American River Watershed Common Features Water Resources Development Act 2016 Project, Sacramento River Erosion Contract 1: River Mile 55.2 Left Bank Protection

Draft Supplemental Environmental Assessment/ Supplemental Environmental Impact Report



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US Army Corps of Engineers ®
Sacramento District

SAFCA
Sacramento Area Flood Control Agency

Central Valley Flood Protection Board
Public Safety and Flood Management
State of California

TABLE OF CONTENTS

TABLE OF CONTENTS ii
ACRONYMS AND ABBREVIATIONS vi
MITIGATION MEASURES viii
EXECUTIVE SUMMARY xxiv
ES.1 Summary of the Proposed Action xxiv
ES.2 Summary of Environmental Consequences xxiv
ES.3 Areas of Controversy and Issues to Be Resolved xxiv
1.0 INTRODUCTION 1
1.1 Proposed Action 1
1.2 Project Location 1
1.3 Background and Need for Action 2
1.4 Authority 4
1.5 Purpose and Need for the Action 5
1.6 Previous Environmental Documentation 7
1.7 Decisions Required 8
2.0 ALTERNATIVES 9
2.1 Alternatives Not Considered in Detail 9
2.2 Alternative 1 – No Action 9
2.3 Alternative 2 – Bank Protection (Proposed Action) 9
2.3.1 Features of Proposed Project 11
2.3.2 Construction Details 13
2.3.3 Operations and Maintenance 17
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 19
3.1 Resources Not Considered in Detail 19
3.1.1 Public Utilities 19
3.1.2 Socioeconomics and Environmental Justice 19
3.1.3 Hazardous Wastes and Materials 20
3.1.4 Land Use 20
3.1.5 Transportation and Circulation 20
3.1.6 Hydraulics and Hydrology 21
3.2 Resources Considered in Detail 21
3.2.1 Fisheries 22
3.2.2 Special Status Species 24
3.2.3 Air Quality 38
3.2.4 Climate Change 47
3.2.5 Cultural Resources 50
3.2.6 Recreation 58
3.2.7 Visual Resources 61
3.2.8 Noise 63
3.2.9 Vegetation and Wildlife 67
3.2.10 Water Quality 71
3.2.11 Geological Resources 73
4.0 CUMULATIVE EFFECTS 79
4.1 Past, Present, and Reasonably Foreseeable Future Projects 79

4.1.1 Lower American River Common Features Project 80
4.1.2 Central Valley Flood Protection Plan of 2017 80
4.1.3 Sacramento River Bank Protection Project 81
4.1.4 West Sacramento General Reevaluation Report 81
4.1.5 Lower Elkhorn Basin Levee Setback Project 82
4.1.6 Folsom Dam Water Control Manual Update 82
4.1.7 Folsom Dam Safety and Flood Damage Reduction Project 82
4.1.8 American River Common Features 2016 Project 83
4.1.9 The Bridge District Redevelopment 83
4.1.10 I Street Bridge Replacement Project 83
4.1.11 Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area 84
4.1.12 Folsom Dam Raise 84
4.1.13 SAC 5 Corridor Enhancement Project 84
4.1.14 Bridge District Specific Plan 85
4.1.15 Sacramento Railyards Project 85
4.1.16 Delta Shores Development Project 85
4.2 Cumulative Effects Analysis 86
4.2.1 Fisheries 86
4.2.2 Special Status Species 86
4.2.3 Air Quality 87
4.2.4 Climate Change 87
4.2.5 Cultural Resources 88
4.2.6 Recreation 88
4.2.7 Visual Resources 88
4.2.8 Noise 89
4.2.9 Vegetation and Wildlife 89
4.2.10 Water Quality 90
4.2.11 Geological Resources 90
5.0 COMPLIANCE WITH LAWS AND REGULATIONS 92
5.1 Federal Laws and Regulations 92
5.1.1 Clean Air Act of 1972, as amended (42 U.S.C. 7401, et seq.) 92
5.1.2 Clean Water Act of 1972, as amended (33 U.S.C. 1251, et seq.) 92
5.1.3 Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.) 92
5.1.4 Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661, et seq.) 92
5.1.5 Migratory Bird Treaty Act of 1936, as amended (16 U.S.C. 703, et seq.) 93
5.1.6 National Environmental Policy Act of 1969, as amended (42 U.S.C. 431, et seq.) 93
5.1.7 National Historic Preservation Act of 1966, as amended (54 U.S.C. 300101) 93
5.1.8 Executive Order 13112: Invasive Species 93
5.1.9 Magnusun-Stevens Fishery Conservation and Management Act (16. U.S.C. 1801, et seq.) 94
5.2 State and Local Laws and Regulations 94

5.2.1 California Clean Air Act of 1988, California Health and Safety Code § 40910, et seq. 94
5.2.2 California Environmental Quality Act of 1970, California Public Resources Code § 21000-21177 95
5.2.3 California Endangered Species Act, 14 C.C.R. § 783-786.6 95
5.2.4 California Fish and Game Code §3503 95
5.2.5 Porter-Cologne Water Quality Control Act of 1970 95
5.2.6 City of Sacramento Tree Ordinances 96
5.2.7 Delta Plan 96
6.0 COORDINATION AND REVIEW OF THE DRAFT SEA/EIR 97
7.0 FINDINGS 98
8.0 LIST OF PREPARERS 99
9.0 REFERENCES 100
10.0 APPENDICES 103

Tables

Table 1. Summary of Environmental Commitments (Mitigation Measures, etc.) for the Proposed Project (Alternative 2). viii
Table 2. Summary of Effects and Mitigation Measures for the Proposed Action xxiii
Table 3. Minimum requirements for USACE quality compliance. 15
Table 4. Anticipated Construction Phases 16
Table 5. Maximum SAM Modeled WRI Deficits and Benefits, RM 55.2L 28
Table 6. Sacramento Valley Air Basin Attainment Status. 39
Table 7. Sacramento Metropolitan Air Quality Management District Thresholds of Significance for Construction 40
Table 8. Bay Area Air Quality Management District Thresholds of Significance for Construction 40
Table 9. General Conformity *de minimis* Thresholds 41
Table 10. Emissions Estimates for the Proposed Action – Sacramento Valley Air Basin 42
Table 11. Emissions Estimates for the Proposed Action – San Francisco Bay Area Air Basin .. 42
Table 12. Emissions Estimates for the ARCF 2016 Project – Sacramento Valley Air Basin 43
Table 13. Emissions Estimates for the ARCF 2016 Project – San Francisco Bay Area Air Basin 43

Figure

Figure 1. RM 55.2L Erosion Improvement Project Location. 2
Figure 2. RM 55.2L Erosion Improvement Design Overview. 10
Figure 3. RM 55.2L Bank Protection Design Typical Cross Section. 12
Figure 4. Yearly SAM-Modeled WRI Values for Each Season of the Chinook salmon Juvenile Migration Life Stage, RM 55.2L 30
Figure 5. Yearly SAM-Modeled WRI Values for Each Season of the Steelhead Adult Residence Life Stage, RM 55.2L 31

Appendices

Appendix A Biological Resources Data 104
Appendix B Air Quality Modeling Results 105
Appendix C Clean Water Act, Section 404(b)(1) Evaluation 106

ACRONYMS AND ABBREVIATIONS

APE	area of potential effects
ARCF	American River Common Features
BACT	best available control technologies
BMP	best management practices
BSLMS	Beach-Stone Lakes Mitigation Site
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAR	coordination act report
CARB	California Air Resources Board
CCCA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
cfs	cubic feet per second
CH_4	methane
City	City of Sacramento
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
dbA	A-weighted decibels
dbh	diameter at breast height
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
EA	environmental assessment
EIR	environmental impact report
EIS	environmental impact statement
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
FWCA	Fish and Wildlife Coordination Act
GEI	GEI Consultants, Inc.
GHG	greenhouse gases
GGS	giant garter snake
GRR	General Re-evaluation Report
GWET	groundwater extraction and treatment system
IPCC	Intergovernmental Panel on Climate Change
IWM	in-stream woody material
JFP	Joint Federal Project
MBTA	Migratory Bird Treaty Act
MND	mitigated negative declaration
N_2O	nitrous oxides
NAAQS	National Ambient Air Quality Standards
NAVD	North American vertical datum
ND	negative declaration

NEPA	National Environmental Policy Act
NF_3	nitrogen trifluoride
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	national pollution discharge elimination system
NRHP	National Register of Historic Places
O_3	ozone
O&M	operations and maintenance
OHWM	ordinary high water mark
PA	programmatic agreement
PACR	post authorization change report
PAHS	polynuclear aromatic hydrocarbons
Pb	lead
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter
RDC1	Reach D Contract 1
RM	river mile
ROD	record of decision
ROG	reactive organic gases (synonymous with VOCs)
RWQCB	Regional Water Quality Control Board
Sac Urban	Sacramento River Flood Control System Evaluation, Phase I, Sacramento Urban Area
SAFCA	Sacramento Area Flood Control Agency
SF_6	sulfur hexafluoride
SHRA	Sacramento Housing and Redevelopment Agency
SIP	state implementation plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPRR	Southern Pacific Railroad
SRA	shaded riverine aquatic
SRBPP	Sacramento River Bank Protection Project
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
UAIC	United Auburn Indian Community
ULDC	urban levee design criteria
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle
VOC	volatile organic compounds (synonymous with ROGs)
WCM	Folsom Dam Water Control Manual
WRDA	Water Resources Development Act
WRRDA	Water Resources Reform and Development Act

MITIGATION MEASURES

Table 1. Summary of Environmental Commitments (Mitigation Measures, etc.) for the Proposed Project (Alternative 2).

