throughout the lower Sacramento Valley with known nesting observations on the Sacramento River within two miles of the Project Area.
Bird	Tricolored blackbird	<i>Agelaius tricolor</i>	--/T/--	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony.	Likely. Suitable nesting and foraging habitat at SRMS.
Bird	Western burrowing owl	<i>Athene cunicularia ssp. hypogaea</i>	--/SSC/--	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Likely. Suitable nesting and foraging habitat in open areas at the American River Erosion Contract sites.
Bird	Western yellow-billed cuckoo	<i>Coccyzus americanus ssp. occidentalis</i>	T/E/--	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.	Likely. Foraging habitat only, thus very unlikely to nest. No occurrence records within the project site.
Bird	White-tailed kite	<i>Elanus leucurus</i>	--/FP/--	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Likely. Suitable nesting and foraging habitat. Species observed at the Sacramento River Erosion Contract 3 site in 2022.
Bird	Yellow-breasted chat	<i>Icteria virens</i>	--/SSC/--	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines.	Unlikely. Suitable foraging habitat present at SRMS. No CNDDB occurrences within 5 miles and may be outside of the range for this species.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Bird	Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	--/SSC/--	Nest in marshes with tall emergent vegetation, such as tules or cattails, generally in open areas and edges over relatively deep water. Breeding marshes often on edges of deep water bodies such as lakes, reservoirs, and or larger ponds.	Unlikely. Limited suitable nesting and foraging habitat present at SRMS. No CNDDDB occurrences within 5 miles and may be outside of the range for this species.
Bird	Yellow warbler	<i>Setophaga petechia</i>	--/SSC/--	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses.	Unlikely. Suitable foraging habitat present at SRMS. No CNDDDB occurrences within 5 miles and may be outside of the range for this species.
Fish	Sacramento River winter-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 7	E/E/--	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. Juveniles hatched in the Sacramento River may enter the Lower American River for non-natal refugia and rearing after emigrating from their natal Sacramento River.
Fish	Central Valley spring-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 11	T/T/--	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. Juveniles hatched in tributaries of the Sacramento River may use the Lower American River for non-natal rearing and refugia after emigrating from their natal rivers and streams.
Fish	Central Valley fall-/late fall-run Chinook salmon	<i>Oncorhynchus tshawytscha</i> pop. 13	SC/SSC/--	Requires cold, freshwater streams with suitable gravel for spawning, rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. This species historically occurs within the Delta and north through the Sacramento and American Rivers within the Project Area.
Fish	Delta smelt	<i>Hypomesus transpacificus</i>	E/E/--	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay.	Likely. This species occurs in the Delta near the SRM mitigation site.
Fish	Hardhead	<i>Mylopharodon conocephalus</i>	--/SSC/--	Freshwater creeks, moderate gradient pools and tributaries with moderate riffle and in medium sized rivers.	Likely. Occurs in the Sacramento and American Rivers with recorded observations near the SRMS.
Fish	Longfin smelt	<i>Spirinchus thaleichthys</i>	C/T/--	Requires cold, pure freshwater to pure seawater, spawns in freshwater.	Likely. Recorded observation in the Delta near the SRMS.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Fish	North American green sturgeon	<i>Acipenser medirostris</i>	T/--/--	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. Recorded observations in the Delta and in the Sacramento River near the Sacramento River Erosion Contract 3 and SRMSs.
Fish	Western river lamprey	<i>Lampetra ayresii</i>	--/SSC/--	Cold, freshwater streams with suitable gravel for spawning and sandy to silty backwaters or stream edges for larval rearing.	Likely. Adults spawn in Lower American River gravel and larvae rear in the Lower American River.
Fish	Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	--/SSC/--	Spawning takes place among submerged and flooded vegetation in sloughs and the lower reaches of rivers.	Likely. This species occurs north of the SRM site starting south of Cortland ranging north throughout the Sacramento River within the project footprint.
Fish	Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T/--/--	Cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Likely. This species is located throughout the Project Area and adults spawn in Lower American River gravel.
Plant	Big scale balsamroot	<i>Balsamorhiza macrolepis</i>	-/-/ CRPR 1B.2	Fields and rocky hillsides, below 5,100 feet; grassland, foothill woodland	None. Potential habitat present at MCP, but not found during April 2018 and June 2023 surveys of the project area.
Plant	Boggs Lake hedge hyssop	<i>Gratiola heterosepala</i>	-/E/CRPR 1B.2	Clay soils in marshes and swamps along lake margins and vernal pools	None. Potential habitat present at MCP, though no observations during 2018 and 2023 surveys at MCP.
Plant	Bolander's waterhemlock	<i>Cicuta maculata</i> <i>var. bolanderi</i>	--/--/CRPR 2B.1	Marshes and swamps near coast in fresh or brackish water. Elevation: 0–656 feet.	Unlikely. Suitable habitat, but not known to be found within the study area.
Plant	Delta mudwort	<i>Limosella australis</i>	--/--/CRPR 2B.1	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub; generally, at sea level.	Likely. Recorded observations on islands in the Delta along the Sacramento River below Rio Vista near the SRMS.
Plant	Delta tule pea	<i>Lathyrus jepsonii</i> <i>var. jepsonii</i>	--/--/CRPR 1B.2	Freshwater and brackish marshes and swamps	Present. Occurs at the SRMS. Also recorded observations on islands in the Delta along the Sacramento River below Courtland.
Plant	Dwarf downingia	<i>Downingia pusilla</i>	-/-/ CRPR 2.2	Mesic areas in valley and foothill grassland, seasonal wetlands, vernal pools	Likely. Potential habitat present at MCP, though no observations during 2018 and 2023 surveys at MCP.
Plant	Ferris' milk-vetch	<i>Astragalus tener</i> <i>var. ferrisiae</i>	-/-/CRPR 1B.1	Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland	Unlikely. Occurs in alkaline soils, which are not present in the project site, but are adjacent to ARMS and MCP.

Species Type	Common Name	Scientific Name	Status (Federal/State/Other)	Habitat	Potential for Occurrence
Plant	Legenere	<i>Legenere limosa</i>	--/--/CRPR 1B.1	Vernal pools; 1–880 meters	Unlikely. Not observed at MCP during surveys conducted in 2023.
Plant	Mason's lilaepsis	<i>Lilaeopsis masonii</i>	--/R/CRPR 1B.1	Riparian scrub, brackish or freshwater marshes and swamps; below 30 feet	Likely. Recorded observations on islands in the Delta along the Sacramento River near the SRMS.
Plant	Saline clover	<i>Trifolium hydrophilum</i>	--/--/CRPR 1B.2	Salt marsh, mesic alkaline areas in valley and foothill grasslands, vernal pools, marshes and swamps	Likely. Potential habitat at SRMS.
Plant	Sanford's arrowhead	<i>Sagittaria sanfordii</i>	--/--/CRPR 1B.2	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132 feet	Present. Recorded observations along the Lower American River and at the SRMS.
Plant	San Joaquin spearscale	<i>Extriplex joaquinana</i>	--/--/CRPR 1B.2	Alkaline soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland; 3-2400 feet	Unlikely. Marginal habitat present near ARMS.
Plant	Side-flowering skullcap	<i>Scutellaria lateriflora</i>	--/--/CRPR 2B.2	Marshes and swamps, Meadows and seeps (mesic)	Unlikely. Marginal habitat present near MCP, ARMS, and SRMS.
Plant	Stinkbells	<i>Fritillaria agrestis</i>	--/--/CRPR 4.2	Clay, sometimes serpentine soils in chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland; 30-4500 feet	Unlikely. Marginal habitat present near MCP.
Plant	Suisun Marsh aster	<i>Symphyotrichum lentum</i>	--/--/CRPR 1B.2	Brackish and freshwater marshes and swamps; below 10 feet	Present. Recorded observations at the SRMS site.
Plant	Valley brodiaea	<i>Brodiaea rosea</i>	--/--/CRPR 4.2	Silty, sandy and gravelly loam soils; valley and foothill grasslands along swales; vernal pools. 10-335 meters. Grows in grasslands on old alluvial terraces that have developed a perched water table, in vernal pool landscapes. Evident and Identifiable from April–May (June).	None. Not found in vernal pools at MCP. Vernal pool landscapes and hydrology not present elsewhere.
Plant	Watershield	<i>Brasenia schreberi</i>	--/--/CRPR 2B.3	Freshwater marshes; 30–2,200 meters	Unlikely. Suitable habitat, but not known to be found within the study area.
Plant	Woolly rose-mallow	<i>Hibiscus lasiocarpus var. occidentalis</i>	--/--/CRPR 1B.2	Freshwater marshes, swamps, wetted riverbanks, low peat islands within sloughs, Delta, riprap on levee slopes.	Likely. Recorded observations near the SRMS and near Sacramento River Erosion Contract 3.

Note:

Status Codes: Federal/State/Other

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PT = Proposed to be listed as threatened under the federal Endangered Species Act.

C = candidate species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

SC = listed as species of concern

-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

C = Candidate for listing under the California Endangered Species Act receiving the same legal protection afforded to an endangered or threatened species.

FP = fully protected under the California Fish and Game Code.

R = state listed as rare

SSC = species of special concern in California.

-- = no listing.

Other

Special-status plants with potential to occur at one or more of the project sites. Plants are ranked according to the California Native Plant Society's California Rare Plant Rank (CRPR):

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere; Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2A =

Plants presumed extirpated in California, but more common elsewhere; Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

.1—Seriously endangered in California

.2—Fairly endangered in California

.3—Not very endangered in California

SOURCES:

California Department of Fish and Wildlife. 2023. California Natural Diversity Database (CNDDB). RareFind 5.0. Version 5. Biogeographic Data Branch.

California Native Plant Society. 2021. Special-status Plants documented on the U.S. Geological Survey 7.5-minute 18- quadrangle (Taylor Monument, Rio Linda, Citrus Heights, Sacramento West, Sacramento East, Carmichael, Clarksburg, Florin, Elk Grove, Dozier, Liberty Island, Courtland, Birds Landing, Isleton, Rio Vista, Antioch North, Jersey Island, Bouldin Island) search of the California Native Plant Society (CNPS) Rare Plant Inventory Database. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Program. Available: www.rareplants.cnps.org. Accessed January 12, 2021.

U.S. Fish and Wildlife Service (USFWS). 2023. Information for Planning and Consultation (IPaC) List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project. Available: [<https://ipac.ecosphere.fws.gov/>]. Species list generated March 8, 2023.

Federal and State Listed State-listed Species

The following sections describe federally listed and state-listed species known or likely to occur in the Project Area.

Valley Elderberry Longhorn Beetle

Section 3.8.1 (page 149) of the ARCF GRR FEIS/FEIR describes the ecology of valley elderberry longhorn beetle (VELB) in the Project Area. Updated occurrence information is presented below.

There are documented occurrences at American River Erosion Contract 3A from 1984, when adult beetles were captured. Additional beetles were observed in 2013 and fresh exit holes were documented in 2006 (CDFW 2023) and in 2018 (Environmental Science Associates 2018) upstream of the survey area on the lower American River. Focused surveys of elderberry shrubs (*Sambucus* sp.) were conducted in 2017 and 2020 to evaluate potential impacts of the proposed project on VELB (Environmental Science Associates 2022). There are approximately 2.2 acres of elderberry shrubs at American River Erosion Contract 3B North and South and a 0.3 acre at American River Erosion Contracts 4A and 4B. At the ARMS, three elderberry shrubs have been identified; however, it is likely that additional elderberry bushes will be identified under the grape vines and beneath larger canopy trees once additional surveys are completed. The current density of elderberry shrubs is anticipated to be low, less than 10; therefore, the site does not provide extensive VELB habitat (HDR 2023).

Surveys were conducted in accordance with the USFWS 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (2017 VELB Framework). This guidance document superseded the 1999 *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (USFWS 2019). Global Positioning System (GPS) point locations and data with sub-meter accuracy were taken for elderberry shrubs with stems measuring 1 inch or greater in diameter at ground level. Visual estimates of shrub height and maximum diameter (canopy) were recorded to produce the total acre of elderberry canopy on site. All shrubs within the Project limits are located in riparian habitat.

Elderberry shrubs exist along the Sacramento River, though in much lower densities than along the American River. There are no elderberry shrubs within the Sacramento River Erosion Contract 3 project site. There are no elderberry shrubs present at the Magpie Creek Project (MCP). The SRMS has approximately 4 acres of elderberry shrubs, both continuous stands and individual shrubs, with most stands possessing stems with exit holes at the base, indicating potential presence of VELB (Coast Ridge Ecology 2021).

In addition to mitigating direct impacts on elderberry shrubs, the 2017 VELB Framework focuses on maintaining the connectivity of riparian habitats. Not only do riparian habitats provide habitat used by VELB for mating, foraging, and dispersal, but studies have shown that healthy riparian habitats increase elderberry recruitment and health. The 2017 VELB Framework states (pages 7–8):

Because the elderberry is the sole host plant of the VELB, any activities that adversely impact the elderberry shrub may also adversely impact the VELB.

Adverse impacts to elderberry shrubs can occur either at a habitat scale or at an individual shrub scale. Activities that reduce the suitability of an area for elderberry plants or elderberry recruitment and increase fragmentation may have adverse impacts to mating, foraging, and dispersal of VELB. The patchy nature of VELB habitat and habitat use makes the species particularly susceptible to adverse impacts from habitat fragmentation.

Occupied clusters of elderberry stems in the Parkway are approximately 25 to 50 meters (82 to 164 feet) apart (Talley, Wright, & Holyoak 2006). Therefore, the area within 25 meters of the shrubs is considered a zone of riparian habitat where elderberry plants could be recruited to provide habitat that could be easily reached by VELB, if they were to occupy existing elderberry plants. Thus, surveys also determined the presence of suitable habitat for identified elderberry shrubs.

The method used to estimate the maximum impact area to VELB for the 2015 Biological Assessments associated with the ARCF 2016 Project was based on the USFWS 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, using stem counts. In October 2019, USFWS met with Project Partners and agreed to update the VELB methodology to the 2017 VELB. Moving forward impacts and mitigation are based on acreages not individual shrubs and stems and will be in accordance with the applicable biological opinion and amendment(s), if any.

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The vernal pool fairy shrimp is listed as threatened and the vernal pool tadpole shrimp is listed as endangered under the ESA. Seasonal wetlands in and around the MCP provide suitable habitat for vernal pool fairy shrimp and larger, deeper seasonal wetlands provide suitable habitat for vernal pool tadpole shrimp. Vernal pool fairy shrimp and California fairy shrimp (a common fairy shrimp) were observed in some of the seasonal wetlands within the project area during 2018 vernal pool branchiopod surveys (ICF 2018). The vernal pool fairy shrimp is also known to occur at the adjacent McClellan West Nature Area.

Giant Garter Snake

The giant garter snake is listed as threatened under both ESA and CESA. The giant garter snake is the largest garter snake, reaching a maximum total length of at least 64 inches. Dorsal background coloration varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light colored lateral stripes (USFWS 2015). Giant garter snakes typically breed in March and April, and live young are born from late July to early September (USFWS 2015). The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, agricultural wetlands (including irrigation canals and rice fields), and adjacent uplands. Essential habitat components consist of 1) freshwater aquatic habitat with protective emergent vegetation cover where snakes can forage, 2) upland habitat near the aquatic habitat that can be used for thermoregulation and summer shelter (i.e., burrows), and 3) upland refugia outside flood waters that can serve as winter hibernacula (USFWS 2015).

Ideal giant garter snake aquatic habitat exhibits the following characteristics.

- Water present from March through November.

- Slow moving or static water flow with mud substrate.
- Presence of emergent and bankside vegetation that provides cover from predators and may serve in thermoregulation.
- Absence of a continuous canopy of riparian vegetation.
- Available prey in the form of small amphibians and small fish.
- Thermoregulation (basking) sites with supportive vegetation such as folded tule clumps immediately adjacent to escape cover.
- Absence of large predatory fish.
- Absence of recurrent flooding, or, where flooding is probable, the presence of upland refugia.

Although the giant garter snake is predominately an aquatic species, incidental observations and radio telemetry studies have shown that the snake can be found in upland areas near the aquatic habitat component during the active spring and summer seasons. Upland habitat (land that is not typically inundated during the active season and is adjacent to the aquatic habitat of the giant garter snake) is used for basking to regulate body temperature, for cover, and as a retreat into mammal burrows and crevices in the soil during ecdysis (shedding of skin) or to avoid predation. Giant garter snakes have been observed using burrows for refuge in the summer as much as 164 feet away from the marsh edge. Important qualities of upland habitat have been found by researchers (USFWS 2015) to include the following characteristics.

- Availability of bankside vegetative cover, typically tule (*Scirpus* sp.) or cattail (*Typha* sp.), for screening from predators.
- Availability of more permanent shelter, such as bankside cracks or crevices, holes, or small mammal burrows.
- Free of poor grazing management practices (such as overgrazed areas).

During the colder winter months, giant garter snakes spend their time in a lethargic state. During this period, giant garter snakes over-winter in locations such as mammal burrows along canal banks and marsh locations, or riprap along a railroad grade near a marsh or roads. Giant garter snakes typically do not over-winter where flooding occurs in channels with rapidly moving water, such as the Sutter Bypass. Over-wintering snakes use burrows as far as 656 to 820 feet from the edge of summer aquatic habitat (USFWS 2015).

The shoreline at the SRMS provides some suitable aquatic habitat for the giant garter snake with emergent vegetation and refugia including downed logs (Coast Ridge Ecology 2021, GEI 2023b) and adjacent upland areas for winter hibernacula. However, giant garter snakes prefer freshwater marshes, while the water near SRMS can be brackish when river flows are low. Therefore, this species is unlikely to occur at the SRMS.

Bank Swallow

The bank swallow is State-listed as threatened. It is a neotropical migrant that arrives in California in May and breeds before returning to South America in late July or August. Bank

swallows inhabit primarily riparian and lowland habitats with vertical banks, bluffs, and cliffs where they dig holes for nesting in sandy or fine-textured soil (CDFG 1999). The species' range in California is estimated to have been reduced by 50 percent since 1900. Bank swallow was formerly more common as a breeder in California. Now, only approximately 110–120 colonies remain in the state. Approximately 75 percent of the current breeding population in California occurs along the banks of the Sacramento and Feather Rivers in the northern Central Valley (CDFG 1999).

Historically, a population of nesting bank swallows, was documented at American River Erosion Contract 3A. The most recent record from CNDDDB for this location was from 1986, but CNDDDB noted that the site has since been ripped and habitat no longer exists. There is a record from 2000 from Brannan Island, 4 miles southwest of the SRMS. Although nesting habitat in the survey area is limited, as the banks are mostly covered in dense vegetation, there is high-quality foraging habitat that bank swallows may use.

Swainson's Hawk

Swainson's hawk is State-listed as threatened. Section 3.8.1 (pages 151–152) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. Updated occurrence information is presented below.

The CNDDDB includes 143 Swainson's hawk observations within 5 miles of the Project Area, including near all project locations (CDFW 2023). In 2017, a nest with two nestlings near Northgate Boulevard was identified approximately 2 miles downstream of American River Erosion Contract 3A in the Parkway and another nest was identified in 2007 near the ARMS at Camp Pollock (CDFW 2023). In addition, Project Partners have observed a nest just upstream of Howe Avenue, and a potential nesting pair was observed in May 2019 by a DWR survey team just downstream of Watt Avenue, approximately 1.4 miles east of American River Erosion Contract 3A. In 2022, an active Swainson's hawk nest was observed during the construction of SREL Contract 3 approximately 2 miles upstream of Sacramento River Erosion Contract 3.