ID #	Description
	Special Status Species
BIRD-1	USACE would implement the following measures to minimize potential effects on active nests of Swainson's Hawk, White-tailed Kite, Purple Martin and other migratory birds: • Before on-site project activities begin, all construction personnel would participate in a USFWS-approved worker environmental awareness program. A qualified biologist shall inform all construction personnel about the life history of Swainson's hawk and other relevant species, as well as the importance of nest sites. • A breeding season survey shall be conducted for active Swainson's hawk nests within 0.5 mile of construction activities, including grading. A survey shall also be conducted for active nests of white-tailed kite and purple martin within 500 feet of construction activities and active nests of other migratory birds within 100 feet of construction activities. Swainson's hawk surveys shall be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30 with no fewer than three surveys completed in at least two survey periods and with at least one survey occurring immediately prior to project initiation (Swainson's Hawk Technical Advisory Committee 2000). Other bird nest surveys could be conducted concurrent with Swainson's hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation. • For any active migratory bird nest found, a protective buffer shall be established and implemented until the nest is no longer active. The size of the buffer shall be determined based on the species, nest stage, type and intensity of project disturbance in the nest vicinity, presence of visual buffers, and other variables that may affect susceptibility of the nest to disturbance. A qualified biologist shall monitor the nest during project activities to confirm effectiveness of the buffer and adjust the buffer as needed to ensure project activities do not adversely affect behavior of adults or young. • Where feasible, 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 through August 31, depending on the species and environmental conditions for any given year).
VELB-1	USACE 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, in the event that any are found on the project site: • Fencing. All areas to be avoided during construction activities shall be fenced and/or flagged as close to construction limits as feasible.

ID #	Description
	• Avoidance area. To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) shall be avoided within 20 feet from the drip-line of the shrub. • Worker education. A qualified biologist shall provide training for all contractors, work crews, and any onsite personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging elderberry shrubs, and the possible penalties for noncompliance. • Construction monitoring. A qualified biologist shall monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented. • Timing. To the extent feasible, activities within 165 feet of an elderberry shrub shall be conducted outside of the valley elderberry longhorn beetle flight season (March - July). • Trimming. To the extent feasible, elderberry shrub trimming shall occur between November and February and avoid the removal of any branches or stems greater than or equal to 1 inch in diameter. • Chemical Usage. Herbicides shall not be used within the drip-line, and insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method. • Mowing. Mechanical weed removal within the drip-line of elderberry shrubs shall be limited to the season when adults are not active (August - February) and shall avoid damaging the shrub. • Transplanting. To the extent feasible, elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first two weeks in February) and after they have lost their leaves. Exit-hole surveys would be completed immediately before transplanting. A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures. • Compensation. Effects shall be compensated at ratios ranging from 1:1 to 3:1, depending on the compensation approach and circumstances of the affected shrubs. Affected area would be re-vegetated with appropriate native plants.
BAT-1	USACE would implement the following measure to avoid and minimize effects on special status bats. • Wherever feasible, USACE would conduct construction activities outside of the active season for bats (generally April 1 to August 31). • If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark. • If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be

ID #	Description
	performed in the vicinity. No project activity shall commence within the buffer areas until the end of the pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the buffer, a qualified biologist would monitor activities either continuously or periodically during the work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated adverse effects on specials status bats. If construction activities are stopped, CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects. • For trees containing cavities, cracks, crevices, or deep bark fissures that are planned for removal or trimming (irrespective of time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day (in the afternoon), limbs and branches would be removed, using chainsaws only. Removal activities must avoid limbs with cavities, cracks, crevices, or deep bark fissures, and remove only branches and limbs without those features. On the second day, the entire tree would be removed. A qualified biologist would monitor removal of these trees.
PLANT-1	USACE would implement the following measures to minimize potential effects on Sanford's arrowhead and wooly rose-mallow: • Preconstruction surveys would 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, likely be during the blooming period. • If special status plant species are found during preconstruction surveys, the habitat would be marked or fenced as an avoidance area during construction. A buffer of 25 feet would be established. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer. • If special status plant species cannot be avoided during construction, USACE would coordinate with the resource agencies to determine additional appropriate mitigation measures.
FISH-1	To avoid and minimize effects on listed fish species, the following measures would be implemented: • In-water construction activities (e.g., placement of rock revetment) would be limited to the work window of July 1 through October 31. If USACE needs to work outside of this window, it would consult with USFWS and NMFS. • Erosion control measures (BMPs) would be implemented, including a Storm Water Pollution Prevention Plan and Water Pollution Control Plan, to minimize the entry of soil or sediment into the Sacramento River. BMPs would be installed, monitored for effectiveness, and maintained throughout construction operations to minimize effects on Federally listed fish and their designated critical habitat. Maintenance would include daily inspections of all heavy equipment for leaks. • USACE would participate in an existing Interagency Working Group or work with other agencies to participate in a new Bank Protection Working Group to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF 2016 Project, Sacramento River Contract 1, RM 55.2L.

ID #	Description
	• USACE would 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 would include 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 would implement 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 would 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 impacts on listed fish species. • USACE would 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 would seek to avoid and minimize adverse construction effects on listed species and their critical habitat to the extent feasible, and would implement on-site and off-site compensation actions as necessary. • For identified designated critical habitat, where feasible, all efforts would be made to compensate for impacts where they have occurred or in close proximity. USACE would develop and implement a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with implementation of the Proposed Action. USACE would 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 would minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable. Where appropriate, removed IWM would be anchored back into place, or if not feasible, new IWM would be anchored in place. • USACE would 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 would provide a copy of the BO, 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 BO.

ID #	Description
	• A NMFS-approved Worker Environmental Awareness Training Program for construction personnel would be conducted by the NMFS-approved biologist for all construction workers before the start of construction activities. Written documentation of the training would be submitted to NMFS within 30 days of the completion of training. • USACE would consider installing IWM of at least 40 percent shoreline coverage at all seasonal water surface elevations in coordination with the Interagency Working Group or the Bank Protection Working Group. The purpose is to maximize the refugia and rearing habitats for juvenile fish. • USACE would protect in place all riparian vegetation on the lower waterside slope of any levee, unless removal is specifically approved by NMFS, following completion of project construction. The following conservation measure from the 2015 NMFS Biological Opinion on the ARCF GRR is also incorporated into the Proposed Action: • Screen any water pump intakes, as specified by the 2011 NMFS screening specifications. 68F water pumps would maintain an approach velocity of 0.2 feet per second or less. Screen openings would be for a perforated plate: circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side, and slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area.
SRA-1	USACE would implement the following avoidance, minimization, and compensation measures. • For identified designated critical habitat of listed fish species, where feasible, all efforts would be made to compensate for impacts where they have occurred, or elsewhere in the Sacramento or American River Basins. Impacts on designated critical habitat, SRA habitat, and instream components combined and the compensation value of replacement habitat would be based on the interagency-approved SAM model used throughout the Sacramento River basin and Sacramento–San Joaquin Delta flood control system. • USACE would incorporate compensation for SRA habitat losses either by constructing off-site compensation sites or purchase of credits at a NMFS-approved conservation bank, where appropriate, or by implementing a combination of the two. USACE would 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 would be established in coordination with NMFS and USFWS as part of consultation under Section 7 of the Endangered Species Act for the ARCF GRR, consistent with the American River Parkway Plan, and in coordination with the Sacramento County Department of Parks and Recreation. On-site created SRA habitat acreage would also be counted toward offsetting lost SRA habitat. • Compensation sites would be monitored and vegetation would be replaced as necessary based on performance standards in the ARCF GRR HMMAMP.
Air Quality	

ID #	Description
AIR-1	SMAQMD requires that all projects, regardless of their significance, implement the following measures to minimize the generation of fugitive PM dust. The Basic Construction Emission Control Practices shall include measures to control fugitive PM dust pursuant to SMAQMD Rule 403, as well as measures to reduce construction-related exhaust emissions. USACE shall require its contractors to comply with the basic construction emission control practices listed below for all construction-related activities occurring in SMAQMD jurisdiction. • Water all exposed surfaces two times daily or more, as needed. Exposed surfaces include but are not limited to: soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover, or suitably wet soils and other materials on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that travel along freeways or major roadways. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speed on unpaved roads to 15 miles per hour. • Complete pavement of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible. • 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.
AIR-2	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 Action would involve substantial material movement activities and would be located in proximity of residential receptors, USACE shall require its construction contractors to implement the Enhanced Fugitive PM Dust Control Practices listed below to help reduce potential fugitive PM dust emissions. *Soil Disturbance Areas* • Water exposed soil with adequate frequency for continued moist soil; however, do not overwater to the extent that sediment flows off the site. • Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour. • Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. • Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible 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.

ID #	Description
	• 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 would respond and take corrective action within 48 hours. The phone number of SMAQMD also would be visible to ensure compliance.
AIR-3	USACE shall require its contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment and on-road haul trucks must be equipped with 2010 or newer engines. In order to demonstrate compliance with this requirement: • The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that would be used an aggregate of 40 or more hours during any portion of the construction project. • The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and 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, except for any 30-day period in which no construction activity occurs. • The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, would 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 would 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.

ID #	Description
	• 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.
AIR-4	USACE 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 and CVFPB 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. (Estimated fees for the Proposed Action are $23,500 to SMAQMD for emissions in the SVAB and $37,350 to BAAQMD for emissions in the SFBAAB.) 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 and CVFPB shall work with SMAQMD and BAAQMD to ensure emission calculations and fees are adjusted appropriately.
Climate Change	
GHG-1	Additional measures that would be implemented to further reduce the project's contribution from generation of GHGs include the following measures would also be implemented to the extent feasible to minimize GHG emissions: • Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes. • Recycle at least 75% of construction waste and demolition debris. • Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxic 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).

ID #	Description
	• Use an ARB approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.) Purchase GHG offset for program-wide GHG emissions (direct emissions plus indirect emissions from on-road haul trucks plus commute vehicles) exceeding SMAQMD significance thresholds applicable at the time of construction. Carbon offset credits shall be purchased from programs that have been approved by SMAQMD.
	Cultural Resources
CR-1	A Programmatic Agreement has been executed for the ARCF Project. A HPTP would be developed if the proposed action is found to result in adverse effects to historic properties.
CR-2	In accordance with the procedures described in Sections 9.2 and 9.3.9 of the ARCF HPMP, an archaeological monitoring and discovery plan shall be developed for the Proposed Action. This plan shall identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and shall include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials or human remains.
CR-3	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 Secretary of the Interior Professional Qualifications Standards for Archaeology, as well as culturally affiliated Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training shall be conducted before any project-related construction activities begin in the APE and shall include relevant information regarding sensitive cultural resources and Tribal Cultural Resources, including applicable regulations, protocols for avoidance, and consequences of violating Federal and State laws and regulations. The training shall also describe appropriate avoidance and impact minimization measures for cultural resources and Tribal Cultural Resources that could be located in the APE and shall outline what to do and who to contact if any potential cultural resources or Tribal Cultural Resources are encountered. The training shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and shall discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.
CR-4	If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, any human remains, bottle glass, ceramics, building remains), Tribal Cultural Resources, sacred sites, or landscapes is made at any time during project-related construction activities, USACE in consultation with CVFPB and other interested parties, shall develop appropriate protection and avoidance measures where feasible. These procedures shall be developed in accordance with the ARCF PA and ARCF 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.

ID #	Description
CR-5	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). Consistent with the California Natural Resources Agency Tribal Consultation Policy, culturally affiliated Tribes shall be consulted concerning Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. 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 would 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, USACE, in consultation with CVFPB, would avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that would avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant adverse impacts: 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.
CR-6	To minimize adverse effects from encountering human remains during construction, CVFPB shall implement the following measures: • In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, CVFPB shall consult with USACE, and USACE shall immediately halt potentially damaging excavation in the area of the burial and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that

ID #	Description
	the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated MLD, in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains. • Upon the discovery of Native American human remains, USACE, in coordination with CVFPB, shall require that all construction work must stop within 100 feet of the discovery until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following site protection measures employed by CVFPB shall include: o record the site with the NAHC or the appropriate Information Center; and. o record a document with the county in which the property is located. 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 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 to protect the burial remains. Construction work in the vicinity of the burials shall not resume until the mitigation is completed.
Recreation	
REC-1	USACE and CVFPB would implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the Project Area: • Provide marked detours for pedestrian routes. Detours should be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Post signs that clearly indicate closure routes at major entry points for trails, and would provide a contact number to call for questions or concerns. • Post signs at major entry points for trails, and boat launch ramps at the Westin Hotel and the Sacramento Yacht Club clearly indicating closures of trails and estimated duration of closures. Information signs would notify the public of

ID #	Description
	alternate parks and recreation sites, including boat launch ramps, and would provide a contact number to call for questions or concerns. • Upon completion of levee improvements, coordinate with the City of Sacramento to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.
REC-2	• Post signs at the Westin Hotel and the Sacramento Yacht Club to clearly indicate the estimated duration of in-water work windows and construction duration. • Buoys would be placed at the upstream and downstream ends of the construction site to warm 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.
Visual Resources	
VIS-1	USACE would require its construction contractors to ensure that all temporary lighting related to security of the staging areas to be shielded or directed to avoid or minimize any direct illumination onto light-sensitive receptors located outside of the Project Area.
Noise	
NOI-1	USACE and CVFPB would require construction contractors to implement measures at each work site to avoid and minimize construction noise and vibration effects on sensitive receptors. Prior to the start of construction, a noise control plan would be prepared 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, to the extent practicable and feasible 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 location, 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.); • 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; • employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel;

ID #	Description
	• if the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors or take advantage of existing barrier features, such as existing terrain or structures to block noise transmission; • if the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations; • locate construction staging areas as far as practicable from sensitive receptors; and • design haul routes to avoid sensitive receptors. In addition to noise reduction measures, to the extent feasible and practicable, the primary construction contractors shall employ vibration-reducing construction practices compliant with applicable noise-level rules and regulations. These practices must comply with vibration standards established for construction vibration-sources by applicable agencies (City of Sacramento and Sacramento County), depending on the jurisdictional location of the affected receptor(s). Project construction specifications would require the contractor to limit vibrations to less than 0.2-inch per second PPV and less than 72 VdB within 50 feet of 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: • avoid vibratory rollers and packers near sensitive areas; • route heavily loaded trucks away from residential streets. and if no alternatives are available, select routes with the fewest homes; • a voluntary pre- and post-construction survey would be conducted to assess potential architectural damage from levee construction vibration at each residence within 75 feet of the proposed construction area. The survey would include visual inspection of the structures that could be affected and include supporting documentation of structures by means of photographs and video. This documentation would be reviewed with the individual owners prior to any construction activities for their awareness and concurrence. Post-construction monitoring of structures shall be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage shall be documented, reviewed with the individual property owners and supported by photographs and video; and • place vibration monitoring equipment at the property line adjacent to large equipment and, with owner approval, at the back of the residential structures adjacent to the large equipment. Vibration measurements must be recorded daily.
Vegetation and Wildlife	
VEG-1	Refining project designs to the extent practicable to reduce impacts to vegetation and wildlife are necessary to reduce the loss of riparian habitat. USACE would implement the following measures to compensate for riparian habitat degradation: • reduce the impact footprint; • construct bank protection rather than launchable rock trench whenever feasible; and

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	• design planting berms. Where practicable trees would be retained in locations where the bank protection and planting berm are constructed. Additional plantings would be installed on the newly constructed berm to provide habitat for fish and avian species. The planting berm would be used where practicable to minimize impacts to fish and wildlife species.
VEG-2	To compensate for the removal of riparian habitat (1.258 acres), replacement habitat would be created at a ratio of 2:1 to account for the temporal loss of habitat while newly created habitat is growing. Species selected to compensate for the riparian corridor removal would be consistent with the approved list of trees, shrubs, and herbaceous plants native to the Great Valley Mixed Riparian Forest. The replacement habitat would be created in accordance with the ARCF GRR HMMAMP, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks. After construction has been completed, 0.22 acres of riparian vegetation would be planted in the planting bench. The remaining compensation for the temporal loss of riparian vegetation and SRA habitat would be off-site and would occur at locations that would be protected in perpetuity. These sites would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act.
	Water Quality
WATERS-1	If the project is implemented, in compliance with the Clean Water Act, USACE would compensate for fill of State and Federally protected waters to ensure the project causes no net loss of functions and values. Water quality certification pursuant to Section 401 of the Clean Water Act (CWA) would be obtained from the Central Valley RWQCB before starting project activities. Any measures determined necessary during the permitting processes would 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 method 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, a mitigation plan would be developed to detail appropriate compensation measures determined through consultation with USACE and Central Valley RWQCB. These measures would include methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails.
	Geological Resources
GEO-1	Prior to the start of earthmoving activities, USACE and CVFPB would obtain coverage under the State Water Resources Control Board (SWRCB) NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the NOI to discharge is filed. The SWPPP shall identify and specify the following: • the use of an effective combination of robust erosion and sediment control BMPs and construction techniques that shall reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of

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	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 would be in place throughout all site work, construction/demolition activities, and would be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below. • work window- conduct earthwork during low flow periods (July 1 through November 30); • to the extent possible, stage construction equipment and materials on the landside of the levee in areas that have already been disturbed; • minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations; • stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion; • install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters; • install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials would 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, would 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;

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	• prepare a Spill Prevention Control and Countermeasures Plan (SPCCP). An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with State and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. It would also describe how and when employees are trained in proper handling procedure, spill prevention, and response procedures; • a copy of the approved SWPPP shall be maintained and available at all times on the construction site; and • USACE and CVFPB would also prepare an SPCCP. An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with state and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.
Hazardous Wastes and Materials	
HAZ-1	USACE would require that Project Areas be tested for contaminants prior to construction. Any hazardous materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Where construction activities would occur in close proximity to sites identified as RECs in the Phase I ESA (HDR 2019), a Phase II site investigation should also be conducted.