The large trees in the riparian corridor within the Project Area and adjacent parks provide suitable nesting sites and annual grasslands and nearby parks provide suitable foraging habitat.

Western Yellow-Billed Cuckoo

Western yellow-billed cuckoo is Federally-listed as threatened and State-listed as endangered. Section 3.8.1 (page 151) of the ARCF GRR FEIS/FEIR describes the ecology of this species in the Project Area. In May 2017 the USFWS received a petition to delist the Western distinct population segment (DPS) of the yellow-billed cuckoo. Based on the USFWS review of the petition it was determined in June of 2018 that substantial scientific or commercially available data indicating the delisting was provided and that further review of the potential delisting was warranted. However, in September of 2020, it was determined that delisting was not warranted. The Western DPS yellow-billed cuckoo is currently under 5-year review. For the most recent assessment of the species range-wide status please refer to the October 3, 2014, *Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (Coccyzus americanus occidentalis)* (79 FR 59991). On April 21, 2021, the USFWS issued a

final rule designating critical habitat for the western yellow-billed cuckoo (86 FR 20798). The Project Area is outside the designated critical habitat.

Until very recently, the CNDDDB's last documented occurrence of western yellow-billed cuckoo in the vicinity of the Project Area is from the late 1800s. However, on July 27, 2019, a cuckoo vocalization was documented approximately 4 miles upstream of LAR Contract 3A on a heavily forested island in the American River. A single vocalization was heard but no additional information was gathered. Based on habitat quality, this may have been a transient bird moving through from breeding sites along the Sacramento River.

The Project Area provides marginal remnant riparian habitat that may be used for stopover, foraging, or dispersal. However, the riparian habitat in the Project Area does not meet the typical size requirements (25 contiguous acres or more) for home ranges of nesting western yellow-billed cuckoos.

Other Breeding and Migratory Birds

Other species of migratory birds breed and/or stopover within the Project Area. These species are protected under the MBTA and some are listed as Species of Special Concern by CDFW. Canvasbacks, double-crested cormorants, great egrets, snowy egrets have been observed at the ARMS man-made pond and yellow-billed magpies have been observed at Sacramento River Erosion Contract 3 (eBird 2023).

4.3.2.2 Special-status Plant Species

Updated lists of regionally-occurring special-status species were compiled from a search of the California Natural Diversity Database (CNDDDB) within 5 miles of the project site; a 18-quadrangle (Taylor Monument, Rio Linda, Citrus Heights, Sacramento West, Sacramento East, Carmichael, Clarksburg, Florin, Elk Grove, Dozier, Liberty Island, Courtland, Birds Landing, Isleton, Rio Vista, Antioch North, Jersey Island, Bouldin Island) search of the California Native Plant Society (CNPS) Rare Plant Inventory; and a search of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation website. The full CNDDDB and CNPS records are available at the end of this appendix.

American River Erosion Contracts 3B North and South, 4A, and 4B

Occurrences of Sanford's arrowhead were documented along the American River near the project sites in 1992 and 1993 (CDFW 2023). Three populations of Sanford's arrowhead were found outside of the LAR C3B footprint during a 2022 survey (Environmental Science Associates 2022).

Sacramento River Erosion Contract 3

A protocol-level special-status plant survey was conducted in the Sacramento River Erosion Contract 3 improvement areas in August 2016. A total of five individuals of woolly rose-mallow were observed at two locations along the Sacramento River shoreline.

Occurrences of legenere and stinkbells were documented in 1997 near the MCP outside the project site (CDFW 2023), but floristic surveys in 2020 and 2023 observed no special-status plants within the MCP site (GEI 2020, 2023).

American River Mitigation Site

No special-status plant occurrences are documented for the American River Mitigation Site (ARMS), though valley brodiaea, stinkbells, and Sanford's arrowhead are noted in the California Native Plant Society Rare Plant Inventory for the Sacramento East USGS 7.5' Quadrangle. Vernal pool landscapes and hydrology are not present for valley brodiaea. Protocol floristic surveys would be conducted in 2023 and 2024.

Sacramento River Mitigation Site

The SRMS has documented occurrences of Delta tulle pea in 1980, Mason's lilaepsis in 2009, and Suisun marsh aster in 2009 (CDFW 2023). A planning-level biological survey completed in September 2023 did not observe any special-status plants (GEI 2023b). The results of comprehensive floristic surveys for SRMS will be included in the Final EIS/EIR.

Piezometer Network

The proposed piezometer network would be installed on the levee crown and/or near the landside levee toe within the authorized footprint of the 2016 ARCF GRR Final EIS/EIR. The exact locations of the piezometers are not yet determined. This heavily disturbed, compacted soil is poor habitat for special-status plant species. In addition, the piezometers are small, the range of boring size is expected to be between 6 to 12 inches in diameter, and, thus, the amount of disturbance in an already disturbed environment is low. Biological surveys will be completed for piezometers that are located in areas that have not received previous inspection.

4.3.2.3 Designated Critical Habitat

USFWS defines the term “critical habitat” in the Federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat has been designated for the following regionally occurring species: western yellow-billed cuckoo, California red-legged frog, California tiger salamander, VELB, conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento Orcutt grass, and slender Orcutt grass.

The Project Area contains designated critical habitat for the VELB on the north bank of the American River between the American River Bike Trail and State Highway 160, adjacent to American River Erosion Contract 4A. The American River and Sacramento River Erosion Improvement sites and Mitigation sites are within Essential Fish Habitat (EFH) for fall-run Chinook Salmon (*Oncorhynchus tshawytscha*) and designated critical habitat for California Central Valley (CV) Steelhead (*Oncorhynchus mykiss*), CV spring-run Chinook Salmon, Southern Distinct Population Segment (sDPS) of North American green sturgeon (*Acipenser medirostris*) and Delta Smelt (*Hypomesus transpacificus*). See Details in Appendix B 4.2 “Aquatic Resources and Fisheries.”

4.3.2 Applicable Laws, Regulations, Policies, and Plans

Section 3.6 (pages 144 and 145) of the ARCF GRR FEIS/EIR presents Federal and State laws governing special-status species. Chapter 5 of the ARCF GRR FEIS/EIR summarizes the environmental laws and regulations that apply to the ARCF 2016 Project. Updated information on relevant laws and regulations is provided below.

4.3.2.4 *Federal*

Endangered Species Act

On June 4, 2021, the USFWS and NMFS announced a plan to improve and strengthen the Endangered Species Act (ESA) with a set of proposed actions that follow Executive Order 13990 (Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis). On June 22, 2023, three proposed rules were announced to revise regulations for interagency cooperation, reinstate a protection option for species listed as threatened under ESA. These ESA policy changes would not affect the application of the ESA to the Proposed Action.

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. Section 7 of the ESA prohibits Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. By consulting with USFWS and NMFS before initiating projects, agencies review their actions to determine if those actions could adversely affect listed species or their habitat. Through consultation, USFWS and NMFS work with Federal agencies to help design their programs and projects to conserve listed and proposed species. Because a number of listed species are potentially affected by Federal activities, USFWS and NMFS coordination with other Federal agencies is important to species conservation and may help prevent the need to list candidate species.

The USFWS is the administering agency for this authority regarding non-marine species and NMFS is the administering agency for marine fish species. A list of threatened and endangered species that may be affected by the Proposed Action was obtained from USFWS in 2023 (Included at the end of this appendix). USACE formally consulted with USFWS on the ARCF Project and received a Biological Opinion (BO) on September 11, 2015 (08ESMF00-2014-F-0518). USACE completed a reinitiation for this BO with USFWS March 2021 (08ESMF00-2014-F-0518-R003). USACE formally consulted with NMFS on the ARCF Project and received a Biological Opinion on September 9, 2015 (WCR-2014-1377). USACE completed a reinitiation for this BO with NMFS in May 2021 (WCRO-2020-03082). USACE is required to reinitiate formal consultation with USFWS and/or NMFS if effects on 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.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1936 (MBTA) underwent a major rule change in 2020 regarding the definition of “incidental take.” However, in September of 2021 the USFWS published a final rule in the Federal Register that revoked the 2020 rule.

The MBTA as amended (16 USC 703 et seq.), implements domestically a series of international treaties that provide for migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it is unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird ...” (16 USC 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.

Bald and Golden Eagle Protection Act

The USFWS adopted new amendments to policies regarding implications of the Bald and Golden Eagle Protection Act; however, these changes do not substantially change the application of NEPA to proposed plan (USFWS 2019). The Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668c, provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds.

Invasive Species Regulation – Executive Order 13112

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.

4.3.2.5 State

California Endangered Species Act

The California Endangered Species Act (CESA) requires non-Federal agencies to consider the potential adverse effects on State-listed species.

California Fish and Game Code

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.

Section 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory nongame bird, as designated in the Federal MBTA (16 USC 703 et seq.) before January 1, 2017; any additional migratory nongame bird designated in the MBTA after that date; or any part of a migratory nongame bird described in Fish and Game Code Section 3513, except

as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the MBTA, unless those rules or regulations are inconsistent with the Fish and Game Code.

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

Assembly Bill 454

California Assembly Bill 454, signed in 2019, ensures the protection of migratory birds, regardless of reinterpretations of the MBTA made by the U.S Department of the Interior.

4.3.2.6 Local

Sacramento County General Plan of 2005 to 2030, Conservation Element

The General Plan is a set of goals, objectives, policies, implementation measures and maps that form a blueprint for physical development in the unincorporated County. The plan addresses important community issues such as new growth, housing needs and environmental protection. Its policies are instrumental in planning infrastructure to accommodate future growth. The State mandates that the County's General Plan include a Conservation Element, which will enable the County to analyze its resources and determine policies for their use and conservation (Sacramento County 2017).

American River Natural Resource Management Plan

The Sacramento County Board of Supervisors approved the American River Parkway Natural Resources Management Plan on February 28, 2023. “The NRMP was prepared as a guidance document for management of the natural resources of the American River Parkway. The NRMP is framed by and supplements the American River Parkway Plan (ARPP), which is the state and federal Wild and Scenic River management plan, to ensure that the American River Parkway's (Parkway) resources, its environmental quality and natural values are protected. The NRMP management activities represent a coordinated and cooperative effort that incorporates feedback from local stakeholders and agencies with jurisdiction within the Parkway” (Sacramento County 2023).

American River Parkway Plan

The 2008 American River Parkway Plan is the City and County of Sacramento's management plan for the LAR and was adopted by the City and County of Sacramento, and by the State Legislature through the Urban American River Parkway Preservation Act, Public Resources Code Section 5840. It is a policy document that provides guidance for land use decisions affecting the American River Parkway, specifically for its preservation, use, development, and administration. The Plan's purpose is to ensure preservation of the naturalistic environment while providing limited development to facilitate human enjoyment of the Parkway. The Parkway

Plan also acts as the management plan for the Federal and State Wild and Scenic Rivers Acts. See Appendix B, Section 2.4 “Land Use and Prime and Unique Farmland” for a discussion regarding the Proposed Actions consistency with the American River Parkway Plan, as well as policies outlined in the American River Parkway Plan that apply to the Proposed Action.

4.3.3 Analysis of Environmental Effects

4.3.3.1 Analysis Methodology

This analysis generally uses the same methodology described in Section 3.8.2 (pages 162–163) of the ARCF GRR FEIS/FEIR. Impacts on special-status species in the Project Area were evaluated based on data collected from biological resources surveys conducted in 2019, 2020, and 2021 and from other resources such as the following:

- Aerial imagery.
- A list of special-status wildlife species with potential to occur in or in the vicinity of the Project Area that was compiled from a nine-quadrangle search of the CNDDDB (CDFW 2023).
- A USFWS species list for the Project Area generated using the online Information for Planning and Consultation (IPaC) database (USFWS 2023).
- A list of special-status plant species with potential to occur in or in the vicinity of the Project Area that was compiled from a 18-quadrangle (Taylor Monument, Rio Linda, Citrus Heights, Sacramento West, Sacramento East, Carmichael, Clarksburg, Florin, Elk Grove, Dozier, Liberty Island, Courtland, Birds Landing, Isleton, Rio Vista, Antioch North, Jersey Island, Bouldin Island) search of the California Native Plant Society (CNPS) Rare Plant Inventory search of the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Plants of California (CNPS 2023).
- Literature regarding the biological resources of the region.
- Coordination with USFWS and NMFS.

For this analysis, the CEQA Proposed Action and NEPA Design Refinements were determined to have a significant impact on special-status species if Project activities would have a substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special-status in local or regional plans or policies, or regulations, or by CDFW, USFWS, or NMFS. Species that are not currently listed under the State or Federal Endangered Species Acts as rare, threatened, or endangered, but that can be shown to meet the criteria for such listing, were also considered special-status species (CEQA Guidelines Section 15380[d]). The impact analysis also considered the goals and objectives of the American River Parkway Plan and how Project construction would affect those goals and objectives. Impacts on special-status species were evaluated based on anticipated construction activities and changes to habitat types after construction of the Project. Only species determined to have potential to occur at a given site are discussed in the relevant effects analysis section.

4.3.3.2 Basis of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G and Section 15065 of the State CEQA Guidelines, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action in terms of: the setting of the proposed action; short- and long-term effects of the proposed action; both beneficial and adverse effects; direct and indirect effects of the proposed action on public health and safety; and effects that would violate Federal, State, Tribal, or local law protecting the environment, as required under NEPA (40 CFR 1508.1(g)). The Proposed Action was determined to result in a significant impact related to special-status species if it would do any of the following:

- a. Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS;
- b. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan¹ as addressed in Appendix B, Section 4.1, “Vegetation and Wildlife.”

4.3.3.3 Types of Effects

The following Program-related activities have been identified as activities that could result indirect and indirect effects on special-status species resources within the study area. These types of effects were used to assess effects on wildlife resources. The effects could directly result from program implementation, or indirectly result from the program.

Direct Effects

- Loss of vegetation (including trees), as a result of grading, excavating, trenching, placement of rock slope protection, and paving activities during construction.
- Loss of erosional processes that refresh and create bank swallow nesting habitat.
- Temporary stockpiling and side-casting of soil, construction materials, or other construction wastes.
- Soil compaction, dust, and water runoff from the construction site.
- Short-term construction-related noise (from equipment).
- Degradation of water quality in drainages and wetlands, resulting from construction runoff containing petroleum products or sediment.

Indirect Effects

- Permanent alteration of light levels.

¹ Identical to Basis of Significance 4.1-b addressed in Appendix B, Section 4.1, “Vegetation and Wildlife” and not repeated in this section.

- Alteration of hydrology.
- Causing damage through toxicity associated with application of herbicides, insecticides, and rodenticides.
- Disturbance of habitat as a result of introducing pets and humans' disturbance (including and potential trash dumping).
- Increasing habitat for native competitors or predators.
- Introducing invasive nonnative species.

4.3.3.4 Effects Analysis

No Action Alternative

The No Action Alternative is the buildout of the authorized project, the Recommended Plan from the ARCF GRR FEIS/EIR (see Section 3.4 of the SEIS/SEIR for detailed description). Mitigation sites, such as the ARMS and the SRMS would not be built, and site conditions at those locations would remain as they are now. The ARMS would remain a former gravel mine. As a depleted mine site, the area is subject to State of California Surface Mining and Reclamation Act (SMARA). SMARA requires that former mines be “reclaimed to a usable condition which is readily adaptable for alternate land uses” (SMARA, Public Resources Code, Sections 2710-2796). Under SMARA, the site should be reclaimed to include the removal of hazards and hazardous materials; site contouring; and restoration (SAFCA 2008). In addition, the SRMS would remain an active Dredged Material Placement Site managed by USACE. However, USACE would still be required to mitigate for ARCF 2016 Project habitat impacts by other means, such as purchasing mitigation bank credits or constructing mitigation sites elsewhere.

The No Action Alternative is Alternative 2 from the ARCF Final EIS/EIR. Thus, detailed impacts to special-status species are described in the ARCF Final EIS/EIR in Appendix B, Section 3.8 “Special Status Species” beginning on page 144, along with the Record of Decision, and are summarized below.

The project would will result in unavoidable permanent impacts to 0.25 acres of vernal pools,; 3,292 stems (70 acres) of elderberry shrub habitat utilized by Valley Elderberry Longhorn Beetle,; 14 acres to shallow water habitat typically utilized by Delta Smelt,; 34 acres of aquatic spawning habitat for Delta Smelt; 20 acres of instream habitat typically utilized by the Green Sturgeon,; 150 acres to riparian habitat typically utilized by the Western Yellow-billed Cuckoo, Swainson’s hawk, white-tailed kite, and purple martin; 2.5 acres to grassland utilized by burrowing owl; 15 acres to aquatic habitat typically utilized by the Giant Garter Snake,; and 30 acres of upland habitat typically utilized by the Giant Garter Snake. The project will result in unavoidable temporary impacts to 82,325 linear feet of shaded riverine aquatic habitat and 75 acres of upland habitat typically utilized by the Giant Garter Snake during aestivation (or dormancy). It is important to note that the ARCF GRR FEIS/EIR did not describe impacts to all the species listed above in Table 3.4.3-1. The effects to these species under the No Action Alternative would be consistent with those described under the Proposed Action.

Mitigation measures listed in section 3.8.6 of the ARCF GRR FEIS/EIR would be implemented to minimize the impacts as much as feasible, though there would still be significant unavoidable impacts to recreational resources. To mitigate for these unavoidable impacts, USACE will purchase credits at an approved mitigation bank equivalent to restoring habitat to 0.5 acres of vernal pools, 42 acres of shallow water habitat, 32 acres of aquatic spawning habitat, 45 acres of aquatic habitat for Giant Garter Snake, and 90 acres of upland habitat for the Giant Garter Snake. At locations on- and off-site of the study area, USACE will restore 301.2 acres of riparian habitat, 70.89 acres of elderberry shrubs, 75 acres of upland habitat for the Giant Garter Snake, 20 acres of instream habitat for Green Sturgeon including fish passage, and replant 82,325 linear feet of shaded riverine aquatic habitat.

Proposed Action

4.3-a Result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS.

CEQA Significance Conclusion: Less than Significant with Mitigation Incorporated

NEPA Significance Conclusion: Short-term Significant, unavoidable; Long-term, Minor effects that are Less than Significant with Mitigation Incorporated.

Refer to Table 4.3-2 and Table 4.3-3 for the amount of impact to species listed under the Federal Endangered Species Act for each project component and alternative under the CEQA Proposed Action and the NEPA Design Refinements, respectively.