EXECUTIVE SUMMARY

ES.1 Summary of the Proposed Action

The Proposed Action includes the installation of erosion protection features along the Sacramento River in the project area for the American River Watershed Common Features (ARCF), Water Resources Development Act of 2016 Project, Sacramento River Mile 55.2 Left Bank Erosion Protection. Most of the erosion protection features of the Proposed Action were analyzed in the American River Watershed Common Features General Reevaluation Report (ARCF GRR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This Supplemental Environmental Assessment/Environmental Impact Report (SEA/EIR) supplements the ARCF GRR Final EIS/EIR. Some elements of the Proposed Action were not analyzed in the ARCF GRR Final EIS/EIR, because the project design had not been conducted to provide the specificity required for project implementation. Through project design and refinement, the U.S. Army Corps of Engineers (USACE) has identified the project footprint, potential staging areas, vegetation removal activities, and on-site mitigation features, as well as specific erosion protection features and locations.

ES.2 Summary of Environmental Consequences

Table ES-1 summarizes the effects analysis, provided in detail in Section 3.0 of this SEA/EIR. This summary provides effect titles, significance conclusions before and after implementation of mitigation, and mitigation measures.

ES.3 Areas of Controversy and Issues to Be Resolved

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

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

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Visual Resources			
Damage to Scenic Resources within State- or County-Designated Scenic Highways	LTS	None	LTS
Changes in Scenic Vistas and Existing Visual Character	S	None	LTS long-term, SU short-term
Create New Sources of Substantial Light or Glare	S	Mitigation Measure VIS-1: Shield or Direct Temporary Lighting to Avoid or Minimize Direct Illumination onto Light-Sensitive Receptors	LTS
Air Quality			
Potential Conflict with Air Quality Plan or Contribute Substantially to Air Quality Violation	S	Mitigation Measure AIR-1: Implement the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices Mitigation Measure AIR-2: Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices Mitigation Measure AIR-3: Require Lower Exhaust Emissions for Construction Equipment Mitigation Measure AIR-4: Use the SMAQMD's Off-site Mitigation Fee to Reduce NO_x Emissions	LTS
Vegetation and Wildlife			
Adverse Effects on Riparian Habitat and Waters of the United States	S	Mitigation Measure VEG-1: Compensate for Riparian Habitat Removal	LTS long-term, SU short-term

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
		BIRD-1: Implement Measures to Protect Nesting Migratory Birds BAT-1: Implement Measures to Protect Maternity Roosts of Special-Status Bats PLANT-1: Implement Measures to Protect Special-Status Plants WATERS-1: Compensate for Fill of State and Federally Protected Waters 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	
Conflict with Tree Preservation Policies or Ordinances	LTS	None	LTS
Special-Status Species			
Adverse Effect on Special-status Species: Plants	S	PLANT-1: Implement Measures to Protect Special Status Plants	LTS
Adverse Effect on Special-status Species: Valley Elderberry Longhorn Beetle	S	Mitigation Measure VELB-1: Implement Current USFWS Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle	LTS
Adverse Effect on Special-status Species: Salmonids, Green Sturgeon, and Delta Smelt	S	Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.	LTS

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
		Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.	
Adverse Effect on Special-status Species: Swainson's Hawk and Other Special-status Birds	S	Mitigation Measure BIRD-1: Implement Measures to Protect Nesting Migratory Birds	LTS
Adverse Effect on Special-status Species: Special-status Bats (CEQA only)	S (CEQA)	Mitigation Measure BAT-1: Implement Measures to Protect Maternity Roosts of Special-Status Bats	LTS (CEQA)
Climate Change			
Temporary, Short-term Generation of Greenhouse Gas Emissions	LTS	Mitigation Measure GHG-1: Implement GHG Reduction Measures	LTS
Conflict with an Applicable GHG Emissions Reduction Plan and Effects of Climate Change	LTS	None	LTS
Cultural Resources			
Damage to or Destruction of Built-environment Historic Properties	S	Mitigation Measure CR-1: Resolve Adverse Effects through Programmatic Agreement and Historic Properties Treatment Plan	LTS
Damage to or Destruction of Known Prehistoric-period Archaeological Sites and Tribal Cultural Resources	S	Mitigation Measure CR-1: Resolve Adverse Effects through Programmatic Agreement and Historic Properties Treatment Plan	LTS
Potential Damage to or Destruction of Previously Undiscovered Archaeological Sites or Tribal Cultural Resources	S	Mitigation Measure CR-2: Prepare an Archaeological Discovery Plan and an Archaeological Monitoring Plan Mitigation Measure CR-3: Conduct Cultural Resources Awareness Training	LTS

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
		Mitigation Measure CR-4: Implement Procedures for Inadvertent Discovery of Cultural Material Mitigation Measure CR-5: In the Event that Tribal Cultural Resources are Discovered Prior to or During Construction, Implement Procedures to Evaluate Tribal Cultural Resources and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects	
Damage to or Destruction of Human Remains during Construction	S	Mitigation Measure CR-6: Implement Procedures for Inadvertent Discovery of Human Remains	LTS

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Geological Resources			
Potential Temporary, Short-term Construction-related Erosion	S	Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices	LTS
Potential to Directly or Indirectly Destroy a Unique Paleontological Resource or Site	LTS	None	LTS
Hazardous Wastes and Materials			
Possible Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites	S	Mitigation Measure HAZ-1: Conduct Phase II Investigations as Needed	LTS
Water Quality and Groundwater Resources			
Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Groundwater Quality, Result in Substantial Erosion or Siltation On- or Offsite, or Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	S	Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters. Mitigation Measure GEO-1: Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasures Plan, and Associated Best Management Practices	LTS
Substantially Decrease Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin	LTS	None	LTS

Table 2. Summary of Effects and Mitigation Measures for the Proposed Action

Effect Threshold	Significance Before Mitigation	Avoidance, Minimization, and Mitigation Measures	Significance After Avoidance, Minimization, and Mitigation Measures
Noise			
Potential Increase in Ambient Noise Levels or Exposure of Sensitive Receptors to Excessive Noise or Vibration	S	Mitigation Measure NOI-1: Implement Measures to Reduce Construction Noise and Vibration Effects	LTS
Recreation			
Temporary and Short-term Changes in Recreational Opportunities during Project Construction Activities	S	Mitigation Measure REC-1: Implement Pedestrian Detours and Provide Construction Period Information on Facility Closures Mitigation Measure REC-2: Implement Measures to Notify Boaters	SU
Fisheries			
Interferes substantially with the movement of any native resident or migratory fish species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites	S	Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.	LTS
Substantially reduces the habitat of a fish population	S	Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.	LTS
Causes a fish population to drop below self-sustaining levels	S	Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.	LTS

1.0 INTRODUCTION

1.1 Proposed Action

The U.S. Army Corps of Engineers, Sacramento District (USACE), Sacramento Area Flood Control Agency (SAFCA), and the Central Valley Flood Protection Board (CVFPB), as a part of the 2016 American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement/Environmental Impact Report (ARCF GRR EIS/EIR), proposed to construct, a levee improvement project, consisting of an approximately 1,150 foot long erosion repair project against the waterside slope of the Sacramento River east levee in Sacramento, California. This portion of the ARCF 2016 Project is referred to as the River Mile 55.2 Left Bank (RM 55.2L) Bank Protection.

The ARCF GRR EIS/EIR analyzed the basic erosion protection measures that underlie the Proposed Action in this Supplement Environmental Assessment/EIR (SEA/EIR). However, some elements of those improvements (e.g. specifics of location and designs, staging areas, haul routes, and disposal of soil, and off-site mitigation) were not analyzed in the ARCF GRR EIS/EIR because their design had not sufficiently progressed to provide the specificity required for project implementation. Through project design and refinement, USACE has now identified specific locations and design improvements to address erosion concerns, potential staging areas, haul routes, and disposal site, and off-site mitigation that constitute this Proposed Action. This SEA/EIR supplements the ARCF GRR EIS/EIR by analyzing the environmental effects of these elements.