American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, American River Mitigation Site, Sacramento River Erosion Contract 3, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term Significant, unavoidable; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

Table 4.3-2. ESA Species Impacts – CEQA Proposed Action²

Location	Cuckoo / Riparian (above OHW and Minus VELB* (acres)	Cuckoo / Riparian (below OHW)* (acres)	VELB With Buffer* (acres, except for GRR)	VELB Canopy* (acres)	GGs* (acres)	Vernal Pools (acres)
<i>GRR Assumption</i>	<i>150.00</i>	<i>150.00</i>	<i>3,292 stems</i>	<i>3,292 stems</i>	<i>15 Aquatic & 105 Uplands</i>	<i>0.25</i>
American River Erosion Contract 3B North and South	-	9.91	22.14	1.51	-	-
American River Erosion Contract 4A – Proposed Action	1.80	-	2.49	0.07	-	-
American River Erosion Contract 4A - Alt 3a	0.06	-	0.15	-	-	-
American River Erosion Contract 4A - Alt 3b	2.78	-	3.11	0.09	-	-
American River Erosion Contract 4A - Alt 3c	Street Detour: 1.90 Parkway Detour: 1.79	Street Detour: - Parkway Detour: 0.22	Street Detour: 1.16 Parkway Detour: 13.52	Street Detour: 0.07 Parkway Detour: 1.27	-	-
American River Erosion Contract 4A - Alt 3d	0.98	0.22	12.91	1.25	-	-
American River Erosion Contract 4B	0.45	-	0.04	1.13	-	-
Sacramento River Erosion Contract 3	1.0	0.2	12.92	1.24	-	-
Magpie Creek Project (MCP)	-	-	-	-	-	-

* Habitat Impacted (acres)

² Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for species impacts. Detailed impacts to habitat will be disclosed in the Final SEIS/SEIR.

Table 4.3-3. ESA Species Effects – NEPA Design Refinements³

Location	Cuckoo / Riparian (above OHW and Minus VELB* (acres)	Cuckoo / Riparian (below OHW)* (acres)	VELB With Buffer* (acres, except for GRR)	VELB Canopy* (acres)	GGs* (acres)	Vernal Pools (acres)
GRR Assumption	150.00	150.00	3,292 stems	3,292 stems	15 Aquatic & 105 Uplands	0.25
American River Erosion Contract 3B North and South	-	3.55	1.96	0.16	-	-
American River Erosion Contract 4A – Proposed Action	1.80	-	2.49	0.07	-	-
American River Erosion Contract 4A - Alt 3a	0.06	-	0.15	0.0	-	-
American River Erosion Contract 4A - Alt 3b	2.78	-	3.11	0.09	-	-
American River Erosion Contract 4A - Alt 3c	Street Detour: 1.90 Parkway Detour: 1.79	Street Detour: - Parkway Detour: 0.22	Street Detour: 1.16 Parkway Detour: 13.52	Street Detour: 0.07 Parkway Detour: 1.27	-	-
American River Erosion Contract 4A - Alt 3d	0.98	0.22	12.91	1.25	-	-
American River Erosion Contract 4B	0.06	-	0.04	-	-	-
Sacramento River Erosion Contract 3	0.01	0.02	-	-	-	-
Magpie Creek Project	-	-	-	-	-	-

* Habitat Impacted (acres)

*TBD values will be updated before the document is finalized.

³ Current programmatic level designs for ARMS and SRMS cannot provide quantitative data for species impacts. Detailed impacts to habitat will be disclosed in the Final SEIS/SEIR.

American Badger (CEQA only)

American badger inhabits grasslands and riparian habitats. Potential impacts on American badger include mortality, injury, displacement, and harassment, along with permanent and temporary loss of habitat. During construction under the Proposed Action, badgers would be at risk of direct impacts such as vehicle strikes, along with impacts from loss of habitat, increased risks of predation loss, and disruption of behavioral patterns. Heavy machinery operating in the Proposed Action Area could compact the soil, making the ground less suitable for digging for badgers and their primary prey species. Construction-related badger mortality would be a significant impact. Implementation of Mitigation Measure BADGER-1, which was previously adopted for the ARCF 2016 Project and is described below, would reduce this impact to a less-than-significant level.

O&M activities are expected to have only minor effects on habitat conditions for American badger. No widespread soil compaction is anticipated, and rodent control would result in only limited ground disturbance. Mowing work along the levees may displace badgers, but this effect would only be temporary because the activity would be temporary. Overall, the effect of O&M on American badger would be less than significant.

Mitigation Measure BADGER-1: Implement Measures to Avoid and Minimize Effects on American Badger.

The Project Partners would implement the following measures to avoid and minimize effects on American badger.

- The Project Partners would conduct pre-construction clearance surveys for American badgers. These surveys would be conducted within 14 days of the start of any ground-disturbing activity. If no potential American badger dens are present, no further mitigation is necessary.
- If a potential American badger den is discovered but deemed inactive, the qualified biologist would excavate the den during the initial clearance survey to prevent badgers from reoccupying the den during the construction period.
- If found to be present, occupied badger dens would be flagged and ground disturbing activities would be avoided within 50 feet of an occupied den. Maternity dens would be avoided during pup-rearing season (February 15 through July 1) and a minimum 200-foot buffer would be established.
- If avoidance of a non-maternity den is not feasible, badgers would be relocated by carefully evacuating the burrow (either by hand or using mechanized equipment, under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through July 1). Any relocation of badgers would occur only after consultation with CDFW.

Timing: Before and during construction

Responsibility: Project Partners

The significant impact related to potential badger mortality would be reduced to less than significant with implementation of Mitigation Measure BADGER-1 because surveys would be conducted to identify badger dens, prevent re-occupation of inactive dens, minimize disturbance of active dens, and avoid disturbance of maternity dens.

Pallid Bat (CEQA only)

Construction activities could disturb riparian forest, which provides potential roosting habitat for pallid bat. The period of construction activities would overlap the bat maternity season (generally May 1 to August 31). Tree removal in riparian habitat could adversely affect breeding and non-breeding pallid bats by causing the loss of established roosts and potential roosting habitat. Construction activities work near bridges crossing the American River could also disturb pallid bat if they were occupying any of the bridges. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BAT-1 described below and previously adopted for the ARCF 2016 Project, the impact of construction on this species would be reduced to a less-than-significant level, and restoration of riparian habitat in accordance with Mitigation Measures VEG-1 and VEG-2, also previously adopted for the ARCF 2016 Project, would reduce impacts associated with habitat loss to less than significant.

O&M activities, specifically trimming or removal of woody vegetation along the levees, could indirectly and directly affect colonies of roosting pallid bats by resulting in the loss or modification of habitat. However, such management of woody vegetation is largely expected to avoid the mature riparian trees where bats are most likely to be present, minimizing the potential for O&M activities to affect roosting pallid bats. The O&M activities associated with application of herbicides could indirectly affect pallid bats by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). However, the application of herbicides would be highly localized and would focus on helping to eradicate unwanted weedy plants in the Proposed Action Area. Thus, the application of herbicides as part of O&M for the Proposed Action is not anticipated to appreciably affect the supply of prey for pallid bat. The impact of O&M on pallid bat would be less than significant.

Western Red Bat (CEQA only)

Western red bats may establish day roosts in the foliage of large cottonwood, oak, and willow trees in the Proposed Action Area, and maternal roosts may occur in large well-developed stands of riparian habitat. Tree removal in riparian habitat could affect western red bats if they are present. General construction-related disturbance, including exposure to noise, vibration, and dust, could adversely affect breeding and non-breeding bats. This would be a significant impact. With implementation of Mitigation Measure BAT-1 described below, the impact of construction on this species would be reduced to a less-than-significant level, and restoration of riparian habitat in accordance with Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project, would reduce impacts associated with habitat loss to less than significant.

O&M activities, specifically trimming or removal of woody vegetation along the levees, could indirectly and directly affect colonies of roosting bats by resulting in the loss or modification of habitat. However, such management of woody vegetation is largely expected to avoid the mature riparian trees where bats are most likely to be present, minimizing the potential for O&M activities to affect roosting bats. Other potential effects of O&M under the Proposed Action on western bat are the same as those described previously for pallid bat. These impacts would be less than significant.

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

The Project Partners will implement the following measures to avoid and minimize effects on special-status bats:

- Wherever feasible, USACE will conduct construction activities outside of the pupping season for bats (generally April 1 to August 31).
- Project Partners or their designated environmental personnel will specify which trees slated for removal contain suitable bat roosting habitat. Trees indicated for removal that are not identified as suitable bat habitat can be removed using normal methods.
- Live trees that are indicated to contain roosting habitat shall be removed in a two-phase process. The first day, under the supervision of the biological monitor, remove limbs and branches that do not contain cavities, cracks, crevices, or deep bark fissures that can provide roosting habitat. On the second day remove the remainder of tree by gently lowering the tree to the ground, under the supervision of the biological monitor and leave material undisturbed for 48-hours. If it is not feasible to remove a tree using the two-phased approach, limbs containing habitat features should be removed and gently lowered to the ground in a location where they are not likely to be crushed or disturbed by the felling of the tree and left undisturbed for the next 48-hours.
- Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag should be left undisturbed on the site for the next 48-hours.
- For trees containing suitable bat roosting habitat that will be trimmed, trimming shall be conducted in the presence of a biological monitor. If trimming results in the removal of vegetation that contains potential bat habitat, vegetation should be gently lowered to the ground and left near the tree for 48-hours prior to removal, if feasible. If the vegetation cannot be left for 48-hours, the biological monitor shall survey the vegetation for presence of bats. If any bats are found within the vegetation, the vegetation must be left for 48-hours (or CDFW should be called for guidance regarding relocation of the bat dependent on urgency for removal).
- If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biological monitor for the presence of features that may function as special-status bat maternity roosting habitat. Trees that do not contain potential special-status maternity roosting

habitat may be removed. For trees that contain suitable special-status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by the designated biological monitor in trees designated for removal. The surveys shall be conducted from dusk until dark.

- If any special-status species bat maternity roost is located, appropriate buffers must be established by clearly marking the buffer area. The buffer area must be a minimum of 100 feet outside the tree containing the maternity roost. No contract activities shall commence within the buffer areas until the end of pupping season (September 1st), or the biological monitor confirms that the maternity roost is no longer active.
- If construction activities must occur within the buffer, the biological monitor must monitor activities either continuously or periodically during the work, which will be determined by the biological monitor. The biological monitor would be empowered to stop activities that, in their opinion, would cause unanticipated adverse effects on special status bats. If construction activities are stopped, the biological monitor would inform USACE, and CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects.

Timing: Before and during construction.

Responsibility: Project Partners.

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

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The significant impact related to potential loss of suitable bat roosting habitat and potential mortality of roosting pallid bats and western red bats would be reduced to less than significant with implementation of Mitigation Measures BAT-1, VEG-1, and VEG-2 because surveys would be conducted to identify suitable bat roost trees, measures would be implemented to minimize bat mortality during tree removal, disturbance of maternity roosts would be avoided, removal of suitable roosting habitat would be minimized, and unavoidable removal would be compensated.

Crotch's Bumble Bee (CEQA only)

Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from flowers, and suitable overwintering sites for queens. The Crotch's bumble bee nests primarily underground in abandoned rodent burrows. They are generalist foragers. Very little is known about the overwintering sites of Crotch's bees, but overwintering habitat for bumble bees in general is often in soft, disturbed soil or under leaf litter or similar debris.

At ARMS overall cover of grassland-type habitats is projected to decrease, habitat value for the bumblebee, monarch, and VELB would increase with the implementation of the Proposed Action. In the existing condition, the valley and foothill grassland community is highly disturbed from historical site activities, is dominated by non-native and invasive species, and lacks the plant diversity typically required to support these species. The post-project condition would include a diverse assemblage of plant species for pollinators (HDR 2023).

Direct impacts of construction could include mortality of individuals or nests from activities such as vegetation removal and materials staging, or from construction equipment traffic. Vegetation removal could also result in a reduction of foraging habitat. With implementation of Mitigation Measure BEE-1 identified below for Crotch's bumble bee and Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project, the impact of construction on this species would be reduced to a less-than-significant level.

O&M activities after construction would likely be consistent with existing O&M practices (except as described in Mitigation Measure BEE-1 regarding rodent abatement), so any impacts also would likely be consistent with existing conditions. In addition, these activities would be intermittent, and the resulting impacts would be temporary and less than significant with mitigation.

Mitigation Measure BEE-1: Implement Measures to Avoid and Minimize Effects on Crotch's Bumble Bee.

To avoid and minimize effects on Crotch's bumble bee, the Project Partners would implement the following measure:

- Before construction activities, a qualified biologist would conduct a preconstruction survey, during the flight period for worker and male bees late March through September, ideally during peak bloom, within the construction disturbance area for active Crotch's bumble bee nests. If an active bumble bee nest is located, recommendations for avoiding or minimizing disturbance of the colony would be developed (e.g., establishing a buffer surrounding entry/exits and avoiding direct disturbance). The 2023 CDFW Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species should be referenced.

Timing: Before and during construction

Responsibility: Project Partners

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

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The significant impact related to potential destruction of Crotch's bumble bee nests, mortality of individuals, and reduction of foraging habitat would be reduced to less than significant with implementation of Mitigation Measures BEE-1, VEG-1, and VEG-2 because surveys would be conducted to identify active nests on and near the project sites, buffers would be implemented to minimize potential for nest disturbance, vegetation removal would be minimized, and compensatory mitigation would be implemented to offset unavoidable vegetation removal.

Monarch butterfly

The USFWS determined that the monarch butterfly is a candidate species for listing under the Federal ESA on December 17, 2020, based on a 12-month finding in response to a petition to list the species under the act (85 FR 81813). Candidate species receive no statutory protection under the ESA. However, USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA.

In the winter monarch butterflies occur in coastal woodland areas in wind protected groves with a nearby nectar and water source. and the species relies on milkweed (*Asclepias* spp.) and related genera, on which they lay their eggs; these are the sole host plants for larva (Xerces Society 2018). Monarch butterflies in this region are known to overwinter in coastal woodlands and breed in the Central Valley. There are no CNDDDB occurrences for this species in Sacramento County, though there are other observations of individuals in the area (iNaturalist 2023b, Journey North 2023, Western Monarch Milkweed Mapper 2023).

The Proposed Action provides suitable foraging habitat and could support milkweed. Adults may feed on suitable nectar plants, thus the potential to impact the monarch butterfly is moderate. Construction of the project would result in a short-term loss of habitat due to loss of vegetation for the Monarch butterfly. Similar to previous discussions, O&M activities associated with mowing and the application of herbicides could directly affect monarch butterflies. However, construction of mitigation areas would result in the creation of a greater amount of habitat, since pollinator specific species to be included in the area would not be subject to pesticide drift,

compared to those currently present on the levee slopes. Since the loss of habitat would only last for one season and implementing new Mitigation Measure MONARCH-1 would reduce adverse effects, impacts on monarch butterfly would be less than significant with mitigation incorporated. The inclusion of pollinator species within mitigations areas will assist the species in the long run, and with implementation of Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the 2016 ARCF Project, the long-term effect would likely be beneficial.

Mitigation Measure MONARCH-1: Implement Measures to Avoid and Minimize Effects on Monarch Butterfly.

The 2016 ARCF GRR FEIS/EIR and supplemental CEQA/NEPA documentation did not identify a significant impact on monarch butterfly. Therefore, the following is a new mitigation measure. To avoid and minimize effects on monarch butterfly, the Project Partners would implement the following measures for construction and O&M activities that occur within 100 feet of milkweed plants (*Asclepias* spp.) or 250 feet from occupied habitat (roosting and breeding sites) to avoid or minimize disturbances and impacts to monarch butterflies:

- Before construction activities a qualified biologist would conduct preconstruction surveys for milkweed (*Asclepias* spp.). Flag and fence existing milkweed patches, when feasible, and avoid mowing them, during the monarch breeding season in the Central Valley from March 15 to October 31 (Xerces Society 2018), to conserve milkweed plants and avoid causing direct mortality to immature stages of monarchs. If milkweeds are identified within the Proposed Action Area, then surveys for adult and larval monarchs should be conducted both before and after the project.
- A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, and other ground-disturbing activities to protect breeding habitat.
- Include USFWS recommended pollinator plants into mitigation site planting plans, when possible. Pollinator plants may need to be introduced into mitigation site planting plans after invasive and exotic weeds have been controlled. Several years of weed control efforts may be necessary to reach a satisfactory level of control prior to planting pollinator plants.
- All newly planted milkweed will be regionally native and preferably of the same species removed.

Mowing

- Train mower operators to recognize milkweed plants and important native nectar plants to reduce accidental mowing.
- Do not cut or mow milkweed during the monarch breeding season in the Central Valley from March 15 to October 31 (Xerces Society 2018)

- Limit mowing to no more than twice per year. Generally, fall mowing after the first frost is ideal to avoid mowing floral resources and host. In mitigation sites mowing limits may be delayed until exotic and invasive weeds are sufficiently controlled. This may take several years of intensive weed control.
- If mowing must occur during monarch breeding season, delay mowing to as late as possible (late summer or early fall) to provide a longer period for monarch caterpillars to develop and extend availability of nectar plants to monarchs and other pollinators into the late summer.

Weed Control

- No herbicide application will take place within 50 feet of occupied monarch habitat (including milkweed) when monarchs are present (adults or larvae), generally March 15 through October 31. If herbicide application must occur within 50 feet of occupied monarch habitat, then application will only be conducted using targeted spraying, cut stump, and wiping by a Service-approved biologist and will be no closer than 2 feet.
- Actively unoccupied growing milkweed will be avoided by a minimum of 2 feet during the application of herbicides (target spray, cut stump, wiping and wicking). Herbicide application within 50 feet of a milkweed plant will be conducted spray equipment equipped with low-pressure fan type nozzles to reduce the risk of drift.
- No broadleaf selective herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.
- No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).
- Milkweed numbers and species will be assessed in project areas where impacts to milkweed may occur due to activities such as ATV access and herbicide application.

Timing: Before and during construction

Responsibility: Project Partners

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

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site.

Please refer to Appendix B, Section 4.1, “Vegetation and Wildlife” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The significant impact related to potential destruction of feeding and breeding habitat and mortality of individuals would be reduced to less than significant with implementation of Mitigation Measures MONARCH-1, VEG-1, and VEG-2 because surveys would be conducted to identify breeding adults and milkweed on project sites, buffers would be implemented to minimize potential for breeding disturbance, vegetation removal would be minimized, and compensatory mitigation would be implemented to offset unavoidable vegetation removal.

Valley Elderberry Longhorn Beetle

Construction would directly affect VELB habitat (Table 4.3-2). These areas include elderberry shrubs and the riparian vegetation within 25 meters (82 feet) of an elderberry shrub, which is considered VELB habitat. Mitigation sites would be designed to include a diverse assemblage of herbaceous, shrub, and canopy species; combined with long-term monitoring and maintenance activities designed to promote population expansions for VELB (HDR 2023). Overall, the impact of this loss of Federally listed species habitat would be significant.

Within the American River project sites, O&M by the American River Flood Control District planned as part of the Proposed Action could require the trimming of elderberry shrubs as described in Section 3.8.4 (page 165) of the ARCF GRR FEIS/EIR. Trimming consists of cutting overhanging branches along the levee slopes on both the landside and waterside. Some shrubs may be located adjacent to the levee with branches hanging over the levee maintenance road. Up to a third of a shrub would be trimmed in a single season. Trimming would occur between November 1 and March 15. This loss of VELB habitat would be significant.

Focused surveys of elderberry shrubs were conducted in 2022 to evaluate potential impacts of Sacramento River Erosion Contract 3 and the piezometer network. There are no elderberry shrubs present within these areas.

To minimize and offset the impacts of project components implemented on the American River and O&M trimming, Project Partners would implement Mitigation Measure VELB-1 described below, which was previously adopted for the 2016 ARCF Project and is. Specifically, the mitigation for O&M impacts would be offset by development of off-site mitigation sites that would be designed in accordance with the 2017 VELB Framework. In addition, each year the American River Flood Control District would document the amount of VELB habitat that they have trimmed and report that number to USACE to ensure compliance with the USFWS Biological Opinion. If the local maintaining agency has a need to exceed the amount of VELB habitat which needs to be trimmed or affected due to routine maintenance, then they would request that USACE reinitiate consultation on this biological opinion for those actions. With the

implementation of Mitigation Measure VELB-1 described below, project implementation, including O&M activities, would result in less-than-significant impacts on VELB.

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

The Project Partners would 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 would 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.) would be avoided within 20 feet from the drip-line of the shrub, depending on the type of activity.
- Worker education. A qualified biologist would 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 would 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 would be conducted outside of the valley elderberry longhorn beetle flight season (March to July).
- Trimming. To the extent feasible, elderberry shrub trimming would 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 would not be used within the drip-line, and insecticides would not be used within 100 feet of an elderberry shrub. All chemicals would be applied using a backpack sprayer or similar direct application method.
- Mowing. Weed removal with machinery within the drip-line of elderberry shrubs would be limited to the season when adults are not active (August to February) and would avoid damaging the shrub.
- Transplanting. To the extent feasible, elderberry shrubs would be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Exit-hole surveys will be completed immediately before transplanting. A qualified biologist would be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.

- Compensation. Effects would be compensated at ratios ranging from 1:1 to 3:1, depending on the compensation approach and circumstances of the affected shrubs. Affected area would be re- vegetated with appropriate native plants.

Timing: Before and during, and after construction

Responsibility: Project Partners

Significant impacts related to removal and trimming of elderberry shrubs that provide habitat for VELB would be reduced to less than significant with implementation of Mitigation Measure VELB-1 because elderberry shrubs retained on the project sites would be protected to minimize accidental damage, vegetation management would be conducted in a way that minimizes adverse impacts, elderberry shrubs would be transplanted consistent with established protocols, and compensatory mitigation would be implemented to offset unavoidable impacts.

Northwestern Pond Turtle

Northwestern pond turtle inhabits rivers, pond, wetlands, and irrigation ditches for aquatic habitat and sandy or grassland areas for upland habitat. This species nests in upland areas within one-quarter mile of aquatic habitat. Females choose to nest in open canopy sites, including agricultural fields and the edges of roads, which can lead to mortalities of both adults and hatchlings. Nests are constructed in loose soils, such as sands and loams with few large roots. Nests are constructed in the summer, most likely to be observed from April to August, depending on the location within the species range. Activity peaks in June and July between late afternoon and early morning in low light (but can happen at any time of the day) (Department of Defense Partners in Amphibian and Reptile Conservation (DDPARC) 2020).

ARMS wetland and riparian habitats would increase, thus expanding available habitat for northwestern pond turtles, the only special-status reptile determined to have the potential to occur onsite. Northwestern pond turtles have been determined to do best in habitats with a large amount of emergent basking sites, native plants and shrubs, access to upland, and lower disturbances regimes from grazing, agriculture, industrial and recreational activities. In the existing condition, the site provides marginal habitat value for northwestern pond turtle (HDR 2023).

Construction equipment accessing areas occupied by northwestern pond turtle could strike turtles that are nesting, basking, or traversing upland habitat, resulting in mortality of these animals. Northwestern pond turtles may also be crushed or entombed when construction equipment causes burrows to collapse. In addition, aquatic habitat could be directly affected during construction and fuel, oil, other petroleum products, and other chemicals used during maintenance activities could be accidentally introduced into waterways. In sufficient concentrations, these contaminants would be toxic to northwestern pond turtles and their prey species. This would be a significant impact. With implementation of Mitigation Measures TURTLE-1, adapted as described below from the measure previously adopted for ARCF 2016 Project, and GEO-1, WQ-1, and WATERS-1, which were previously adopted for the ARCF 2016 Project, the impact of construction on northwestern pond turtle would be reduced to a less-than-significant level.

O&M activities, including vegetation management along the levees, could involve mowing and trimming of small trees and shrubs using hand tools or machinery. Such activities could incidentally collapse burrows or crush nests on the ground, potentially affecting northwestern pond turtle individuals or their habitat. Pond turtles could be killed or injured by mower blades when they are above ground (e.g., during periods of cooler temperatures, such as early mornings) and unable to leave areas being maintained because of their relative lack of mobility. Mowing equipment could crush or expose a buried northwestern pond turtle nest, potentially resulting in nest failure. This would be a significant impact. With implementation of Mitigation Measures TURTLE-1 and WQ-1, the impact of O&M on northwestern pond turtle would be reduced to a less-than-significant level.

Mitigation Measure TURTLE-1: Implement Measures to Protect Northwestern Pond Turtle

The mitigation measure previously identified for northwestern Pond turtle and adopted for the ARCF 2016 Project has been augmented to address nesting sites. The Project Partners will implement the following measures, to avoid and minimize effects on northwestern Pond turtle:

- A qualified biologist would conduct a pre-construction survey within 7 days before the start of project activities. If no northwestern Pond turtles or nests are observed, USACE would document that information for the file, and no additional measures would be required.
- If northwestern Pond turtles or nests are observed on land within the construction footprint during project activities, USACE would stop work within approximately 200 feet of the turtle, and a qualified biologist would be notified immediately. If possible, the turtle would be allowed to leave on its own and the qualified biologist would remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed.
- Alternatively, with prior CDFW approval, the qualified biologist may capture and relocate the turtle unharmed to suitable habitat at least 200 feet outside the construction footprint. If a northwestern Pond turtle nest is unintentionally uncovered during project activities, work would stop in the vicinity of the nest and USACE would contact CDFW to determine the appropriate next steps. Potential next steps may include fencing and buffering the nest and/or rescue, rehabilitation, and relocation of affected turtles.

Timing: Before and during construction

Responsibility: Project Partners

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 Mitigation Measure GEO-1 in Appendix B, Section 3.3, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Mitigation Measure WQ-1 in Appendix B, Section 3.4, “Water Quality,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Mitigation Measure WATERS-1 in Appendix B, Section 3.1, “Vegetation and Wildlife,” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The significant impact related to potential pond turtle mortality would be reduced to less than significant with implementation of Mitigation Measures TURTLE-1 and WQ-1 because surveys would be conducted for visible individuals in the construction footprint and measures would be implemented to minimize impacts on individuals found in the construction footprint and measures would be implemented to minimize degradation of aquatic habitat.

Bank Swallow

Bank swallows historically nested along the Lower American River, recorded as recently as 1986 (CDFW 2023), and continue to forage in the area. However, no active nest colonies are known near any of the project sites, due to degradation of habitat suitability from dense vegetation and riprap cover on the banks. Individuals were spotted perching within 3 miles of the LAR project sites as recently as 2021 (iNaturalist 2023a) and are known to occur regularly throughout the region, however, suitable nesting sites are very limited. If present in the vicinity of the project site, nesting bank swallow colonies could be directly affected if the proposed erosion protection measures were implemented during the species’ nesting season (April 1 through August 31). Thus, measures to reduce erosion risk could indirectly affect bank swallows by removing

suitable or potentially suitable foraging habitat and making the banks unsuitable for future use by bank swallows. This impact on bank swallow would be significant. If avoidance of bank swallow nests is not possible, design measures to minimize impacts, including reducing the construction footprint to protect the upper bank from encroachment, will be considered. If nesting habitat is directly impacted, mitigation will include removal of existing rock at a former bank protection site, acquisition of a permanent easement, or participation in a conservation easement on an appropriate landform. With implementation of Mitigation Measure BIRD-1, which was previously adopted for the 2016 ARCF Project, including pre-construction surveys, training of construction crews, and avoidance buffers if nesting birds are located, the impact on bank swallow from construction activities would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. In addition, these activities would be short term, would not affect nesting habitat, and the resulting impacts would be temporary and less than significant.

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.

Please refer to Mitigation Measure BIRD-1 in Appendix B, Section 4.1, “Vegetation and Wildlife,” for full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

Bald Eagle

Bald eagles may breed near rivers and open water and at least one nest has been observed within the project area, at ARMS. This nest would be avoided during construction. Long-term effects on bald eagle could result riparian habitat removal required during project implementation. Although the removal of riparian trees would be offset through compensatory plantings, there would be a temporary loss of habitat until the newly planted trees mature enough to be suitable for bald eagle nesting. This would be a significant impact on bald eagle nesting habitat.

O&M activities after construction would be consistent with existing O&M practices, so any impacts associated with O&M would also be similar to existing conditions. O&M activities after construction would involve activities, such as, mowing, grading, erosion control, encroachment management, herbicide application, rodent control, tree trimming and the removal of woody vegetation from the canal. Application of herbicides would be limited and is not expected to appreciably affect habitat conditions bald eagle (i.e., no loss of nesting trees). O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee. This vegetation trimming is expected to focus largely on shrubs and small, short trees whose presence may be concealing levee erosion issues. Therefore, vegetation management during O&M activities is not anticipated to affect large trees that represent suitable nesting habitat for bald eagle. Because these activities would be short term, and the resulting impacts would be temporary, and impacts of O&M would be less than significant.

The compensatory mitigation proposed at ARMS to address loss of riparian habitat would also compensate for the loss of bald eagle nesting habitat. Potential nesting habitat would be reduced temporarily because there would be a lag time between when trees would be removed or trimmed during Project construction and when the replacement trees would be mature enough to support raptor nesting. There would be a net increase in the area of quality riparian habitat present once the mitigation plantings become established. With implementation of the mitigation measures identified for impacts on riparian habitat (VEG-1 and VEG-2) and nesting birds (BIRD-1), all of which were previously adopted for the ARCF 2016 Project, the impact on bald eagle from construction-related activities would be reduced to a less-than-significant level.

Burrowing Owl

During their nesting period (February 1 through August 15) and throughout the year, burrowing owls could use small-mammal burrows in grassland areas that are present in and adjacent to the levees along the American River. If present, ground disturbance (excavation and backfilling) could result in direct mortality or injury of burrowing owls within burrows and similar nesting features. Such features could be disturbed or destroyed during construction in staging areas. This would be a significant impact. However, because there is only habitat for burrowing owls in staging areas and elderberry transplant areas there is flexibility to avoid active burrows. Thus, implementation of pre-construction surveys to identify active burrows and placement of avoidance buffers to avoid active burrows, as described below in Mitigation Measure BUOW-1, would reduce potential impacts from construction on burrowing owl to a less-than-significant level. Mitigation Measure BUOW-1 was previously adopted for the ARCF 2016 Project.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Ongoing rodent control could limit the availability of small-mammal burrows often used by burrowing owl. However, because rodent control would be limited to areas where such burrows could threaten the integrity of the levee system, such actions are not expected to substantially reduce the availability of suitable burrows for burrowing owl. Mowing tall vegetation also improves foraging habitat conditions and accessibility to burrows. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Mitigation Measure BUOW-1: Implement Measures to Protect Burrowing Owl.

The Project Partners would implement the following measures to reduce effects on burrowing owl:

- Prior to the implementation of construction, surveys would be conducted to determine the presence of burrows or signs of burrowing owl at project sites that provide suitable habitat. A habitat assessment and any proceeding surveys would 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) would 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, per the 2012 Staff Report on Burrowing Owl Mitigation, 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 would 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.

Timing: Before and during construction

Responsibility: Project Partners

The potential significant impacts related to destruction of occupied burrowing owl burrows would be reduced to less than significant with implementation of Mitigation Measure BUOW-1 because surveys would be conducted to identify occupied burrows on and near the project sites and measures would be implemented to avoid mortality and minimize other adverse impacts.

Least Bell's Vireo

The least Bell's vireo is one of four subspecies of Bell's vireo and is the only subspecies that breeds entirely in California and northern Baja California. A riparian obligate, the historical distribution of least Bell's vireo extended from coastal southern California through the San Joaquin and Sacramento valleys as far north as Tehama County near Red Bluff. Currently small populations remain in southern Inyo, southern San Bernardino, Riverside, San Diego, Orange, Los Angeles, Ventura, and Santa Barbara Counties. Though individuals are occasionally spotted within 10 miles of the project area. During 2010-2013, least Bell's vireo surveys were conducted in the Putah Creek Sinks located in the Yolo Bypass Wildlife Area (Whisler 2013, 2015), approximately 3 miles west of the Proposed Project Area. They require riparian thickets, often of dense willows, with a well-developed understory either near water or in dry portions of river bottoms. They nest along margins of bushes and forage low to the ground.

The project sites are unlikely to support nesting least Bell's vireo because the riparian corridor is narrow and patchy, and most sites are subject to human disturbance. However, construction of American River Erosion Contract 3B North and South and American River Erosion Contracts 4A and 4B improvements would result in the loss of riparian habitat (Table 4.3-2) that could be used by migrant individuals. This loss of habitat would be a significant impact. With implementation of Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project, the impact would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to have a substantial adverse effect overall and impacts of O&M on western yellow-billed cuckoo would be less than significant.

Purple Martin

Purple martins inhabit riparian forest and woodland areas and nest in tree cavities or crevices of cliffs. This species is also known to use infrastructure such as bridge and overpasses (e.g., weep holes) or other manmade structures (e.g., lamp posts, traffic lights, birdhouses) for nesting. By removing riparian woodland, the Project could continue to fragment suitable habitat for this species. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of purple martins if any are nesting in the trees targeted for removal. This impact would be significant. With implementation of Mitigation Measure BIRD-1 and restoration of riparian habitat in accordance with Mitigation Measures VEG-1 and VEG-2, all of which were previously adopted for the ARCF 2016 Project, the impact of construction on purple martin would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. The application of herbicides could indirectly affect purple martins by wilting or killing vegetation that contributes to the production of their prey (i.e., insects). Vegetation management during O&M activities would not likely affect nesting habitat for purple martin because it would not target the large trees (more specifically, large trees with cavities) used by this species. Mowing noise may temporarily disturb purple martins, but the activity would be only sporadic and short term. These relatively minor impacts would be less than significant.

Swainson's Hawk

As described in Section 3.8.4 of the ARCF GRR FEIS/EIR, the project sites provide suitable roosting and nesting habitat for Swainson's hawk. Long-term effects on Swainson's hawk nesting habitat could result from riparian habitat removal required during project implementation. Although the removal of riparian trees would be offset through compensatory plantings, there would be a temporal loss of habitat until the newly planted trees mature enough to be suitable for Swainson's hawk nesting. This would be a significant impact on Swainson's hawk nesting habitat.

Before the start of construction, pre-construction surveys would be conducted following the Swainson's Hawk Technical Advisory Committee Guidance (Swainson's Hawk Technical Advisory Committee 2000). Should surveys indicate that nesting Swainson's hawk are present, the potential would exist for short-term, temporary impacts during construction from dust, noise, and vibration. Swainson's hawk nest failure resulting from project activities would be a significant impact.

O&M activities after construction would be consistent with existing O&M practices, so any impacts associated with O&M would also be similar to existing conditions. O&M activities after construction would involve activities, such as, mowing, grading, erosion control, encroachment management, herbicide application, rodent control, tree trimming and the removal of woody vegetation from the canal. Rodent control would be limited to preventing rodents from burrowing and undermining the levee; therefore, rodent control actions are not expected to appreciably reduce the prey base for Swainson's hawk. Mowing on the project sites may also increase the visibility of prey, thereby enhancing foraging efficiency for Swainson's hawk. Application of herbicides would be limited and is not expected to appreciably affect habitat

conditions for Swainson's hawk (i.e., no loss of nesting trees or loss of grassland foraging habitat). O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee. This vegetation trimming is expected to focus largely on shrubs and small, short trees whose presence may be concealing levee erosion issues. Therefore, vegetation management during O&M activities is not anticipated to affect large trees that represent suitable nesting habitat for Swainson's hawk. Because these activities would be short term, and the resulting impacts would be temporary, impacts of O&M would be less than significant.

The compensatory mitigation proposed to address loss of riparian habitat would also compensate for the loss of Swainson's hawk nesting habitat. Potential nesting habitat would be reduced temporarily because there would be a lag time between when trees would be removed or trimmed during Project construction and when the replacement trees would be mature enough to support raptor nesting. There would be a net increase in quality riparian habitat present once the mitigation plantings become established. With implementation of the mitigation measures identified for impacts on riparian habitat (Mitigation Measure VEG-1: Compensate for Riparian Habitat Removal and Mitigation Measure VEG-2: Retain, Protect, and Plant Trees On-Site) and nesting birds (Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds), the impact on Swainson's hawk from construction-related activities would be reduced to a less-than-significant level. These measures were previously adopted for the ARCF 2016 Project.

Western Yellow-Billed Cuckoo

As described in the Proposed Action effects discussion in Section 3.8.4 (page 167) of the 2016 ARCF GRR FEIS/EIR, the project sites are unlikely to support nesting western yellow-billed cuckoos because the riparian corridor is narrow and patchy, and most sites are subject to human disturbance. In addition, the species no longer nests along the American River and the remnant Sacramento River nesting population is approximately 50 miles north. However, construction of American River Erosion Contract 3B North and South and American River Erosion Contracts 4A and 4B improvements would result in the loss of riparian habitat (Table 4.3-2) that could be used by migrant individuals. This loss of habitat would be a significant impact. With implementation of Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project, the impact would be reduced to a less-than-significant level.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to have a substantial adverse effect overall and impacts of O&M on western yellow-billed cuckoo would be less than significant.

White-tailed Kite

The Project Area contains numerous large riparian trees that provide suitable nesting conditions for white-tailed kite. Noise from heavy construction machinery could prompt nest abandonment and subsequent failure of nests in and near construction activity areas. Vegetation removal could also result in direct take of active white-tailed kite nests. This would be a significant impact. Implementation of Mitigation Measures VEG-1 and VEG-2 would reduce the impact on riparian nesting habitat to a less-than-significant level. Implementation of Mitigation Measure BIRD-1

would reduce the impact on nesting white-tailed kites to a less-than-significant level. These measures were previously adopted for the ARCF 2016 Project.

O&M activities after construction would be consistent with existing O&M practices, so any impacts also would likely be consistent with existing conditions. Vegetation management during O&M activities is not anticipated to affect large trees, limiting the potential for such activities to affect nesting habitat for white-tailed kite. Therefore, because O&M activities would be short term and the resulting impacts would be temporary, impacts of O&M would be less than significant.

Other Breeding and Migratory Birds

The man-made pond at the ARMS would be removed, restoring connection to the American River. ARMS would emphasize restoration to native floodplain wetland and riparian habitats, consideration of river dynamics, and adaptive management of the features as described in the American River Parkway Plan and American River Natural Resource Management Plan (HDR 2023). While the man-made pond does benefit diving birds, reconnecting the floodplain to the river and restoring natural floodplain processes would provide a mosaic of functionally diverse backwater and riparian habitats that would benefit multiple species (Anderson et al. 1996, Serra-Llobet et al. 2022). The permanent floodplain habitat created would provide habitat at different times of the year that an open water feature may not. This floodplain habitat would be important to cover to waterfowl in mid- to late summer when local ducks are molting their flight feathers (California Department of Fish and Game 1995).