1.2 Project Location

The Proposed Action is located along the east (left) bank of the Sacramento River, in the Little Pocket area of the city of Sacramento, approximately 3 miles downstream of the Pioneer Bridge (Figure 1). The site begins immediately downstream (south) of the Westin Hotel property and continues downstream approximately 1,150 feet.

The project site is private property owned primarily by residential landowners on the landside of the levee. Their property boundaries extend across the crown and include the waterside of the levee. As a result, the project area includes a number of parcels with landscaping and personal docks.

The site has a dense tree canopy that shades most of the levee and many of the trees are in poor health (Johnson, pers. comm., 2019). There are some leaning trees and ivy shrub cover and there are no elderberry shrubs located within the project site limits. There is some observed accumulation of in-stream woody material (IWM) below the ordinary high water mark (OHWM) along the waterside of the levee. The site is an area of moderate recreational boating with a major access point located immediately upstream at Sherwood Harbor Marina.



Figure 1. RM 55.2L Erosion Improvement Project Location.

1.3 Background and Need for Action

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

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

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

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

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

While the reevaluation study was beginning for the ARCF Project, the Folsom Dam Post Authorization Change Report (PACR) was being completed by the Sacramento District. The results of the PACR and of the follow-on Economic Reevaluation Report for Folsom Dam improvements, showed additional levee improvements were needed on the American River and

the Sacramento River below their confluence in order to truly capture the benefits of the Folsom Dam projects. The levee problems identified in these reports consisted primarily of the potential for erosion on the American River and seepage, stability, erosion, and height concerns on the Sacramento River below its confluence with the American River. These findings pointed to a need for an additional reevaluation in the two remaining basins comprising the city of Sacramento: American River North and American River South. The ARCF GRR EIS/EIR was completed in December 2015, and the Record of Decision (ROD) for the EIS/EIR was signed in August 2016. Congress authorized the reevaluated ARCF Project in the Water Resources Development Act (WRDA) of 2016.

In July 2018, Congress granted USACE construction funding to complete urgent flood control projects under the Bipartisan Budget Act of 2018. ARCF 2016 was identified for urgent implementation and Congress supplied full funding to allow USACE to implement imperative levee improvements as quickly as possible. Although most environmental effects were addressed in the ARCF GRR EIS/EIR, the design produced was at a planning and feasibility level (approximately 30% design) which resulted in some of the work not being fully assessed in the ARCF GRR EIS/EIR. Supplemental NEPA and CEQA analyses would be conducted, as needed, for any actions or effects that were not previously addressed in the ARCF GRR EIS/EIR.

In addition to the ARCF Project levee improvements, USACE also has an existing construction authority to address active erosion sites throughout the Sacramento River Watershed under the Sacramento River Bank Protection Project (SacBank Project). The SacBank Project was originally authorized in the Flood Control Act of 1960 to conduct 400,000 linear feet (lf) of bank protection measures along the Sacramento River Flood Control System. Two further authorizations expanded the scope by an additional 405,000lf in 1974, and 80,000lf in 2007. The project site was identified by the SacBank Project as requiring repair and designs were completed for this site in 2008 and 2017, however no construction occurred. A NEPA/CEQA analysis for the project site was also completed during the SacBank Project in 2008 as part of the Final EA/IS for the Erosion Repairs of 13 Bank Protection Sites, 2008 and 2009, Sacramento River Bank Protection Project, Sacramento River and Tributaries, California. As part of the corresponding design effort, consultation occurred with both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

The design criteria associated with the ARCF GRR 2016 Project is slightly more stringent than the criteria for the SacBank Project, primarily because ARCF is attempting to implement protective flood system improvements to reduce damage, while SacBank implements levee improvements to repair damage. As a result, the ARCF 2016 Project engineers reviewed and updated previous designs from the SacBank Project for consistency with the requirements for the ARCF GRR 2016 Project. This SEA/EIR incorporates analyses from the 2008 SacBank EA/IS and updates it to incorporate these updated designs. Additionally, this SEA/EIR addresses the site-specific design details that were not covered in the ARCF GRR EIS/EIR.

1.4 Authority

The American River Common Features Project was authorized by Section 106(a)(1) of WRDA 1996, Pub. L. No. 104-303 § 106(a)(1), 110 Stat. 3658, 3662-3663 (1996), as amended

by Section 130 of the Energy and Water Development and Related Agencies Appropriation Act of 2008, Pub. L. No. 110-161, § 130, 121 Stat. 1844, 1947 (2007). Additional authority was provided in Section 366 of WRDA of 1999. WRDA 1999, Pub. L. No. 106-53, § 366, 113 Stat. 269, 319-320 (1999).

The Proposed Action would address erosion, such as updated project design and other new components, risk to the Sacramento River east levee identified in the interim general reevaluation study of the American River Common Features Project, which was authorized by WRDA 2016, Pub. L. No. 114-322 § 1322, 130 Stat. 1707.

1.5 Purpose and Need for the Action

The Sacramento River levees are immediately adjacent to the river which constricts flow and greatly reduces floodplain functions. The result is a channelized system with increased velocities during high water events. High winter flows can erode and stress the levees, weakening them and causing them to fail in certain locations. Among many locations within the system, an active erosion site was identified as early as 2008 that requiring repairs along the River Mile 55.2 of the Sacramento River (left bank). The ARCF 2016 project seeks to proactively address areas susceptible to erosion in the Sacramento region in order to reduce the risk of levee failure.

The purpose of this SEA/EIR is to evaluate design changes and refinements, including fine-tuning the location, and site-specific details not known in 2016 when the ARCF GRR EIS/EIR was completed. Accordingly, the Proposed Action in this SEA/EIR consists of proposed activities planned for improvement of the Sacramento River East Levee at River Mile 55.2L that are new or different and were not considered or not fully considered in the ARCF GRR EIS/EIR. This document describes the proposed action, establishes the baseline conditions of existing environmental resources, evaluates the significance of environmental effects that would occur to those resources due to the proposed work, and if the effects are determined to be significant, identifies measures that would reduce the environmental effects to below the significance thresholds. If significant impacts are found to be insignificant after adoption of mitigation measures, then a finding of no significant impact with mitigation is appropriate. However, should there be additional significant impacts that cannot be mitigated, then an Environmental Impact Statement (EIS) would have to be prepared.

Section 15162 of the State CEQA Guidelines provides that when an EIR has been certified for a project, a subsequent EIR need not be prepared unless a substantial change occurs in the project, a substantial change occurs in the surrounding circumstances, or new information of substantial importance comes to light which reveals the project would have one or more significant environmental effect not discussed in the certified EIR. A lead agency may choose to prepare a supplement to an EIR, rather than a subsequent EIR, when conditions that require the preparation of a subsequent EIR are met, but "only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation," (State CEQA Guidelines, California Code of Regulations [CCR] Section 15163). This SEA/EIR supplements (does not replace) the previously certified ARCF GRR EIS/EIR and addresses project modifications, changed circumstances, and new information that was not known through

the exercise of reasonable diligence at the time the prior document was certified, such as required under State CEQA Guidelines (CCR Section 15163).

The purpose of a supplemental EIR is to provide the additional information necessary to make the previous EIR adequate for the project as modified. Accordingly, pursuant to the State CEQA Guidelines (CCR Section 15163), the SEA/EIR need contain only the information necessary to analyze the project modifications, changed circumstances, and new information that triggered the need for additional environmental review. This SEA/EIR is intended to:

- address new or substantially more severe significant environmental effects related to any project modifications;
- recommend mitigation measures to avoid any new or more severe significant environmental effects or reduce them to a less-than-significant level;
- update impact analysis and mitigation measures where conditions have changed since the publication of the ARCF GRR EIS/EIR; and,
- provide minor additions and changes to the ARCF GRR EIS/EIR warranting a Supplemental EA/EIR for the following reasons:
    - there would be no new potentially significant and unavoidable or significant and unavoidable impacts from the Proposed Action;
    - the few new impacts from the Proposed Action can be mitigated to a less-than-significant level with implementation of additional avoidance, minimization, or mitigation measures; and,
    - applicable measures in the existing Mitigation Monitoring and Reporting Program (MMRP) continue to apply to the Proposed Action.

This SEA/EIR is designed to fulfill the environmental requirements for USACE, CVFPB, DWR, and SAFCA. It supplements the ARCF GRR EIS/EIR, which discussed the environmental impacts associated with the larger ARCF 2016 Project. The Proposed Action would be the refined levee protection designs and new elements not previously analyzed for the Final Proposed Action from the ARCF 2016 Project, which would reduce the risk of a levee failure in the project reach from flooding the Little Pocket area of the city of Sacramento.

This SEA/EIR has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) and the guidelines for implementation of the California Environmental Quality Act (CEQA). This SEA/EIR, in combination with the 2016 ARCF GRR EIS/EIR, fully discloses the potential environmental effects of the project to the public and provides an opportunity for the public to comment on the proposed action.