Many non-listed bird species that are otherwise protected by the MBTA and the California Fish and Game Code (CFGC) are expected to be present at the project sites. These include Cooper's hawk, great blue heron, great egret, canvasback, and other common passerine, raptor, and wading bird species. General disturbance, including exposure to noise, vibration, and dust, could adversely affect nesting birds by altering their nesting behaviors (e.g., prompting adults to abandon eggs or chicks in nests). Construction activities would occur during a period that overlaps with the nesting season for numerous bird species that are present in the project site. This would be a significant impact. With implementation of Mitigation Measure BIRD-1, which was previously adopted for the ARCF 2016 Project, the impact of construction and O&M on non-listed birds protected by the Migratory Bird Treaty Act or the California Fish and Game Code would be reduced to a less-than-significant level.

Sanford's Arrowhead (CEQA only)

Sanford's arrowhead is an aquatic emergent herbaceous plant that grows in a variety of shallow freshwater habitats. This species is known to occur in various locations throughout the American River, though none were observed within the American River erosion footprint (Environmental Science Associates 2022). If it is found to occur within the project site, Sanford's arrowhead plants could be crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. Ground disturbance for the Proposed Action's bank improvement actions would increase the potential for Sanford's arrowhead plants to be unintentionally buried or removed. This would be a significant impact. Implementation of

Mitigation Measure PLANT-1, which augments the measure previously adopted for the ARCF 2016 Project, would reduce this impact to a less-than-significant level.

O&M activities after construction would involve activities, such as, mowing, grading, erosion control, encroachment management, herbicide application, rodent control, tree trimming and the removal of woody vegetation from the canal. Rodent control and mowing activities would increase the potential for Sanford's arrowhead to be unintentionally trampled, crushed, or ripped up by maintenance workers and equipment. O&M would involve limited vegetation trimming and management to facilitate visual inspections of the levee; this activity would have the same potential for Sanford's arrowhead to accidentally be damaged or killed as under current O&M activities. Overspray from herbicide applications may result in even accidental mortality of non-target plants, including Sanford arrowhead. However, the application of herbicides would be highly localized, and herbicides would not be sprayed near the known Sanford's arrowhead population within the project site. Thus, the application of herbicides as part of O&M for the Proposed Action is not anticipated to affect Sanford's arrowhead. The impact of O&M on Sanford's arrowhead would be less than significant.

Woolly Rose-Mallow (CEQA only)

Woolly rose-mallow occurs along the water's edge on the Sacramento River within 2 miles of the project site. Ground disturbance for the Proposed Action's bank improvement actions would increase the potential for these plants to be unintentionally buried or removed if present. Construction along the Sacramento River could result in removal of individuals if present in these areas. This would be a significant impact. O&M impacts would be the same as those stated for Sanford's arrowhead. Implementation of Mitigation Measure PLANT-1, which augments the measure previously adopted for the ARCF 2016 Project, would reduce this impact to a less-than-significant level.

Mitigation Measure PLANT-1: Implement Measures to Protect Special-Status Plants

The Project Partners will implement the following measures, to avoid and minimize effects on special-status plants:

- Preconstruction surveys will be conducted by a qualified botanist in suitable habitat to determine the presence of any special-status plants. Surveys would be conducted at an appropriate time of year during which the species are likely to be detected, which would likely be during the blooming period.
- The botanists will conduct a floristic survey that follows the CDFW botanical survey guidelines (California Department of Fish and Wildlife 2018). All plant species observed will be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions.
- If special-status plant species are found during preconstruction surveys, Project Partners will redesign or modify proposed project components, if necessary, to avoid indirect or direct effects on special-status plants to the extent feasible.

- If the plants are found during construction the habitat will be marked or fenced as an avoidance area during construction. A buffer of 25 feet will be established. If a buffer of 25 feet is not possible, the next maximum possible distance will be fenced off as a buffer.
- If direct impacts cannot be avoided, the plants (including their root balls or rhizomes if applicable) maybe transplanted to an appropriate location under the supervision of a qualified biologist or landscape architect, if the species is known to transplant effectively. The qualified biologist or landscape architect will coordinate with CDFW regarding transplantation techniques and locations prior to implementation of transplantation efforts.

Timing: Before and during construction

Responsibility: Project Partners

The significant impacts related to loss of Sanford’s arrowhead, woolly rose-mallow, and other special-status plants that may be present would be reduced to less than significant with implementation of Mitigation Measure PLANT-1 because surveys would be conducted to identify special-status plant population on the project sites, and measures would be implemented to avoid and minimize disturbance of on-site populations.

Magpie Creek Project

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term and Moderate; Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

The Design Refinements will have a greater impact on special-status species than stated in the ARCF GRR FEIS/EIR. The MCP design has changed significantly since the ARCF GRR FEIS/EIR, and increased vegetation removal would increase impacts to special-status species. The impact discussions below apply to both the CEQA Proposed Action and to NEPA design refinements.

Crotch's Bumble Bee (CEQA only)

The impact analysis from “American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, ARM, Sacramento River Erosion Contract 3, and Piezometer Network” is applicable to the MCP. Construction of the MCP of the Proposed Action and implementation of O&M activities would result in impacts on suitable habitat and could result in mortality of Crotch’s bumble bee. This would be a significant impact. With implementation of Mitigation Measures BEE-1, VEG-1, and VEG-2, which were previously adopted for the ARCF 2016 Project, impacts on this species would be reduced to a less-than-significant level.

Monarch butterfly

Effect would be the same as stated previously for American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, ARM, Sacramento River Erosion Contract 3, Piezometer Network. Construction of the MCP of the Proposed Action and implementation of O&M activities would result in impacts on suitable habitat and could result in mortality of monarch butterfly. This would be a significant impact. With implementation of the new Mitigation Measure MONARCH-1 and Mitigation Measures VEG-1 and VEG-2, which were previously adopted for the ARCF 2016 Project, impacts on this species would be reduced to a less-than-significant level.

Valley Elderberry Longhorn Beetle

Focused surveys of elderberry shrubs were conducted in 2020 to evaluate potential impacts on VELB. There are no elderberry shrubs present within the project site. Therefore, no mitigation is required.

Vernal Pool Fairy Shrimp and Tadpole Shrimp

Vernal pool fairy and tadpole shrimp live in vernal pools and swales containing clear to turbid water and grassy bottoms in unplowed grasslands. The shrimp is ecologically dependent on seasonal fluctuations in its habitat, such as presence or absence of water during specific times of the year, duration of water, temperature, and quantities of dissolved oxygen (USFWS 1992). Vernal pools occur near Magpie Creek. There are recorded occurrences of vernal pool fairy shrimp in the CNDDDB from 1995 (CDFW 2023).

The design refinements would cause minor impacts to hydrology. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of wetland. However, construction of the realignment would not significantly alter the area's topography relative to the remaining 2.4-acre wetland and impacts to local hydrology would be less than significant. This could indirectly impact vernal pool fairy and tadpole shrimp and result in a less than significant impact. If it is determined that greater than 0.25 acre of vernal pool habitat will be impacted, as stated in the ARCF Final EIS/EIR, USACE would reconsult with USFWS. Implementing Mitigation Measures SHRIMP-1, GEO-1, WQ-1, and WATERS-1, which were previously adopted for the 2016 ARCF Project, would reduce this impact to less than significant.

O&M activities after construction would involve activities such as mowing, and the removal of woody vegetation from the canal. Mowing is unlikely to impact vernal pool fairy shrimp or vernal pool tadpole shrimp. The impact of O&M on these species would be less than significant.

Mitigation Measure SHRIMP-1: Implement Measures to Avoid and Minimize Effects on Vernal Pool Fairy Shrimp and Tadpole Shrimp.

The following measures, from the 2004 Biological Opinion from the Magpie Creek Flood Control Project as stated on page 185 of the ARCF Final EIS/EIR, would be implemented

to avoid and minimize impacts to potential vernal pools in the vicinity of the Magpie Creek Project construction area.

- Preservation component: For every acre of habitat directly or indirectly affected, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank or, based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or another nonbank site as approved by the Service.
- Creation component: For every acre of habitat directly affected, at least one vernal pool creation credit will be dedicated within a Service-approved habitat creation bank or, based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat will be created and monitored on the project site or another non-bank site as approved by the Service.
- Listed vernal pool crustacean habitat and associated uplands utilized as on-site compensation will be protected from adverse effects and managed in perpetuity or until the Corps, the applicant, and the Service agree on a process to exchange such areas for credits within a Service-approved conservation banking system. Off-site conservation at a Service-approved non-bank location will be protected and managed in perpetuity through a Service approved conservation easement, Service-approved management plan, and a sufficient endowment fund to manage the site in perpetuity in accordance with the management plan.
- If habitat is avoided (preserved) on site, then a Service-approved biologist (monitor) will inspect any construction-related activities at the proposed project site to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist will have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist also will be required to immediately report any unauthorized impacts to the Service and the California Department of Fish and Game.
- Adequate fencing will be placed and maintained around any avoided (preserved) vernal pool habitat to prevent impacts from vehicles.
- All on-site construction personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.
- The applicant will ensure that activities that are inconsistent with the maintenance of the suitability of remaining habitat and associated on-site watershed are prohibited. This includes, but is not limited to: (i) alteration of existing topography or any other alteration or uses for any purposes, including the exploration for or development of mineral extraction; (ii) placement of any new structures on these parcels; (iii) dumping, burning, and/or burying of rubbish, garbage, or any other wastes or fill materials; (iv) building of any new roads or trails; (v) killing, removal, alteration, or replacement of any existing native vegetation; (vi) placement of storm water drains;

(vii) fire protection activities not required to protect existing structures at the project site; and (viii) use of pesticides or other toxic chemicals.

- Prior to any earth-moving activities at the proposed project site, the applicant shall purchase vernal pool preservation credits within a Service-approved ecosystem preservation bank or fund account.

Timing: Before construction.

Responsibility: Project Partners.

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 Mitigation Measure GEO-1 in Appendix B, Section 3.3, “Geologic Resources,” for the full text of this mitigation measure.

Timing: Before and during construction.

Responsibility: USACE

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

Please refer to Mitigation Measure WQ-1 in Appendix B, Section 3.4, “Water Quality,” for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters, Including Wetlands.

Please refer to Mitigation Measure WATERS-1 in Appendix B, Section 3.1, “Vegetation and Wildlife,” for the full text of this mitigation measure.

Timing: Before and after construction

Responsibility: USACE

The significant impacts related to mortality of vernal pool fairy shrimp and tadpole shrimp would be reduced to less than significant with implementation of Mitigation Measures SHRIMP-1, GEO-1, WQ-1, and WATERS-1 because measures would be implemented to avoid and minimize impacts on habitat for these species and compensatory mitigation would be implemented to offset unavoidable impacts.

Swainson's Hawk, White-Tailed Kite, Least Bell's Vireo, Purple Martin, Other Breeding and Migratory Birds

The analysis from “American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, ARM, Sacramento River Erosion Contract 3” above is applicable to the MCP. Construction of the MCP of the Proposed Action would result in the loss of riparian habitat and could result in loss of active nests of special-status species and other migratory birds. This loss of habitat would be a significant impact. With implementation of Mitigation Measures VEG-1, VEG-2, and BIRD-1, the impact would be reduced to a less-than-significant level.

Giant Garter Snake

Giant garter snake has not been documented in NEMDC/Steelhead Creek or its eastside tributaries (CDFW 2023), and historical habitat conditions are thought to have limited dispersal of the species east of NEMDC/Steelhead Creek (Halstead et al. 2014). Based on these factors and current habitat conditions, such as close proximity to development, high levels of human disturbance, scarcity of upland habitat, and riparian vegetation along the banks of most channel reaches of Magpie Creek, giant garter snakes are unlikely to occur on the project site (GEI 2020) and implementing the MCP would not affect this species.

Special-status Plants (CEQA only)

Special-status plant species were not identified during early- and late-season field surveys in 2023, although all target species would have been identifiable based on flowering phenology at the time of the field survey. Based on the review of existing documentation and observations made during the field survey, special-status plant species that were evaluated are absent from the MCP, and there were no indications of the presence of these species in areas that could not be surveyed due to access or other limitations (GEI 2023). In addition, an April 2018 survey for the Magpie Creek Floodplain Conservation Project did not observe any special-status plant species (ICF 2018). Some proposed staging areas include seasonal wetlands that are potential habitat for several special-status plant species. These areas would receive protocol floristic surveys prior to use and follow mitigation measure PLANT-1.

Sacramento River Mitigation Site (SRMS)

The analysis above for American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, ARM, Sacramento River Erosion Contract 3 is applicable to Sacramento River Mitigation site. However, the following additional species are also analyzed due to the site's location in the Sacramento-San Joaquin Delta. Planning-level biological surveys were completed in September 2023 (GEI 2023b). Protocol-level surveys will be conducted as needed to inform site design before being utilized for ARCF mitigation.

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

NEPA Impact Conclusion (Design Refinements): Short-term Significant and Unavoidable; and Long-term and Minor effects that are Less than Significant with Mitigation Incorporated.

The NEPA Design Refinements for the Sacramento River Mitigation site would be identical to the Proposed Action because the 2016 FEIS/FEIR did not include analysis for mitigation sites. Therefore, impacts described below apply to both the CEQA Proposed Action and the NEPA Design Refinements.

California tiger Salamander

The Central California population of California tiger salamander is Federally threatened. It depends on vernal pools and other seasonal ponds and stock ponds for reproduction; its habitat is limited to the vicinity of large, fishless vernal pools or similar water bodies and there are no known occurrences within 5 miles of the project site. The project site and adjacent areas do not support suitable breeding habitat for this species. Therefore, impacts to this species are extremely unlikely and no mitigation is required.

Monarch butterfly

Effect would be the same as stated for American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, ARM, Sacramento River Erosion Contract 3, Piezometer Network.

Valley Elderberry Longhorn Beetle

Over 40 elderberry shrubs that provide habitat for VELB occur on the proposed SRMS. VELB habitat on the site includes the elderberry shrubs and the riparian habitat within 25 meters (82 feet), which is considered VELB habitat. The impact of this loss of Federally listed species habitat and potential loss of individuals would be significant. The impact would be reduced to a less-than-significant level with implementation of Mitigation Measure VELB-1.

Vernal Pool fairy Shrimp and Tadpole Shrimp

Vernal pool fairy shrimp is Federally threatened, and vernal pool tadpole shrimp is Federally endangered. They inhabit vernal pools and other suitable seasonal wetlands. There are no CNDDDB occurrences for these species in the area, and there are no suitable wetlands on the project site. Thus, the Proposed Action is anticipated to have no effect on either of these species.

California black rail

The California Ridgway's rail, formerly the California clapper rail, is a State threatened bird who is known to nest at scattered locations in the San Francisco Bay Area and Delta region, Point Reyes National Seashore, San Luis Obispo and Orange Counties, as well as the Imperial and Lower Colorado River Valleys. They occur in saline, brackish, and fresh emergent wetlands. They are scarce, but true abundance difficult to determine due to small size and extremely secretive nature. They appear intermittently and sparingly at a few locations in the Sacramento Valley (CDFG 1999b, GEI 2023b), thus potential of occurrence within the project site is extremely low and the Proposed Action would have no impact on this species.

California Ridgeway's rail

The California Ridgway's rail, formerly the California clapper rail, is a Federally Endangered bird whose current distribution is restricted to the San Francisco Bay Estuary. They occur almost exclusively in tidal and brackish marshes with unrestricted daily tidal flows, adequate invertebrate prey food supply, well-developed tidal channel networks, and suitable nesting and escape cover to provide habitat during extreme high tides (USFWS 2020). In addition, there are only rare sightings in Suisan Bay and eastward, thus potential of occurrence within the project site is extremely low and the Proposed Action would have no impact on this species.

Song sparrow ("Modesto" population)

The "Modesto" population of song sparrow resides in the northcentral portion of the Central Valley, with the highest densities in the Butte Sink area of the Sacramento Valley and in the Sacramento–San Joaquin River Delta. Associated with freshwater marshes dominated by tules and cattails and riparian willow thickets, they also nest in riparian forests with blackberry understory and along vegetated irrigation canals and levees. There are five CNDDDB occurrences within 5 miles of the SRMS and there is suitable nesting habitat within the project site. If song sparrows occur onsite, active nests could be destroyed or disturbed during restoration and maintenance activities, potentially resulting in nest failure. This could be a significant impact. Implementing Mitigation Measure BIRD-1 would reduce this impact to a less-than-significant level.

Tricolored blackbird

The tricolored blackbird is listed as a threatened species under CESA. Within California, active breeding colonies occur in 46 California counties with the largest colonies in the Central Valley. In the Central Valley, breeding extends east into the foothills of the Sierra Nevada. Historically, most California colonies have been located in the Sacramento and San Joaquin Valleys, but habitat loss has reduced breeding considerably in this area in recent years. Tricolored blackbirds have three basic requirements for selecting their breeding colonies: open accessible water; a protected nesting substrate, including either flooded vegetation or thorny/spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony. Suitable breeding habitats within the Central Valley have been found to include emergent marsh areas with tules or cattail and upland habitats consisting of thistle, nettle, blackberry, wheat, and other shrubby upland substrates (Meese 2006). Foraging habitats in all seasons include annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (e.g., large tracts of alfalfa with continuous mowing schedules and recently tilled fields), cattle feedlots, and dairies. Tricolored blackbirds also occasionally forage in riparian scrub habitats and along marsh borders (Beedy et al. 2018). Though there are no CNDDDB occurrences within 5 miles of SRMS, if tricolored blackbirds do occur onsite, active nests could be destroyed or disturbed during restoration and maintenance activities, potentially resulting in nest failure. This could be a significant impact. Implementing Mitigation Measure BIRD-1 would reduce this impact to a less-than-significant level.

Other Bird Species

American white pelican, yellow warbler, yellow-headed blackbird, yellow breasted chat, northern harrier, and grasshopper sparrow are State species of special concern. There is limited

nesting and/or foraging habitat at SRMS for these species and no CNDDDB occurrences within 5 miles, thus potential of occurrence within the project site is low and it is unlikely the Proposed Action would have an impact on these species. Implementing Mitigation Measure BIRD-1 would reduce any impact to a less-than-significant level.

Giant Garter Snake (GGS)

There are giant garter snake observation records south of the SRMS as well as north of the SRMS within Walnut Creek and along the Sacramento River near Cortland and north of Hood. The bulrush marsh along the western and southern shoreline provides some suitable aquatic habitat for the giant garter snake and refugia including downed logs. However, the giant garter snake prefers slower moving water and "is not found in or around larger rivers due to the presence of predators" (USFWS 2023b). In addition, the SRMS is at the western edge of the snake's range where brackish waters from the Suisun Bay mixes with fresh water in the Delta.

Based on these factors the giant garter snake is unlikely to occur at SRMS. Construction activities could introduce pollutants into potentially suitable aquatic habitat for giant garter snake (e.g., via erosion, sedimentation, or accidental spills of construction materials). If GGS are observed this could be a significant temporary impact. Implementing Mitigation Measure GGS-1 (from the 2021 Sacramento Weir Widening EIS/EIR) would avoid encounters with GGS and reduce significant direct effects on giant garter snake to a less-than-significant level by minimizing temporary impacts. The long-term impact would be beneficial because protection of the site and re-establishing emergent vegetation and refugia would have long-term ecological benefits to many species, including the giant garter snake.

Mitigation Measure GGS-1: Implement Measures to Avoid, Minimize and Compensate Impacts on Giant Garter Snake.

The ARCF GRR FEIS/EIR identified a significant impact on giant garter snake. The following is an updated mitigation measure.

If the project is implemented, USACE will implement the following measures to minimize effects on giant garter snakes and habitat that occurs within 200 feet of any construction activity. These measures are based on USFWS guidelines for restoration and standard avoidance measures included as appendices in USFWS (1997):

- Unless approved otherwise by USFWS, construction will be initiated only during the giant garter snakes' active period (May 1–October 1, when they are able to move away from disturbance).
- Construction personnel will participate in USFWS-approved worker environmental awareness program.
- Giant garter snake survey would be conducted 24 hours prior to construction in potential habitat. Should there be any interruption in work for greater than two weeks, a biologist would survey the project area again no later than 24 hours prior to the restart of work.

- Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own.
- Movement of heavy equipment to and from the construction site will be restricted to established roadways. Stockpiling of construction materials will be restricted to designated staging areas, which will be located more than 200 feet away from giant garter snake aquatic habitat.
- Giant garter snake habitat within 200 feet of construction activities will be designated as an environmentally sensitive area and delineated with signs or appropriate fencing. This area will be avoided by all construction personnel.

Timing: Before and during construction

Responsibility: Project Partners

Special-status plants (CEQA only)

Delta tule pea, Mason's lilaepsis, and Suisun marsh aster have known occurrences within the project site. Bolander's water-hemlock, Delta mudwort, San Joaquin spearscale, and watershield have the potential to occur, but there are no known on-site observations. A protocol level survey is scheduled occur prior to the final draft of this document to confirm this. If special-status plants are present, they could be crushed by construction equipment or trampled by construction personnel, resulting in damage to or mortality of the plants. The final design will avoid special-status plant species to the greatest extent possible. However, ground disturbance for mitigation site construction may necessitate removal of these plants in order to support the highest quality habitat design. This would be a significant impact. Implementation of Mitigation Measure PLANT-1 would reduce this impact to a less-than-significant level.

Alternatives Comparison

The following alternatives are evaluated based on changes to the proposed action only. Significance conclusions and effects determinations for all other project components would remain unchanged. Impact number 4.3-b is identical to Basis of Significance 4.1-f "Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan" is addressed in Appendix B, Section 4.1, "Vegetation and Wildlife" and not repeated in this section.

Alternative 3a

Under Alternative 3a for the American River Erosion Contracts 4A Project Component, instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" in the SEIS/SEIR). All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action, though there would be less riparian and VELB habitat impacted (See Table 4.3-2).

Table 4.3-4: Alternative 3a Effects

Impact Number	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.3-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3a would include significant impacts to special-status species	VEG-1, VEG-2, GEO-1, WQ-1, PLANT-1, BEE-1, VELB-1, TURTLE-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant and unavoidable short-term, long-term, minor effects that are less than significant with mitigation

Alternative 3b

Alternative 3b for the American River Erosion Contract 4A Project Component would be similar to the Proposed Action but would use a different permanent bike trail reroute. Instead of going under the railroad and reconnecting to the bike trail near Del Paso Blvd, the bike trail would head north following the railroad and reconnect to the bike trail just past the berm (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" in the SEIS/SEIR). The route would be slightly longer than the Proposed Action.

Compared to the Proposed Action and other Alternatives, the route would be similar to the current bike trail route, only the alignment would be adjusted to go around the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving, and possible construction of a bridge. This would have the same effects as the Proposed Action, though there would be more riparian and VELB habitat impacted (See Table 4.3-2).

Table 4.3-5: Alternative 3b Effects

Impact Number	Location	Discussion	Mitigation Measure	Significance Conclusion	NEPA Effects Alternatives
4.3-a	American River Erosion Contracts 4A and 4B	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3b would include significant impacts to special-status species	VEG-1, VEG-2, GEO-1, WQ-1, PLANT-1, BEE-1, VELB-1, TURTLE-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant and unavoidable short-term, long-term, minor effects that are less than significant with mitigation

Alternative 3c

Alternative 3c for the American River Erosion Contract 4A Project Component would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" in the SEIS/SEIR). All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

The Alternative 3c route would be similar to the current bike trail route, but the alignment would be adjusted to go around the berm. A larger area of the wetland would need to be filled for the new alignment. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving, and possible construction of a bridge. Mitigation Measures 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," WATERS-1 "Compensate for Fill of State and Federally Protected Waters," and WQ-1 "Obtain Appropriate Discharge and Dewatering Permit and Implement Provisions for Dewatering" would be implemented to ensure water quality impacts to the remaining wetland are mitigated. The amount of impact on riparian and VELB habitat would be greater or less than the Proposed Action, depending on the location of the detour (See Table 4.3-2).

Table 4.3-6: Alternative 3c Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.3-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3c would include significant impacts to special-status species	VEG-1, VEG-2, GEO-1, WATERS-1, WQ-1, PLANT-1, BEE-1, VELB-1, TURTLE-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant short-term, long-term minor effects that are less than significant with mitigation

Alternative 3d

Alternative 3d for the American River Erosion Contract 4A Project Component would change the permanent bike trail route to a paved bike trail closer to the river along an existing off-road bike trail (Figure 3.5.3-4 in Chapter 3, "Description of Project Alternatives" in the SEIS/SEIR). All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SMRS, and ARMS) would have the same effects as the Proposed Action, though there would be less riparian, but much greater VELB habitat impacts (See Table 4.3-2).

This route would be longer than the Proposed Action. Installing this route would require some additional vegetation trimming, vegetation clearing, regrading, and paving.

Table 4.3-7: Alternative 3d Effects

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.3-a	American River Erosion Contract 4A	<i>NEPA and CEQA:</i> Similar to the Proposed Action, Alternative 3d would include significant impacts to special-status species	VEG-1, VEG-2, GEO-1, WQ-1, PLANT-1, BEE-1, VELB-1, TURTLE-1, BUOW-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Significant short-term, less than significant long-term with mitigation	Significant short-term; Long-term and Minor effects that are Less than Significant with mitigation

Alternative 4a and 4b (CEQA only)

Alternative 4a for the ARMS would retain an approximately 30-acre portion of the existing pond, and Alternative 4b would retain an approximately 20-acre portion of the pond. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, and ARMS) would have the same effects as the Proposed Action.

Under Alternatives 4a and 4b, a berm with a top width of 30 feet would be constructed to retain the western or southern portion of the existing pond, and floodplain habitat (generally at elevations 2 to 10 feet) would be constructed on the eastern portion of the site, including a portion of the existing pond. The remnant pond would be approximately 30 acres in Alternative 4a, and this alternative would include a reduced area of floodplain habitat below elevation 24. In Alternative 4b, the pond would be approximately 20 acres, with corresponding reduction in floodplain habitat acreage. Retain a portion of or the full extent of the existing pond would reduce the amount of floodplain mitigation, however, it would have the same effect as the Proposed Action.

Table 4.3-8. Alternative 4a and 4b Effects (CEQA Only)

Impact Number and Title	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion
4.3-a	American River Mitigation Site	Similar to the Proposed Action, results in the creation of shallow water and riparian habitat for several Federally protected species, which mitigates a significant impact to less than significant in the long term. The remnant pond would retain habitat used seasonally by several species, including diving ducks.	VEG-1, VEG-2, GEO-1, WQ-1, , WATERS-1, PLANT-1, VELB-1, BEE-1, TURTLE-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Less than significant with mitigation incorporated

Alternative 5a

Under Alternative 5a, the Sacramento River Mitigation Site would not be constructed. Instead, all remaining required mitigation credits from USFWS Approved Conservation Banks, whose service areas cover the ARCF project impacts. There would be no direct resource impacts from this action. The USFWS Approved Conservation Bank would have completed an independent NEPA/CEQA analysis. All other project components (MCP, American River Erosion Contract 3B North and South, American River Erosion Contracts 4A and 4B, SRMS, and ARMS) would have the same effects as the Proposed Action.

Table 4.3-9. Alternative 5a Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Significance Conclusion
4.3-a	Sacramento River Mitigation Site – Watermark Farms	<i>NEPA and CEQA:</i> No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks	N/A	No Impact	No Impact

Alternative 5b

Under Alternative 5b, the Sacramento River Mitigation portion of the Proposed Action would be completed at Watermark Farms, located along the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25. The site is characterized by agricultural and ruderal herbaceous habitat types. This site is in private ownership and would need to be purchased and comprehensively surveyed for sensitive biological resources before being utilized for ARCF mitigation. Similar to the Proposed Action, Alternative 5b would mitigate long term impacts to special-status plants and wildlife at Watermark Farms by restoring important shallow water and riparian habitats. Depending on the size and design of the mitigation area, the overall resulting increase in native habitats may be greater at Watermark Farms than under the Proposed Action because the SRMS supports existing habitat for special-status species.

Table 4.3-10. Alternative 5b Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.3-a	Sacramento River Mitigation Site – Watermark Farms	<i>NEPA and CEQA:</i> Similar to the Proposed Action, results in the creation of shallow water and riparian habitat for several Federally protected species, which mitigates a significant impact to less than significant in the long term.	VEG-1, VEG-2, GEO-1, WQ-1, PLANT-1, VELB-1, BEE-1, TURTLE-1, BIRD-1, BAT-1, BADGER-1, MONARCH-1	Significant short-term; less than significant long-term	Short term significant and unavoidable; long-term no net effect

Alternative 5c

Alternative 5c would combine three approaches to complete the ARCF Sacramento River Mitigation requirements: 1) purchasing Delta Smelt Conservation Bank Credits from USFWS-approved banks; 2) providing funding for Sunset Pumps, a project that has been identified on NMFS recovery plans and is listed as high priority for Reclamation, DWR and USFWS; and 3) the removal of the weir at Sunset Pumps and updating the pumping facility. The Sunset Pumps project would undergo its own NEPA/CEQA analysis prior to implementation.

Table 4.3-11. Alternative 5c Effects

Impact Number	Location	Discussion	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
4.3-a	Sacramento River Mitigation Site – Watermark Farms	<i>NEPA and CEQA:</i> No impact within the Project Site. Independent NEPA/CEQA would occur for the USFWS Approved Conservation Banks and Sunset Pumps project.	N/A	No Impact	No effect

5.1 Cultural and Tribal Cultural Resources

5.1.1 Existing Conditions/Affected Environment

“Cultural resources” include precontact and historic-era archaeological sites; architectural properties such as buildings, bridges, dams, and related infrastructure; and resources of importance to Native Americans, such as traditional cultural properties, sacred sites, and tribal cultural resources. The Cultural Resources environmental and regulatory frameworks described in Section 3.9 of the 2016 ARCF GRR FEIS/FEIR are generally applicable to the analysis in this SEIS/SEIR and will not be repeated in detail here.

The existing conditions/affected environment for cultural resources comprise the area of potential effects (APE) within which significant precontact, ethnographic, and/or historic-era resources could be affected by ARCF project elements. The cultural setting within the APE consists of precontact and ethnographic contexts, including land use in the distant and more recent past by Native American populations, and historic-era contexts related to the activities of Euro-American explorers, missionaries, miners, farmers, and ranchers, and their interactions with indigenous people.

The cultural resources APE was determined by USACE, the lead Federal agency, and is described in the 2016 ARCF GRR FEIS/FEIR and the Section 106 programmatic agreement (PA) with the California State Historic Preservation Officer (SHPO), which was executed on September 10, 2015. The PA was included in the 2016 ARCF GRR FEIS/FEIR as Appendix C. By definition (36 C.F.R. § 800.16[d]), the APE comprises “the geographic areas or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.” “Historic properties” are cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Under CEQA, “historical resources” are resources listed in, or determined to be eligible for listing in the California Register of Historical Resources (CRHR). However, the fact that a resource resources not listed in, or determined to be eligible for listing in the CRHR, and not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in PRC 5024.1(g) shall not preclude a lead agency from determining that the resource may be an historical resource s defined in Public Resources Code sections 5020.1(j) or 5024.1. (Public Resource Code [PRC] 21084.1and State CEQA Guidelines Section 15064.5)

“Tribal cultural resources” are defined as: (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a Tribe that are listed, or determined to be eligible for listing, in the national or state register of historical resources, or listed in a local register of historic resources; or (2) resources that the lead [CEQA] agency determines, in its discretion, are tribal cultural resources (PRC 21074).

American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, Magpie Creek Project (MCP), and the Piezometer Network project elements are within the geographic extent of the APE delineated in the 2016 ARCF GRR FEIS/FEIR (see Section 3.9.1: Figure 14). The American River Mitigation Site (ARMS) site also is within the APE as delineated in the 2016

ARCF GRR FEIS/FEIR, although the mitigation work proposed for this area was not described in that document. The Sacramento River Mitigation Site (SRMS) was not included in the 2016 ARCF GRR FEIS/FEIR and is outside of the previously established ARCF APE.

The APE for the SRMS is located at the southwestern tip of the island, at the confluence of Steamboat Slough, Cache Slough, and the Sacramento River. The APE currently comprises an active Dredged Material Placement Site (DMPS) managed by USACE. Areas adjacent to the APE are characterized by agricultural land on the SRMS and nearby river-related activity areas along Steamboat Slough and the Sacramento River, including marinas, resorts, and fishing access points.

Known and Anticipated Cultural Resources

Sacramento River Mitigation Site

A records search through the Northern California Information Center, the California Inventory of Historic Resources, and the Historic Property Data File for Sacramento County indicate that, prior to 2018, one survey had been conducted within the proposed SRMS APE. Additionally, four other surveys had occurred within a half-mile radius of that area. The prior survey within the APE was conducted in 1976, as part of the Sacramento Deep Water Ship Channel Project from Collinsville to Sacramento (Ross 2018:5-6). One cultural resource was identified during the Deep Water Ship Channel survey, in the vicinity of Lake Washington, several miles north of Grand Island (Seldomridge and Smith-Madsen 1976).

No cultural resources have previously been documented within the SRMS APE (Ross 2018:5). There is one recorded resource within a half-mile radius of the APE: an unknown underwater feature approximately 60 feet long in Steamboat Slough, identified in 2009 using side scan sonar (Panamerican Consultants 2009). In 2018, pedestrian surveys and limited subsurface testing (three shovel probes) were conducted by Albion (Ross 2018:22) immediately northeast of the SRMS APE, with negative results.

While no cultural resources have been identified, to date, in the SRMS APE, this area has not been subject to intensive archaeological or built environment surveys since the 1970s. The requirements for conducting adequate historic properties identification efforts have evolved since then, as has the recognition of what constitutes appropriate engagement with potentially interested Native American Tribes (Tribes). As provided for under the PA, when the SRMS has reached a sufficient level of design to understand the extent and nature of ground disturbing activities in the APE, USACE will conduct additional identification efforts, evaluate any potential historic properties in the APE, and mitigate adverse effect, if needed, through consultation with the SHPO, Tribes, and other consulting parties.

2016 American River Common Features Area of Potential Effects

Cultural resources identified in APE from the 2016 ARCF GRR FEIS/FEIR are listed by individual project component in Tables 5.1-1 through 5.1-5, below.

Table 5.1-1. Magpie Creek Project

Resource Type	Resource ID	Name	Status Code
Archaeological - None	-	-	-
Built Environment	P-34-000646/CA-SAC-000522H	Sacramento Northern Bike Trail/Robla Creek Bridge	6Y ineligible
Built Environment	P-34-000746/CA-SAC-571H	Sacramento Northern Railway segment	6 ineligible

Table 5.1-2: American River Erosion Contract 3B North and South, and American River Erosion Contract 4B

Resource Type	Resource ID	Name	Status Code
Archaeological – None	-	-	-
Built Environment	P-34-000509/CA-SAC-482H	American River North Levee	6Y ineligible
Built Environment	P-34-000508/CA-SAC-481H	American River South Levee	6Y ineligible

For the American River Erosion Contract 3B North and South, and American River Erosion Contract 4B, the records search identified one archaeological resource in the APE (P-34-000495/CA-SAC-468H). However, GEI found no evidence of the resource as part of the investigation.

Table 5.1-3. American River Erosion Contract 4A

Resource Type	Resource ID	Name	Status Code
Archaeological - none	-	-	-
Built Environment	P-34-000491/CA-SAC-000464	Western Pacific Railroad	6 ineligible
Built Environment	P-34-000508/CA-SAC-000481H	American River North Bank Levee	6Y ineligible
Built Environment	P-34-000742/CA-SAC-000570	Del Paso Boulevard	6Z ineligible.
Built Environment	P-34-001663	North Sacramento Freeway segment, State Route (SR)160	6Y ineligible
Built Environment	P-34-005698	American River Culvert no. 1	6Z ineligible

Table 5.1-4. Sacramento River Erosion Contract 3

Resource Type	Resource ID	Name	Status Code
Archaeological	P-34-005257/CA-SAC-1253		Eligible
Archaeological	P-34-005225	Sacramento River TCL	Assumed Eligible
Built Environment	P-34-002143	SREL Levee Unit 115	2S2 Eligible.

Table 5.1-5. American River Mitigation Site (ARMS)

Resource Type	Resource ID	Name	Status Code
Archaeological	P-34-00058/CA-SAC-31		Status 1S. Individual property listed in NRHP by the Keeper. Listed in the CRHR.
Archaeological	P-34-00059/CA-SAC-32		Not evaluated
Archaeological	P-34-00333		Combined with P-34-00343
Archaeological	P-34-00343/CA-SAC-316		Not evaluated, combined with P-34-00333
Built Environment		Urrutia Marina	6Z ineligible

5.1.2 Cultural Context

The precontact, ethnographic, and historic settings for the MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and the ARMS are described in the 2016 ARCF GRR FEIS/FEIR. While the precontact, ethnographic, and historic settings for the SRMS are somewhat similar to those described in the 2016 ARCF GRR FEIS/FEIR, there are some notable differences related to its location further south of the previously described project elements, in the Sacramento-San Joaquin River Delta. The cultural resources existing conditions/affected environment (i.e., cultural context) for the SRMS is discussed below.

Sacramento River Mitigation Site

The SRMS is located in the Sacramento-San Joaquin River Delta region. The island is bounded by Steamboat Slough, Cache Slough, and the Sacramento River, and sits at an elevation ranging from -15 feet below sea level to 10 feet above sea level. Today, the island is primarily agricultural land, with multiple fields, orchards, vineyards, small farms and residences, a monastery, and two event centers/wedding venues. An earthen levee system and primary roadway largely surround the perimeter of the Island; a series of subsidiary roads and drainage ditches crisscross its interior (Ross 2018; Google Maps 2023).

The following information regarding the precontact, ethnographic, and historic contexts for the SRMS comes primarily from a recent cultural resources inventory (Ross 2018) prepared for an erosion repair project in the immediate vicinity of the SRMS APE; additional content derives from Volume 8 of the Handbook of North American Indians (Levy 1978 citing Merriam 1968). In this context, the term “precontact” refers to the time period prior to the incursion of Europeans, Euro-Americans, and other non-indigenous people into the region.