1.6 Previous Environmental Documentation

- May 1988, Sacramento River Flood Control System Evaluation, Initial Appraisal Report – Sacramento Urban Area. Phase I. U.S. Army Corps of Engineers, Sacramento District.
- December 1991, American River Watershed Investigation California Feasibility Report: Part I—Main Report and Part II—Environmental Impact Statement/Environmental Impact Report;
- December 1991, American River Watershed Investigation California Feasibility Report, Volume 2, Appendix G: Section 404 Evaluation;
- March 1996, Supplemental Information Report, American River Watershed Project, California: Part I—Main Report and Part II—Final Supplemental Environmental Impact Statement (FSEIS)/Environmental Impact Report;
- June 27, 1996, Chief's Report on FSEIS, signed by Acting Chief of Engineers, Major General Pat M. Stevens; and July 1, 1997, ROD on FSEIS, signed by Director of Civil Works, Major General Russell L. Furman;
- June 2008, Final Environmental Assessment/Initial Study for the Erosion Repairs of 13 Bank Protection Sites, 2008 and 2009, Sacramento River Bank Protection Project, Sacramento River and Tributaries, California;
- November 2008, Final Environmental Impact Statement for 408 Permission and 404 Permit to Sacramento Area Flood Control Agency for the Natomas Levee Improvement Project, Sacramento CA. Prepared by EDAW/AECOM, Sacramento, California;
- October 2010, Final Environmental Impact Statement on the Natomas Levee Improvement Project Phase 4b Landside Improvement Project, Sacramento California, prepared by AECOM, Sacramento, California;
- December 2015 (revised May 2016), American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report;
- July 2016, Final Environmental Impact Report, North Sacramento Streams, Sacramento River East Levee, Lower American River, and Related Flood Improvements Project. Prepared for SAFCA by GEI Consultants;
- August 2016, Record of Decision on ARCF GRR 2015 FEIS/EIR signed by Assistant Secretary of the Army (Civil Works), Jo-Ellen Darcy.
- February 2019, American River Common Features 2016 Project, Sacramento River, Reach D, Contract 1, Front Street Stability Berm, Final Supplemental Environmental Assessment, Final Supplemental Initial Study;

- June 2019, American River Watershed Common Features 2016 Project, Beach Stone Lakes Mitigation Site, Final Supplemental Environmental Assessment, Final Supplemental Initial Study;

- August 2019, American River Common Features 2016 Project, Sacramento River East Levee, Contract 1, Draft Supplemental Environmental Assessment/Environmental Impact Report. Prepared for USACE by GEI Consultants.

1.7 Decisions Required

USACE' District Engineer must decide whether the proposed project qualifies for a Finding of No Significant Impact (FONSI) under NEPA, or whether an EIS must be prepared to analyze new potentially significant environmental impacts. The CVFPB must decide whether to certify the Supplemental EIR under CEQA.

CVFPB must consider the information presented in the 2016 ARCF GRR EIS/EIR, this Supplemental EIR, comments received on this Supplemental EIR, and responses to those comments, along with the entire administrative record (including the administrative record for the 2016 ARCF GRR EIS/EIR), when determining whether to certify this Supplemental EIR under CEQA.

2.0 ALTERNATIVES

2.1 Alternatives Not Considered in Detail

Alternatives that were eliminated from detailed consideration for the overall ARCF 2016 project were described in detail in the ARCF GRR EIS/EIR. These measures included upstream transitory storage, Yolo Bypass improvements, reoperation of upstream reservoirs, a diversion structure on the Sacramento River, and non-structural measures. The downstream levee repairs are the common element between all proposed project alternatives and remained the primary focus of the alternatives considered in the ARCF GRR EIS/EIR.

As part of the refinement process, a number of different designs were evaluated to determine the appropriate erosion protection feature for the project site. Included among these design options were smaller rock bench footprints minimizing impacts to existing vegetation, larger rock bench footprints that incorporated rock on the left bank waterside levee slope, and additional quantities of rock to address slope stability concerns.

2.2 Alternative 1 – No Action

NEPA requires the analysis of a "no action" alternative that illustrates project conditions if the proposed action is not taken. Under the No Action Alternative, the Proposed Action would not be constructed. As a result, this segment of the levee would remain susceptible to failure due to erosion and would continue to be a weak spot in the levee system. Levee failure at this location could lead to catastrophic flooding of the Little Pocket area of Sacramento which includes a number of residences and Interstate 5 which is a major transportation artery located approximately 0.1 of a mile away from the levee. Additionally, outside of the Little Pocket area, numerous residences and businesses lie within the potential flood inundation area which, may result in significant damage to infrastructure, utility systems, commercial and residential interests. The Sacramento metropolitan area continues to be subject to an unacceptably high risk of levee failure and subsequent catastrophic flooding. A flood in the Sacramento metropolitan area would have substantial repercussions that would affect the entire State, national economy, as well as Federal, State, and local government operations and infrastructure.

2.3 Alternative 2 – Bank Protection (Proposed Action)

This section describes refined designs for the bank protection features initially described in the ARCF GRR EIS/EIR, along with new elements, such as specific construction details, staging, borrow and disposal sites, and construction schedule necessary to construct the Proposed Action, along with the long-term operations and maintenance (O&M) requirements.

The primary design objective is to restore the structural stability of the levee and maintain public safety. The proposed bank protection design was formulated to ensure the future integrity of the levee system near Sacramento's Little Pocket area at RM 55.2L.

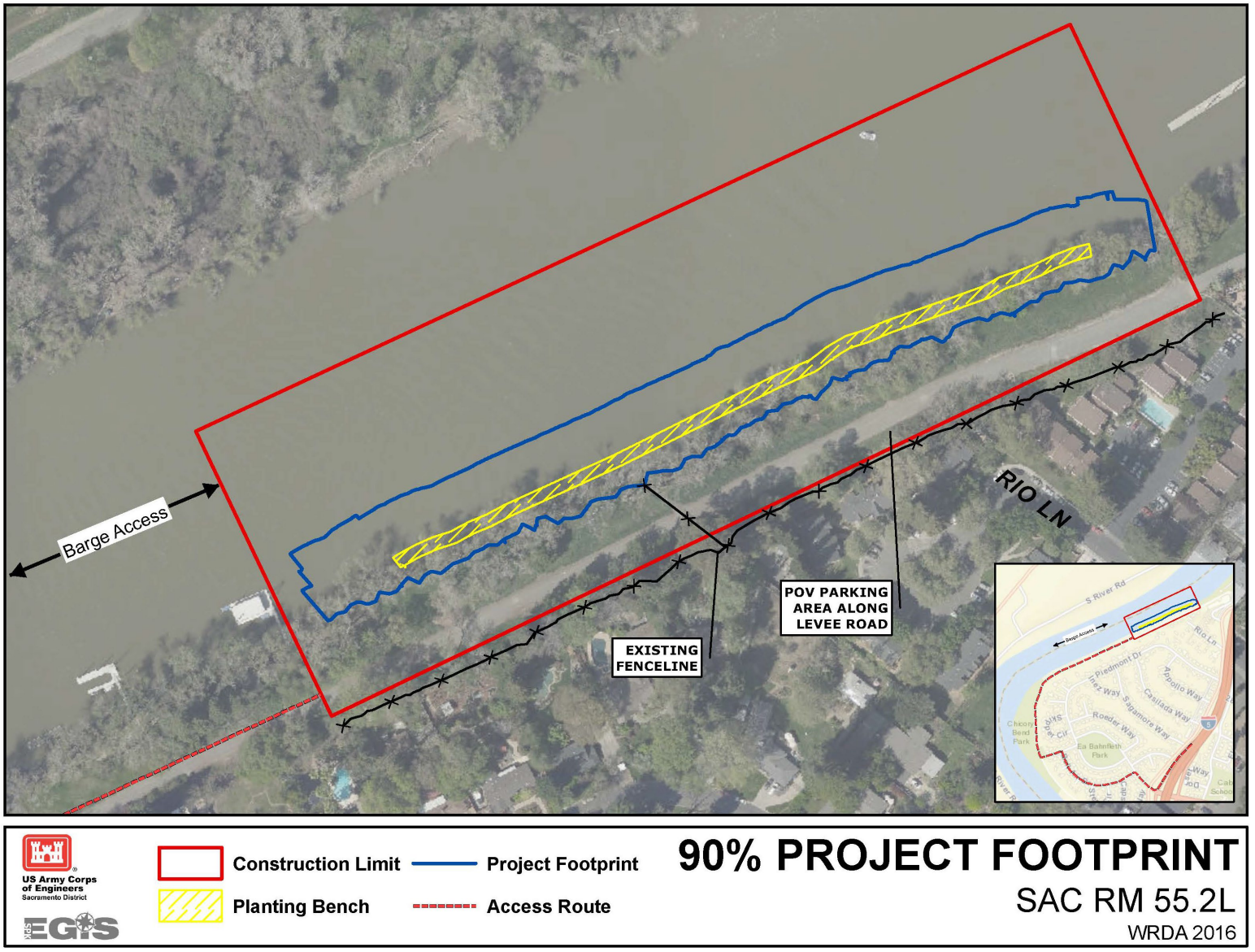

Figure 2. RM 55.2L Erosion Improvement Design Overview.