Precontact Context. The early precontact context for the Sacramento-San Joaquin Delta largely follows cultural sequences developed for the Central California region, as described in the 2016 ARCF GRR FEIS/FEIR. These sequences were developed and refined by archaeologists based on differences and changes in settlement patterns, subsistence practices, artifact types, and burial customs observed through archaeological investigation. The Central California taxonomic sequences include the Early Period (2050 BC-500 BC), the Middle Period (500 BC-AD 700), and the Middle Late/Late Periods (AD 700 – AD 1800), typically referred to, respectively, as the Windmill Pattern, Berkeley Pattern, and Augustine Pattern (Ross 2018).

As documented by Bennyhoff (in Hughes 1994), during the Middle Period, “Meganos” cultural traits, thought to have emerged along the southeast margin of the San Francisco Bay, spread inland to the interior valleys of the northern Diablo Range and lower San Joaquin River sloughs. The Meganos cultural aspect was viewed by Bennyhoff (see Hughes 1994:82) as “a hybrid of a Windmill population intermarrying with Berkeley neighbors.” Meganos traits include both extended and flexed burials lacking specific compass orientation and very few grave associated artifacts. These traits were interpreted by Bennyhoff (1994) as indicative of semi-sedentary settlements and increased seasonal movement of villages, a change from earlier, more sedentary practices. By the end of the Middle Period, the San Joaquin River delta appears to have become the cultural center for Meganos “culture” (Ross 2018:10).

Ethnographic Context. The SRMS is located at the interface of Bay Miwok and Plains Miwok territories (Levy 1978: Figure 1). Evidence from archaeological and linguistic studies suggests Miwok speakers arrived in the Sacramento-San Joaquin Delta/Suisun Bay area about 2,000 years ago, possibly displacing Hokan speakers (Moratto 1984). Bay and Plains Miwok lived near other groups including the Yokuts to the southeast, the Patwin to the north, the Nisenan to the northeast, and the Costanoan-Ohlone to the south and west (Ross 2018:10).

At the time of Euro-American arrival, Miwok people relied upon annual cycles of hunting, gathering, and fishing for food, personal goods, and trade items. “Tribelets” were the predominant political unit among the Miwok, each having distinct boundaries that were generally recognized and respected by neighboring groups. Settlements typically ranged between 20 and 300 persons, with the larger villages found along the rivers and bay (Ross 2018).

The lives and livelihoods of the Bay and Plains Miwok were permanently altered when Spanish missionaries arrived in the San Francisco Bay area, which took place decades before the inland spread of other Euro-American populations. The biggest disruptions occurred with the establishment of two nearby Franciscan missions, San Francisco de Asís (1776) and Mission San José (1797), and the subsequent missionization of the local Native American population (Ross 2018:11). Missionization led to the forced removal of Miwok communities from their traditional lands and the prohibition of their cultural practices.

Ethnographic maps indicate that, in the early- to mid-1800s, two Plains Miwok Tribelets – Anizumne and Quenemsia – were situated on or in very close proximity to Grand Island (Levy 1978: Figure 1). Mission baptismal records document that 244 Native Americans from the Anizumne tribelet and 185 Native Americans from the Quenemsia Tribelet were baptized between 1812-1825 and 1811-1828, respectively (Ibid. citing Merriam 1968). As described by Levy (1978: 400), “many Bay Miwok and Plains Miwok Tribelets disappeared through the combined effects of removal of the population to the missions and epidemics, which killed many thousands of persons in the central valley in the first half of the nineteenth century.”

Historic Context. Spanish and Mexican expeditions, followed by American fur trappers, visited the Delta region in the late 18th and early 19th centuries (Simons 2009). In the early 1810s, a Scottish sailor reportedly abandoned his ship in San Francisco, traveled to and married a Plains Miwok woman on Grand Island, where they subsequently lived and raised several children. During the Mexican Period (1822-1846), the Mexican Governor granted land for the establishment of ranchos in the vicinity of Grand Island, but none on the island itself (Ross 2018:11).

Substantial European settlement of the Delta region did not occur until the American Period, beginning in the early 1850s. This was largely due to inaccessibility, seasonal flooding of the area, and Native American resistance. Around 1850, Commodore Cadwalder Ringgold noted woodcutters and gardeners living and working on the Steamboat Slough side of Grand Island, near the future locations of Walker and Howard Landings (Ross 2018:11). By the late 1850s and early 1860s, SRMS was seeing more permanent Euro-American settlement. This was due, in large part, to the implementation of land reclamation practices, involving construction of artificial levees to create a series of islands from the Delta marshland (Maniery 1993).

Prior to the influx of Euro-Americans, SRMS had a series of natural earthen levees surrounding its tidal wetland interior, which formed the basis for construction of artificial levees beginning at the north end of the island in the early 1850s (Simons 2009). Twelve miles of levee (three feet high, 13 feet wide at the base, and three feet wide at the crown) was built in 1852-1853 by Chinese, Hawaiian, and Native American laborers under the supervision of settler Reuben Kercheval. By the late 1850s, the levee was expanded to eighteen miles long (Ross 2018:11).

In 1861, SRMS landowners established Reclamation District No. 3 to formalize the process of levee construction and maintenance. By the 1870s, most of the island had been cleared for farming and a six- to eight-foot-high levee existed around the island's perimeter. In the 1890s, the levees on Grand Island were enlarged, again, and complemented by a forty-foot-wide canal to drain water to a pump on the island's lower end (Ross 2018:11-12).

Agricultural development accompanied land reclamation on SRMS Early Delta farming focused largely on pears and asparagus. The wealth generated by pear orchards, maintained largely by Chinese and Japanese tenant farmers, supported a lavish lifestyle for the wealthiest Grand Island landowners. Many constructed substantial country houses on the island, including the 24,000 square foot, 58-room Italian Renaissance styled villa built by Louis William Meyers in 1920, which today operates as the Grand Island Mansion wedding and events center. The Libby, McNeill and Libby Cannery, built on SRMS in 1910 to process Delta-grown asparagus, was another profitable venture. Pear and asparagus production declined during the 1920s due to crop disease and declining soil fertility (Ross 2018:12).

Other popular Delta crops during the late 19th and early 20th centuries were potatoes, corn, celery, onions, sugar beets, and beans. By the 1950s, grains crops such as barley, wheat, and corn predominated, reflecting shifts in the market and increased agricultural mechanization. The 1940s and 1950s also saw a transition from tenant farmers to large corporate-owned farms, with the labor force shifting from Asian Americans to Mexican and Filipino migrants living in communal dormitories (Ross 2018:12).

Travel and the shipment of goods through the Delta from the 1850s to 1910s was largely by steamboats, barges, and ferries, with Steamboat Slough the primary route between Sacramento and Rio Vista (Simons 2009). Commercial water transportation declined in the area following the First World War, as automobiles gained in popularity. Railroads were introduced into the Delta in the early 20th century, to facilitate the shipment of agricultural products, but no rail lines extended on to the SRMS. Similar to water transportation, railroads were gradually replaced by roads and motor vehicles. In 1920, the "Victory Highway" (now State Route 160) was constructed, linking the SRMS to Sacramento and the Bay Area (Ross 2018:12).

Specific to the historic context of the SRMS APE, the 1852 Ringgold chart of the Sacramento River shows the SRMS was marshy, partly wooded, and known at that time as Point Lartan. By 1894, a map of Sacramento County soil use depicts the APE as under cultivation. The 1910 USGS topographic map of Rio Vista shows the established levee and road system on the island, plus two or three possible farm buildings in the vicinity of the APE. A 1937 aerial photo shows levees and levee roads, trees and shrubs on the water- and land-side levee slopes, adjacent agricultural fields, but no visible farm buildings or other structures in the APE – conditions similar to the current landscape (Ross 2018:12).

Native American Consultation under CEQA

As the CEQA lead agency, CVFPB is continuing to consult with culturally affiliated Native American Tribes under the California Natural Resource Agency Tribal Coordination Policy.

- Native American Tribes and interested parties were contacted as early as May 4, 2011, regarding the development of the PA (Programmatic Agreement) and were provided with general information about the ARCF 2016 Project as described in the ARCF GRR EIS/EIR.
- DWR sent tribal engagement letters for each of the Supplemental EIRs including: American River Erosion Contract 1, 2, and 3A; Sacramento River East Levee Contract 1, 2, 3, and 4; Sacramento River Erosion Contract 1, 2, and 4; and the Sacramento Weir Widening. The State is currently coordinating with Yocha Dehe on the Sacramento Weir Widening project.
- DWR and CVFPB are coordinating to send a tribal engagement letter for the Comprehensive SEIS/SEIR. This includes the Magpie Creek Project; American River Erosion Contract 3B, 4A, and 4B; Sacramento River Erosion Contract 3; American River Mitigation Site; Sacramento River Mitigation Site; and the Piezometer Network.

5.1.3 Applicable Laws, Regulations, Policies, and Plans

Applicable Federal laws and regulations related to cultural resources, and the status of compliance with those laws and regulations, are described in Section 3.9 and Section 5.1 of the ARCF GRR FEIS/FEIR. There have been no changes to the applicable Federal cultural resources laws or regulations since finalization of that document in 2016. State regulations related to cultural resources have changed somewhat since 2016, as discussed below. Additionally, the 2016 ARCF GRR FEIS/FEIR did not discuss any local policies or plans related to cultural resources. Currently applicable local plans also are discussed below.

Federal

National Historic Preservation Act of 1966, as amended (NHPA)

Section 106 of the NHPA (54 USC § 306108) requires Federal agencies to take into account the effects of their undertakings on historic properties, through a process described at 36 CFR Part 800. Historic properties are cultural resources that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

National Register of Historic Places (NRHP)

The criteria used to evaluate the significance of cultural resources, to determine their eligibility for inclusion on the NRHP, is described at 36 CFR § 60.4.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) of 1970 (PRC 21000) offers directives regarding impacts on historical resources and unique archaeological resources. The State CEQA Guidelines (California Code of Regulations [CCR] 15000) defines a “historical resource” to include more than one category of resources. The first category is “resource(s) listed or eligible for listing on the California Register of Historical Resources (CRHR).” (CCR Section 15064.5[a][1]; see also California PRC Sections 5024.1 and 21084.1.) A historical resource may be eligible for inclusion in the CRHR, as determined by the State Historical Resources Commission or the lead agency if it meets significance criteria.

Public Resources Code 5024 and 5024.5

The California State legislature enacted PRC § 5024 and 5024.5 as part of an effort to establish a state program to preserve historical resources. These sections of the code require state agencies to take a number of actions to ensure the preservation of state-owned historical resources under their jurisdictions. California Register of Historic Resources

The CRHR was designed by the State Historical Resources Commission for use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California’s historical resources. The CRHR program encourages public recognition of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and gives certain protections under CEQA.

Discovery of Human Remains-Public Resources Code 5097.9 and California Health and Safety Code 7050.5

PRC 5097.9 provides protection from interference with Native American religion or damage to cemeteries or places of worship. It also established the Native American Heritage Commission. California Health and Safety Code 7050.5 provides protection to Native American burials, remains, and associated grave artifacts in the even they are discovered in any location other than a designated cemetery. It also provides procedures if a County Coroner should determine that identified human remains are Native American in origin or may be Native American in origin.

California Natural Resources Agency Tribal Coordination Policy

The California Natural Resources Agency adopted the California Natural Resource Agency Final Tribal Coordination Policy on November 20, 2012, which was developed in response to Governor Brown’s September 19, 2011, Executive Order B-10-11. CVFPB has adopted this Policy. As such, Native American consultation will be conducted in accordance with the Policy adopted by CVFPB. The purpose of the Policy is to ensure effective, meaningful, and mutually beneficial government-to-government consultation, communication, and coordination between CVFPB and tribal entities relative to activities under CVFPB’s jurisdiction that may affect tribal communities.

5.1.4 Analysis of Environmental Effects

Analysis Methodology

National Environmental Policy Act

USACE uses findings of effect arrived at through compliance with Section 106 of the NHPA to assess effects to cultural resources under NEPA and to mitigate for adverse effects under both laws. More precisely, any adverse effect determination arrived at through the Section 106 process is considered equivalent to a significant impact under NEPA, which is mitigated through treatments identified through Section 106 compliance.

USACE executed a Section 106 programmatic agreement (PA) with the California State Historic Preservation Officer (SHPO) on September 10, 2015, which was included with the 2016 ARCF GRR FEIS/FEIR as Appendix C. The execution and implementation of the terms of the PA constitute compliance with Section 106 of the NHPA and, by extension, with NEPA.

The PA allows USACE to phase the Section 106 process as ARCF project elements are refined, changed, or added during the pre-construction engineering and design process. It also acknowledges that adverse effects on historic properties are expected to result from ARCF project construction and describes the process USACE follows to identify and evaluate historic properties, and to resolve adverse effects to historic properties, during project implementation. USACE has followed the PA, as stipulated, for ARCF construction activities completed to date.

California Environmental Quality Act

The thresholds for determining the significance of impacts under CEQA are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. These thresholds, and the impact analysis that follows, also take into consideration the significance of an action in terms of its context and its intensity (severity) as required under NEPA (40 CFR 1508.27).

Basis of Significance

National Environmental Policy Act

As described in Section 3.9 of the ARCF GRR FEIS/FEIR, and mentioned above, any adverse effects on cultural resources that are listed, or eligible for listing, in the NRHP (i.e., historic properties) are considered significant impacts under NEPA. Effects are determined to be adverse if they:

- Alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.
- Cause a substantial adverse change in the significance of a historic property through the physical demolition, destruction, relocation, or alteration of the historic property or its immediate surroundings such that the significance of the resource would be materially impaired.

California Environmental Quality Act

The alternatives under consideration would result in a significant impact related to cultural or tribal cultural resources if they would do any of the following:

- a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5 of the CEQA Guidelines;
- b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5 of the CEQA Guidelines;
- c. Disturb any human remains, including those interred outside of dedicated cemeteries;
- d. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
 - i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
 - ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

Effects Not Addressed in Detail

All effects to cultural resources not previously disclosed are discussed below.

Effects Analysis

No Action Alternative

Under the NEPA No Action alternative, only the components described in the ARCF GRR FEIS/FEIR (and previously prepared supplemental NEPA documents) would be built. The ARMS and SRMS would not be constructed, and site conditions in those locations would remain as they are now. The proposed refinements to MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, and Sacramento River Erosion Contract 3 would not occur and, in general, effects to cultural resources would be as previously disclosed. It should be noted, however, that much of the work described in the ARCF GRR FEIS/FEIR involves tree and vegetation removal using heavy equipment in order to construct the flood risk reduction projects. The effects on cultural resources from vegetation removal using heavy equipment were not previously analyzed in the ARCF GRR FEIS/FEIR.

For American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, and Sacramento River Erosion Contract 3 project areas, where recreational use is high, the ground disturbance associated with the removal of trees

and vegetation introduces the potential for Significant and Unavoidable impacts to cultural resources that may become exposed by this work. The vegetation removal and ground surface disturbance could expose currently obscured cultural resources, if present on or under the ground, making them more visible to recreational users. This introduces the risk of the looting, damage, or destruction of significant cultural resources. Archaeological and Tribal monitoring of vegetation removal activities and treating any adverse effects resulting from post-review discoveries pursuant to the PA, would serve to mitigate these types of potential impacts.

Proposed Action Alternative

5.1-N Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property.

NEPA Impact Conclusion: Less than Significant with Mitigation Incorporated

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS

NEPA Impact Conclusion (Design Refinements): Less than Significant with Mitigation Incorporated.

The MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, and ARMS involves design refinements and new project elements. It also includes the addition of ARMS, the SRMS, and the Piezometer Network Project. The ground disturbing construction activities associated with all these project elements have the potential to cause Significant and Unavoidable impacts to cultural resources.

The MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River 4A, Sacramento River Erosion Contract 3, ARMS, and the Piezometer Network are all within the geographic extent of the APE previously delineated in the 2016 ARCF GRR Final FEIS/FEIR (see Section 3.9.1: Figure 14). As such, the cultural contexts, expected cultural resource types, culturally affiliated Tribes (Section 3.9.1), and anticipated effects to historic properties (Section 3.9.4) as described in the ARCF GRR Final FEIS/FEIR are still applicable. Any new effects posed by refined or new project elements would be identified and mitigated pursuant to the requirements of the Section 106 PA, as previously disclosed.

More specifically, Section 3.9.6 of the ARCF GRR Final EIS/EIR states that “Under NEPA and the NHPA, any significant effect that would result from the implementation of Alternatives 1 or 2 [i.e., within the ARCF APE] would be reduced to less than significant, as adverse effects would be resolved by implementing stipulations in the PA. Mitigation for these impacts would be proposed in accordance with the PA.” Pursuant to the PA, USACE has and will continue to consult on all ARCF design refinements and proposed project changes with the SHPO, Tribes, and other consulting parties as stipulated therein.

In particular, as sufficient design information becomes available, USACE would conduct additional historic properties identification efforts, if needed; evaluate the historical significance

and integrity of any identified properties; determine the effects of new or refined project elements on historic properties; and resolve any adverse effects/significant impacts in consultation with the SHPO, Tribes, and other consulting parties. Any adverse effects/significant impacts to cultural resources would be mitigated through implementation of the stipulations in the PA, which include adhering to requirements specified in the PA's associated Historic Properties Management Plan (HPMP) and any tiering Historic Properties Treatment Plan (HPTP).

Sacramento River Mitigation Site

NEPA Impact Conclusion (Design Refinements): Less than Significant

The ARCF GRR FEIS/FEIR did not analyze the potential impacts of including the SRMS. Construction of the SRMS would require ground disturbance within areas that have the potential for buried or obscured cultural resources. Therefore, it is possible that the act of excavation for installing irrigation, plantings, and other project elements could cause Significant and Unavoidable impacts to cultural resources. Based on the known cultural context for the SRMS APE, this could include impacts to precontact and historic-era archaeological resources.

The SRMS does not fall within the existing APE covered under the PA. As such, USACE is required to consult with the SHPO, Tribes, and other consulting parties under the stipulations of the PA regarding the inclusion of the SRMS APE and the potential effects of the SRMS on historic properties within that APE. When sufficient levels of design are reached to understand the locations and extent of ground disturbance within the SRMS APE, USACE would complete historic properties identification efforts, with input from the SHPO and additional Tribes as needed; evaluate the historical significance and integrity of any identified properties; determine the effects of environmental mitigation site construction on historic properties; and resolve any adverse effects/significant impacts in consultation with the SHPO, Tribes, and other consulting parties. As with other components and phases of the ARCF, any significant impacts would be mitigated to less than significant through the implementation of the stipulations of the PA and its tiering management and treatment plans.

Piezometer Network

NEPA Impact Conclusion (Design Refinements): Less than Significant

In order to better evaluate the performance of the ARCF 2016 project and provide real time data to system managers, USACE is proposing to install piezometers along the existing levees within the authorized footprint of the 2016 ARCF GRR FEIS/FEIR. The purpose of this action is to construct the piezometer network that will provide telemetric data gathering on water levels throughout the project area. All the sites that will receive Piezometers are already included in the 2016 ARCF GRR FEIS/FEIR, however the installation of a piezometer network was not analyzed in the original 2016 ARCF GRR FEIS/FEIR. Approximately 100 piezometers will be installed at various locations along each levee with piezometers on both the levee crown and near the landside levee toe. The precise number of Piezometer installations at a specific site is not known, however, they will be distributed between all the ARCF project reaches, and some areas may have higher concentrations of piezometers than other areas.