2.3.1 Features of Proposed Project

The ARCF GRR EIS/EIR analyzed alternatives to reduce the risk of levee failure due to erosion and increase slope stability in this area, concluding that a waterside rock berm would be constructed to prevent erosion. This Proposed Action is looking at refined or new elements for that bank protection, including three main construction features of the proposed project: (1) the refined location and design of the quarry rock bank protection, (2) a riparian planting bench, and (3) installation of IWM. The completed site would be planted with native vegetation to mitigate habitat lost through the construction process, these three features are described in detail below.

Bank Protection

The proposed rock bank protection is designed to address susceptible foundation soils, steep slopes, and the potential for shallow slope failures along 1,150 linear feet of the levee at RM 55.2L. As part of the refined project, slope stability, and location of known erosion was factored into the design. This bank protection would increase the roughness of the bank ultimately protecting against future erosion caused by wind-wave action and boat wake.

In preparation for construction, trees would be removed from mid-slope below the existing riparian bench and the mean, late summer water surface elevation. River barges equipped with a crane and an excavator would be used to place rock and shape the bank protection measures. The refined bank protection design would include placing quarry stone protection below the planting bench at a stable slope no steeper than 2H:1V. The top of the lower quarry stone slope would begin at an elevation of 7 feet (NAVD88) and extend to the bottom of the channel. The bank protection include self-launching rock of an adequate volume to provide toe protection up to a maximum scour depth of 26 feet. Additional rocks at the upstream, and downstream ends of the site are needed to tie in the bank protection to stable ground.

Quarry stone would be placed above and below the planting bench to protect the bank against natural erosive forces (Figure 3). A hydraulic analysis was conducted to evaluate velocity and shear stress during a range of flows up to the design discharge of 115,000 cubic feet per second (cfs). The minimum layer of stone for the levee from the planting bench to the river bottom is 5 feet. Above the planting bench, a minimum rock thickness of 2.5 feet is required to protect the bank from erosive fluvial forces, wind waves, and boat wakes. The hydraulic analysis also evaluated how high up the levee slope quarry stone would need to be placed, the erosion resistance of the embankment and foundation soils, and existing vegetation types and distributions. The OHWM is at 23.25 feet on the levee slope, the hydrologic analyses shows that starting at 22 feet on the levee slope, the current upland vegetation provides adequate roughness to withstand modeled shear stresses of the design flow magnitude for the remaining 1.25 foot of the levee above the rock placement. Above the 22 foot elevation, field observations and historic topographic comparisons show that the existing riparian bench and the levee slope have not been subject to erosion. Limiting the extent of bank protection up the slope of the levee also decreases mitigation requirements for the project.

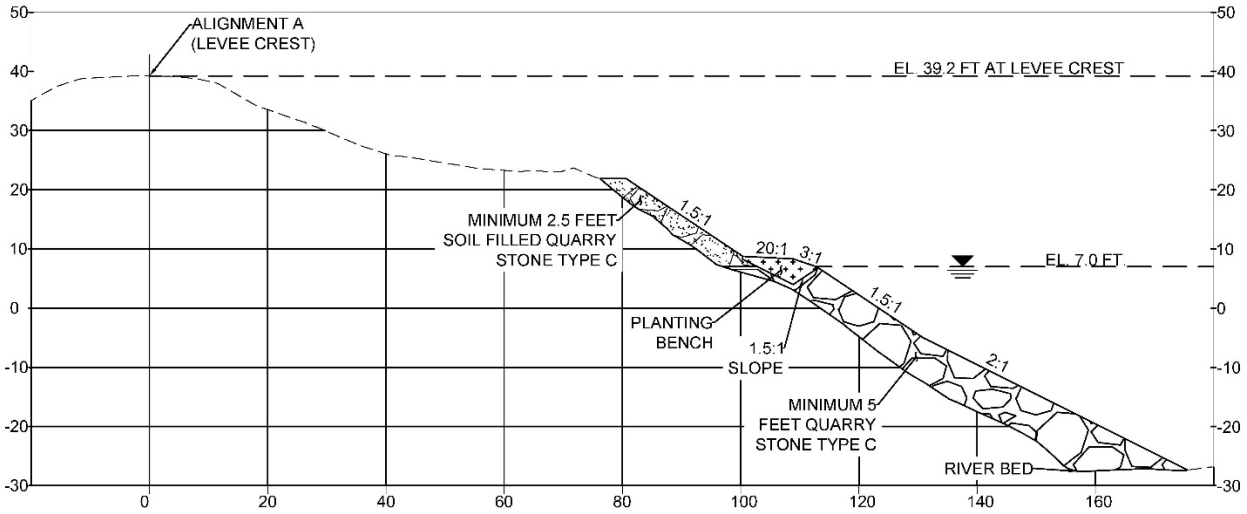

Figure 3. RM 55.2L Bank Protection Design Typical Cross Section.

Riparian Bench

The bank protection design incorporates a low elevation planting bench into the channel along the length of the site. The bench is composed of a planting soil mix, which would provide a surface that can support vegetation. The purpose of the vegetation within the bench would be provide overhead cover and near-shore aquatic habitat during the low flow season for listed fish species and other local wildlife. The width of the bench would be approximately 12.5 feet wide.

The toe of the planting bench would be set at an elevation of 7 feet and would slope upward at a 20H:1V slope towards upper quarry stone revetment. The 7-foot elevation has been the average water surface elevation at the project site during the months of August, September, and October over a 67-year period of record (1948-2015). The landside edge of the bench would be approximately 2 feet higher than the river edge, enabling the bench to support a variety of native riparian plant species. The plantings would include species found in Great Valley Mixed Riparian Forest, which is a tall, dense, broadleafed winter-deciduous riparian forest. Riparian species include, but not limited to, box elder (*Acer negundo* var. *californica*), Fremont cottonwood (*Populus fremontii*), and button willow (*Cephalanthus occidentalis*). Additional topsoil would be placed on the riparian bench if soil is washed away by high flows. Coir fabric may be used to stabilize the soil which, has been successful on the American River.

Plantings would be installed to the extent possible to mitigate for lost riparian and shaded riverine aquatic (SRA) habitat due to construction. Plantings would consist of nursery-propagated species as well as live pole cuttings. Environmental benefits are realized in the form of habitat, overhead shade, and as a source of introduction of wood material to the Sacramento River.

A temporary irrigation system would be installed for the establishment and maintenance period of the planting bench. An irrigation mainline no thinner than schedule 40 would be installed for the establishment and maintenance period. Water pumped from the river edge would be applied by drip or spray irrigation.

In-stream Woody Material

The incorporation of IWM into bank protection designs is a requirement of the 2016 ARCF GRR EIS/EIR National Marine Fisheries Service (NMFS) Biological Opinion (NMFS 2015). IWM allows for the replacement of in-stream cover for listed fish species that are impacted due to construction. IWM consist of full trees with root balls and canopies. Both large and medium sized trees would be used, depending on site conditions. Hardwood species are typically preferred for IWM as they tend to have slower degradation rates than coniferous species when subject to continual inundation. Potential sources for trees include orchard trees or any trees of adequate size and hardness that would be removed onsite for construction.

The trees would be anchored into the 15 foot thick quarry stone toe by the root ball and one half of the tree length, keyed into the quarry stone below the riparian bench, with canopies extended into the water column just below the waterside edge of the riparian bench, and oriented in a downstream direction. The downstream orientation of the IWM would be to mimic the natural orientation of downed trees along river systems. The IWM would be placed at 5- to 10-foot spacing in alternating groups of 3 to 5 trees. Tree branches would be oriented to protrude out from the riparian bench at the summer mean water surface elevation to provide a visual indication to river users of the presence of the bench.

2.3.2 Construction Details

Construction of the Proposed Action includes the following actions:

- Set up designated temporary construction access and staging areas and mobilize equipment to the staging areas.
- Protect trees and structure that are not removed with fencing or signage.
- Clear and grub work area, including, but not limited to, the removal of trees and vegetation along the levee embankment below the existing riparian bench (in general, below 25 feet NAVD88).
- Construct bank protection, planting bench, and IWM.
- Demobilization of 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.
- Install riparian/SRA plantings in the planting berm.

Site Preparation Access and Staging

Prior to the start of 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. To the greatest extent possible, existing trees would be protected in place, some of which may need to be trimmed, but some trees would need to be removed from the construction footprint. Site

preparation may also include the removal of submerged instream woody debris and fallen trees within the construction footprint. Tree removal and site preparation would occur from the waterside. A turbidity curtain or other minimization measures approved by NMFS and USFWS would be installed prior to any in-water work conducted on the waterside of the levee.