Although the installation of a piezometer network was not analyzed in the original 2016 ARCF GRR FEIS/FEIR, the proposed action is within the geographic extent of the APE previously delineated in the 2016 ARCF GRR FEIS/FEIR (see Section 3.9.1: Figure 14). As such, the cultural contexts, expected cultural resource types, culturally affiliated Tribes (Section 3.9.1), and anticipated effects to historic properties (Section 3.9.4) as described in the 2016 ARCF GRR FEIS/FEIR are still applicable. As with other components and phases of the ARCF, any new significant impacts would be mitigated to less than significant through the implementation of the stipulations of the PA and its tiering management and treatment plans.

5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.

CEQA Impact Conclusion: Less than Significant

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, ARMS, and SRMS

CEQA Impact Conclusion (Entire Proposed Action): No Impact

No significant built environment resources are in the APE for these project components and therefore, no historical resources are present for the purposes of CEQA. The Proposed Action would have no impact.

Sacramento River Erosion Contract 3, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant

One historic-era built environment resource, SREL Levee Unit 115 (P-34-002143), is present in the Sacramento River Erosion Contract 3 APE and is eligible for the NRHP. The Sacramento River Erosion Contract 3 and the Piezometer Network would include ground disturbing activities and disturbance to levee soil during construction of the erosion protection improvements and piezometer network. The levee would retain its integrity and character-defining features (its overall design and form) and therefore, impacts from the Sacramento River Erosion Contract 3 and Piezometer Network would result in a less than significant impact.

5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.

CEQA Impact Conclusion: Significant and Unavoidable

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

There are no known archaeological resources identified in MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Contract 4A project sites. There is the possibility, however, that project-related ground-disturbing activities may encounter previously unidentified archaeological resources. This impact would be potentially significant. Mitigation measures CR-1, CR-2, CR-3, CR-4, and CR-5, which were previously adopted for the 2016 ARCF 2016 Project, would reduce this impact to a less-than significant level by implementing the PA, including discovery plan, archaeological monitoring, awareness training for construction workers, and steps to address inadvertent discovery of materials.

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

For Historic Properties which will be adversely affected by implementation of the MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Contract 4A, (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.

Timing: Before and during construction

Responsibility: USACE

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 by USACE 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 MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Contract 4A. 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.

Timing: Before and during construction

Responsibility: USACE

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

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

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

Timing: Before and during construction

Responsibility: USACE

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, and building remains); Tribal Cultural Resources; sacred sites; or landscapes is made at any time during project-related construction activities, the Project Partners 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.

Timing: Before and during construction

Responsibility: Project Partners

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 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 identifying 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 in the CRHR, the Project Partners will avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that will avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant adverse impacts:
 - 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 estate, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.
 - e. Protect the resource.

Timing: Before and during construction
Responsibility: Project Partners

Sacramento River Erosion Contract 3, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated

There are two resources identified in the Sacramento River Erosion Contract 3 APE: P-34-005257/CA-SAC-1253 which has been found NRHP-eligible; and P-34-005225, the Sacramento River Tribal Landscape, which is assumed NRHP-eligible.

Project-related ground-disturbing activities associated with the Sacramento River Erosion Contract 3 or installing the Piezometer Network may impact P-34-005257/CA-SAC-1253 as well as any previously unidentified resources that may be discovered. This impact would be potentially significant. Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, and CR-5, which were previously adopted for the ARCF 2016 Project, would require that if archaeological resources or TCRs are discovered prior to or during project-related construction activities, appropriate treatment and protection measures must be implemented, and would reduce potential impacts to a less-than-significant level.

P-34-5225 the Sacramento River Tribal Landscape, while large in extent, is essentially restricted to the natural landscape of the Sacramento River, of which there is none in the APE. Therefore, the project will have no impact on this resource.

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction
Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction
Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

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.

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

American River Mitigation Site

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable

There are three archaeological resources that have been identified in ARMS, one of which is listed in the NRHP (P-34-00058/CA-SAC-31), the other two resources are unevaluated.

P-34-00058/CA-SAC-31 is located in an area where ground disturbance during implementation of the ARMS is likely to significantly impact the resource. With mitigation in accordance with the PA, impacts will be reduced, but not to a less-than-significant level. Even with appropriate treatment of potential resources, the impact on this resource would remain significant and unavoidable.

P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316 were identified within the APE by the records search. They were not identified during the archaeological pedestrian survey, however, likely because of the large amount of previous ground disturbance that has occurred throughout the ARMS APE. Both resources have likely been destroyed, at least partially, and remnants of each site have also likely been spread throughout the APE and buried under imported fill material. Most project components in the ARMS APE would not impact any buried remnants of the resources if they still existed, but it is possible that components that will have deep ground-disturbance may encounter remnants of these resources. Other, previously unidentified resources could also be encountered. This impact would be potentially significant. Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, and CR-5, which were previously adopted by the ARCF 2016 Project, would require that if archaeological resources or TCRs are discovered prior to or during project-related construction activities, appropriate treatment and protection measures must be implemented. Implementing these measures would reduce potential impacts, but the impact on these resources would remain significant and unavoidable.

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

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.

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.

CEQA Impact Conclusion: Less than Significant with Mitigation Incorporated

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, SRMS, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

Human remains have been found in the APE and it is possible that additional human remains will be encountered during project construction. This impact would be potentially significant. Implementing Mitigation Measure CR-6, which was previously adopted for the ARCF 2016 Project, would reduce this impact to a less-than-significant level by requiring that work be stopped if human remains are encountered, and that human remains be identified and reburied appropriately.

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

To minimize adverse effects from encountering human remains during construction, the Project Partners shall implement the following measures:

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

Upon the discovery of Native American human remains, the Project Partners 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 the Project Partners shall employ:

- record the site with the NAHC or the appropriate Information Center, and
- 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.

Timing: Before and during construction

Responsibility: USACE

Mitigation Measure CUL-6 would reduce any impacts by implementing State regulations that specifically deal with the discovery of human remains and particularly the remains belonging to Native American Tribes.

5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.

CEQA Impact Conclusion: Significant and Unavoidable

Magpie Creek Project, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, SRMS, Piezometer Network

CEQA Impact Conclusion (Entire Proposed Action): Less than Significant with Mitigation Incorporated.

Much of the APE is considered to be highly sensitive for Native American Tribes; the APE includes several that have been specifically identified as sensitive by Tribes during previous consultation. Construction of these project refinements could have a significant impact on TCRs. Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4 and CR-5, which were previously adopted for the ARCF 2016 Project, will mitigate potential impacts to TCRs by implementing appropriate treatment and protection measures, and implementing state regulations regarding human remains. In addition, these measures require consultation regarding treatment with Native American Tribes.

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE.

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

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.

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

American River Mitigation

CEQA Impact Conclusion (Entire Proposed Action): Significant and Unavoidable.

The ARMS is in an area considered highly sensitive for Native American Tribes. There are three known archaeological resources on site that are assumed to also qualify as TCRs. Constructing the ARMS could have a significant impact on TCRs. Implementing Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5 and CR-6, which were previously adopted for the ARCF 2016 Project, will reduce potential impacts to TCRs by requiring that if archaeological resources or TCRs are discovered prior to or during project-related construction activities, appropriate treatment and protection measures must be implemented, and implementing state regulations regarding human remains. In addition, these measures require consultation regarding treatment with Native American Tribes. Nevertheless, the effects on these TCRs would remain significant and unavoidable.

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

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

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

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.

Please refer to Impact 5.1-b, Project Components: MCP, American River Erosion Contract 3B North and South, American River Erosion Contract 4B, and American River Erosion Contract 4A for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: Project Partners

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

Please refer to Impact 5.1-c for the full text of this mitigation measure.

Timing: Before and during construction

Responsibility: USACE

Alternatives Comparison

Alternatives 3a, 3b, 3c, and 3d

Alternatives 3a, 3b, 3c, and 3d include alternative designs for improvements to the American River Erosion Contract 4A. All alternatives would be constrained within the construction buffer limits of American River Erosion Contract 4A and are within the previously established cultural resources APE. Spatial constraints for these alternatives include the SR160 bridge to the northwest, the existing levee to the north and the American River to the south. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, Sacramento River Erosion Contract 3, MCP, SRMS, ARMS, Piezometer Network) would have the same effects.

Alternative 3a would be similar to the American River Erosion Contract 4A, but instead of a waterside berm, a landside berm would be built between the levee and the State Route 160 bridge piers. The material and equipment needed for this work would be similar or slightly less than the Proposed Action. Alternative 3a would require real estate acquisition of UPRR property but would not impact the UPRR line or trestle directly.

Alternative 3b would be similar to the American River Erosion Contract 4A, but would require a differing permanent bike trail reroute. The route following the railroad would be slightly longer than the American River Erosion Contract 4A and would require some vegetation trimming, clearing, regrading and paving.

Alternative 3c would be similar to the American River Erosion Contract 4A but would change the permanent bike trail reroute to include building a bridge or adding fill and routing bikes through the wetland and around the berm. Installing this route would require vegetation trimming, vegetation clearing, regrading, paving and possible construction of a bridge. This alternative would require temporary closure of the bike trail and require temporary detours.

Alternative 3d would be similar to the American River Erosion Contract 4A, except that the permanent bike trail route would be a paved bike trail closer to the river along an existing off-road bike trail. Installing this route would require some vegetation trimming, vegetation clearing, regrading, and paving.

None of these alternatives would change effects to Cultural Resources and Tribal Cultural Resources when compared to the American River Erosion Contract 4A. There are no previously recorded resources within the areas of the American River Parkway or the surrounding lands that are part of these proposed alternatives, except for the UPRR Railroad Trestle which is also within the footprint of the American River Erosion Contract 4A. When compared to the No Action Alternative, however, all of these alternatives would increase the potential impacts to unidentified, buried cultural resources within this area. This is particularly true of Alternative 3b, which includes lands that are not actively being eroded by natural causes and are not commonly utilized by recreationalists. As such, Alternative 3b would create ground disturbance and introduce potential recreational impacts to Cultural resources, if they are present. Any such impacts would be mitigated through measures identified in the Section 106 PA (and codified for CEQA purposes as Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6) and subsequent consultation pursuant to that agreement.

Table 5.1-1. Alternative 3a, 3b, 3c, 3d Effects on Cultural and Tribal Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
5.1-N Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property.	American River 4A	These alternatives would increase the potential impacts to unidentified, buried cultural resources.	Implement PA	n/a	Less than Significant with Mitigation Incorporated
5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	American River 4A	These alternatives would have no impact, similar to the Proposed Action	N/A	No Impact	n/a
5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.	American River 4A	These alternatives would have a potentially significant impact related to the potential to encounter unidentified buried resources, greater than the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Less than Significant with Mitigation Incorporated	n/a

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.	American River 4A	These alternatives would have a potentially significant impact related to the potential to encounter human remains, similar to the Proposed Action,	CR-6	Less than Significant with Mitigation Incorporated	n/a
5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.	American River 4A	These alternatives would have a significant impact related to the potential to adversely affect a Tribal cultural resource, similar to the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Less than Significant with Mitigation Incorporated	n/a

Alternative 4a (CEQA-Only)

Alternative 4a would change the ARMS by retaining the western portion of the existing man-made pond. Alternative 4a would potentially reduce or avoid effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource would be reduced compared to the ARMS, but would potentially affect other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) similarly to the potential impacts of the ARMS. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4a would have significant and unavoidable effects on cultural resources, but reduced compared to the ARMS for the Proposed Action due to the potential to reduce or avoid effects on one known site.

Table 5.1-1. Alternative 4a Effects on Cultural and Tribal Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	ARMS	Alternative 4a would have no impact, similar to the Proposed Action	N/A	No Impact
5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.	ARMS	Alternative 4a would potentially reduce or avoid effects on one archaeological site but nevertheless have a potentially significant impact related to the potential to affect other known resources or to encounter unidentified buried resources. Impacts would be less than the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Significant and Unavoidable
5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.	ARMS	Alternative 4a would have a potentially significant impact related to the potential to encounter human remains, reduced compared to the Proposed Action because work would avoid one sensitive area,	CR-6	Significant and Unavoidable

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.	ARMS	Alternative 4a would potentially reduce or avoid effects on one TCR but nevertheless have a potentially significant impact. Impacts would be less than the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Significant and Unavoidable

Alternative 4b (CEQA-Only)

Alternative 4b would change the ARMS by retaining the southern portion of the existing pond. Alternative 4a would have similar effects on one archaeological site and TCR (P-34-00058/CA-SAC-31) because ground disturbance in the vicinity of this resource would be similar to the ARMS, but this alternative would have potentially increased effects on other resources (P-34-00059/CA-SAC-32 and P-34-00333/P-34-00343/CA-SAC-316) compared to the ARMS because additional areas on the northern portion of the site would be disturbed. Other cultural resources impacts would be similar to those described for the ARMS. Implementing Alternative 4b would have significant and unavoidable effects on cultural resources, but potentially greater than the effects of the ARMS for the Proposed Action due to the potential for greater effects on two known sites.

Table 5.1-1. Alternative 4b Effects on Cultural and Tribal Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion
5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	ARMS	Alternative 4b would have no impact, similar to the Proposed Action	N/A	No Impact
5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.	ARMS	Alternative 4b would potentially increase effects on archaeological resources and have a potentially significant impact related to the potential to affect other known resources or to encounter unidentified buried resources. Impacts would be greater than the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Significant and Unavoidable
5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.	ARMS	Alternative 4a would have a potentially significant impact related to the potential to encounter human remains, similar to the Proposed Action,	CR-6	Significant and Unavoidable
5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.	ARMS	Alternative 4a would potentially increase effects on TCRs and have a potentially significant impact, similar to the Proposed Action.	CR-1, CR-2, CR-3, CR-4, CR-5,	Significant and Unavoidable

Alternative 5a

Alternative 5a would eliminate the need to construct the SRMS. This alternative includes the purchase of all remaining, required mitigation credits from Service Approved Conservation

Banks, whose service areas cover the ARCF project impacts. There would be no additional resources impacts compared to the Proposed Action. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects as for the Proposed Action.

Table 5.1-1. Alternative 5a, 5c Effects on Cultural and Tribal Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
5.1-N Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property.	American River 4A	These alternatives would not construct the SRMS and there would be no impact.	N/A	n/a	No Impact
5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	American River 4A	These alternatives would not construct the SRMS and there would be no impact	N/A	No Impact	n/a
5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.	American River 4A	These alternatives would not construct the SRMS and there would be no impact	N/A	No Impact	n/a
5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.	American River 4A	These alternatives would not construct the SRMS and there would be no impact	N/A	No Impact	n/a
5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.	American River 4A	These alternatives would not construct the SRMS and there would be no impact	N/A	No Impact	n/a

Alternative 5b

Alternative 5b would complete the SRMS needs by constructing a mitigation site at Watermark Farms. This alternative would replace the SRMS and remove the potential for adverse effects to cultural resources at the SRMS. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects.

Watermark Farms is privately owned and located within Sacramento County, from Sacramento River Mile 50.5 to River Mile 51.25, and includes the waterside of the levee to landside toe, and adjacent existing farmland. Watermark Farms is on the right bank of the Sacramento River across from the Pocket neighborhood and can be accessed from South River Road. This alternative is conceptual only, but could involve restoring approximately 227 acres of riverine and floodplain habitat by breaching the existing levee and creating a new setback levee and secondary channel. This floodplain and shallow-water habitat would provide suitable habitat for salmonid species, green sturgeon and Delta smelt.

Watermark Farms is across the river from and outside of the current APE for Section 106 compliance. Given its proximity to the APE, the Alternative 5b cultural setting likely is similar to that described in the 2016 ARCF GRR FEIS/FEIR, with some potential differences related to the principal Native American group or groups utilizing the area prior to Euro-American intrusion. Additionally, there are obvious differences in current agricultural-based land use practices at Watermark Farms, and other adjacent lands on the right bank of the Sacramento River, relative to the high-density suburban development just across the river.

At present, there is insufficient information on the existence of, and potential for, cultural resources and Tribal Cultural Resources within the Watermark Farms prospective mitigation site to assess how the impacts of this alternative would compare to the SRMS. However, the ground disturbance required to breach the existing levee, build a setback levee, and construct a secondary channel could result in significant impacts to historic properties and other cultural resources, assuming their presence in this area. If Alternative 5b were to move beyond the conceptual stage, USACE would follow PA requirements to revise the APE, identify and evaluate historic properties, and resolve any adverse effects to historic properties, as needed. Mitigation Measures CR-1, CR-2, CR-3, CR-4, CR-5, and CR-6 would be implemented if resources were encountered.

Table 5.1-1. Alternative 3a, 3b, 3c, 3d Effects on Cultural and Tribal Resources

Impact Number and Title	Location	Discussion and Effect Conclusion without Mitigation	Mitigation Measure	CEQA Significance Conclusion	NEPA Effects Determination
5.1-N Alter NRHP-listed Resources or Cause a Substantial Adverse Change in the Significance of a Historic Property.	SRMS (Watermark Farms)	This alternative would have a potentially significant effect on cultural resources	Implement PA	N/A	Less than Significant with Mitigation Incorporated
5.1-a Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.	SRMS (Watermark Farms)	This alternative could impact one or more historic resources. This impact would be potentially significant.	CR-1, CR-2, CR-3, CR-4, CR-5,	Less than Significant with Mitigation Incorporated	n/a
5.1-b Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.	SRMS (Watermark Farms)	This alternative would have a potentially significant impact related to the potential to encounter unidentified buried resources.	CR-1, CR-2, CR-3, CR-4, CR-5,	Less than Significant with Mitigation Incorporated	n/a
5.1-c Disturb any human remains, including those interred outside of dedicated cemeteries.	SRMS (Watermark Farms)	This alternative would have a potentially significant impact related to the potential to encounter human remains,	CR-6	Less than Significant with Mitigation Incorporated	n/a
5.1-d Cause a substantial adverse change in the significance of a Tribal cultural resource.	SRMS (Watermark Farms)	This alternative would have a significant impact related to the potential to adversely affect a Tribal cultural resource.	CR-1, CR-2, CR-3, CR-4, CR-5,	Less than Significant with Mitigation Incorporated	n/a

Alternative 5c

Alternative 5c combines three approaches to complete the mitigation requirements for the Sacramento River. The SRMS would not be constructed. All other project components (American River Erosion Contract 3B North and South, American River Erosion Contract 4B, American River Erosion Contract 4A, Sacramento River Erosion Contract 3, ARMS, Piezometer Network and MCP) would have the same effects.

The three components would be completed as follows:

- Purchasing Delta Smelt Conservation Bank Credits from USFWS approved banks.

- Providing funding for the Sunset Pumps Project to remove an existing rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon and steelhead.
- Providing funding for the Sunset Pumps Project riparian mitigation requirements.

Purchasing mitigation credits would have no impact on cultural and tribal resources. The Sunset Pumps Project will be evaluated under NEPA and CEQA by the Project Proponents, including DWR, USFWS and BOR. Therefore, no analysis for the partial to full funding of construction of the Sunset Pumps Project is needed in this SEIS/SEIR.