Construction access (entrance and exit) to the site would be from the existing levee maintenance road via a secured levee access gate at Seamas Avenue. The barges would access the site along existing waterways between the Delta and RM 55.2. Construction of the bank protection site would occur from the waterside of the levee via barges. Boaters and other water borne users of the river would be warned of the construction activities by warning buoys placed at both the up- and downstream ends of the site.

Staging would occur on the barges which would be brought to the site pre-loaded with construction materials and construction equipment. Use of the levee crown and levee road would be limited to the construction crews personally owned vehicles, occasional deliveries, and construction facilities, the aforementioned fencing and lighting as well as portable toilets and hand washing stations.

Site Construction

The barges would be loaded with material and equipment in Rio Vista. The barges may be rafted together and would be brought to the project site by push or tug boat. Barges loaded with materials would be brought alongside the crane/excavator barge then the material barges would rotate as they are emptied and reloaded. Placement of material would either be by crane with a 100 foot boom or by excavator with long stick and/or boom.

Borrow and Disposal Sites

Borrow

Construction material would be acquired from an outside source by the contractor and would meet the requirements established in the plans and specifications by USACE. The material sources also should have current permits for operation, meet the required environmental standards, and be approved in writing by USACE.

Quarry Stone Material Requirements and Sources

The material requirements for quarry stone are taken from the USACE Quality Compliance specification for Stone Protection. Minimum requirements are outlined in Table 3. The Contractor would be responsible for choosing a source for the needed materials and complete testing of rock materials would be required prior to acceptance for the project.

Table 3. Minimum requirements for USACE quality compliance.

Specific Gravity	ASTM C 127	2.5 minimum
Absorption	ASTM C 127	2.0% maximum
Wetting and Drying	SPD Test Procedure	No Fracturing
Magnesium Sulfate	ASTM C 88	15% maximum loss
Abrasion Loss	ASTM C 535	50% maximum loss

Soil Bedding/Soil Fill Material Requirements and Sources

The soil material placed to form a 0.5-foot soil bedding on the upper slope below the Soil Filled Quarry Stone must perform as a compactable soil fill and also have a textural composition that would support plant growth. Based on these considerations, soil fill should have range of silts, sands, clay and gravels, with suitable materials being classified as silt (ML), silty sand (SM), or clayey sand (SC) in accordance with the Classifications of Soils for Engineering Purpose (ASTM D 2487). The plasticity index (PI) of the soil material should be between 5 and 20 and liquid limit should be less than 45. Organic soils peat (PT) and organic clays (OH and OL) would not be permitted. This material does not need to act as a structural component of the design. Selective borrow operations may be necessary to ensure the materials meet these criteria. The Contractor shall be responsible for obtaining materials that meet the specified requirements.

Soil Filled Quarry Stone Material Requirements and Sources

Soil filled quarry stone material is a composition of quarry stone and soil fill material. The soil fill material should fill most voids in the quarry stone and provide a medium for vegetation to establish. Minimum requirements are outlined in Table 3. The Contractor shall be responsible for choosing a source for the needed materials and complete testing of rock materials would be required prior to acceptance for the project.

In-stream Woody Material Requirements and Sources

Woody material to be placed along the toe of the riparian benches shall be 10-to 24-inch diameter, hardwood tree species with an extensive branch structure which would create desirable habitat conditions (refer to Section 2.3.1). Hardwood orchard trees would be used, such as walnut. If walnut is not available, pistachio, orange, or lemon trees could be used. The use of eucalyptus, pine species, and pome fruits, such as apple and pear, would be avoided. Hardwood orchard trees could come from routine orchard removal/clearing operations. The source would be within 100 miles of the project site.

Disposal

The 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.

Construction Workers and Schedule

Access to the erosion site for construction workers would be along existing freeways, highways, county and city roads, and levee patrol roads and would park on the levee road. Construction hours would comply with the City noise ordinance, which allows construction from 7:00 a.m. to 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. to 6:00 p.m. on Sundays. No work or hauling would take place outside of the construction exemption times without permission applied for and given by the City of Sacramento.

Tree removal is expected to begin in December 2020. Construction is likely to occur in two phases. The first phase would include mobilization, Best Management Practices (BMP) installation, and out of water earthwork and improvements. This phase would start in late June or early July as the potential winter high flow recedes and the likelihood of rainfall reduces. The Contractor would submit a mobilization/demobilization work plan prior to starting the work. The second phase of construction would occur from July 1 to October 31. This would include the construction of the planting benches and launchable rock toe. It would also include installation of the temporary erosion control seeding of disturbed areas. Any alterations to the levee prism should be repaired prior to November 1, and all in water work should be complete by October 31. Table 4, below, describes the anticipated primary construction phases, including tree removal, construction, and planting.

Table 4. Anticipated Construction Phases

Nov 2020 to Feb 2021	May	Jun	Jul	Aug	Sep	Oct	Nov	Spring 2022 to 2025
RM 55.2L								
Tree removal and trimming								
		Phase 1: Mobilization and Out of Water Work						
			Phase 2: Primary Levee Work; Delivery of Materials					
								Planting; Monitoring/ Maintenance

Demobilization and Cleanup

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 its preconstruction condition. All trash, excess construction materials, and construction equipment would be removed and the site would be left in a safe and clean condition.

2.3.3 Operations and Maintenance

Once construction is complete, the site would be turned over to the non-Federal partners, who would be responsible for the long term operation and maintenance (O&M) of the site, including repair, rehabilitation, and replacement of all project features. A management plan would be developed in coordination with the resource agencies to ensure that native riparian plantings are protected, managed, monitored, and maintained for a period following installation and that they are on an ecologically sustainable trajectory. This management plan would be consistent with the Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP) developed for the 2016 ARCF GRR EIS/EIR. The management plan would outline activities and establishes objectives, priorities, and tasks for monitoring, managing, maintaining, and reporting on the established habitats. The local maintaining agency for the project area is currently DWR's Maintenance Area (MA) 9, and it is likely that the CVFPB and SAFCA would return the project to MA 9 for long term maintenance. O&M would be conducted in accordance with the monitoring indicators stipulated in the management plan.

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 would include picking up trash, vandalism repairs, and the removal of used planting accessories (bamboo stakes, ties, browse guards, etc.). For watering maintenance, crews would connect the water pump to the irrigation system for each irrigation cycle per the schedule described in the management plan. The irrigation system may be partially or entirely removed for seasonal high water flows. A water truck at the levee crown may be used as needed.

Invasive plant species incursions would be controlled as early as possible to prevent wide-scale establishment and minimize control efforts such as pesticide usage. The techniques available for controlling terrestrial and aquatic species may involve hand or mechanical removal and chemical treatment. Only chemicals approved for use in California in or around aquatic habitats may be utilized. 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 mitigation would prevent nonnative herbaceous growth and soil moisture competition. Maintenance crews would mow weeds to below six inches in height during the growing season. These measures are in compliance with EO 13112 (Section 5.1.8).

Plant material installation is designed to mitigate for lost riparian and SRA habitat after construction. The proposed planting design includes an appropriate mix of local native riparian trees and shrubs. Tree and shrub species were selected based on their ability to establish and be self-sustainable on the riparian bench which may be seasonally inundated and has limited soil volume. Placement would occur on surfaces above the winter mean water surface elevation and above the wetland and instream wood recruitment benches which are typically 12.5 feet wide. Plantings would consist of nursery-propagated species and live pole cuttings. The overhead SRA surface indicator consists of two components: 1) shaded stream surface, and 2) linear extent of shoreline cover. The area of shaded stream surface and linear extent of shoreline cover would be monitored as required in the management plan.

Adaptive management would commence upon completion of the short-term maintenance period and continue as necessary. The adaptive management process provides a mechanism by which remedial actions can be implemented if success criteria are not met or fail to persist once the criteria have been met (e.g., because of competition from invasive weeds).

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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

3.1 Resources Not Considered in Detail

Some resources were eliminated from further analysis in this SEA/EIR because the effects were negligible, or because the proposed action would not create additional impacts to the resources beyond the scope of those addressed regionally within the ARCF GRR EIS/EIR. Accordingly, site specific resource conditions are detailed below because they were not described in the ARCF GRR EIS/EIR.

3.1.1 Public Utilities

As a part of the design process, engineers conducted an assessment of the project site to determine the presence of underground utility lines that have the potential to be affected by the proposed action. The assessment determined that there are no known utility lines in the project area. Since the project only incorporates a limited amount of excavation, it is not anticipated that any unexpected utilities would be found during project construction. However, if any utilities are later identified, disruption to public utilities and service systems would be mitigated with the measures described in the ARCF GRR EIS/EIR. The construction contractor would follow standard procedures for further identifying underground utilities in the project area to confirm the site conditions. If underground utilities are identified by the utility providers or the City, the contractor would coordinate any necessary BMPs that would need to be implemented. Based on current site data and available information, no effects to public utilities are anticipated during construction.

3.1.2 Socioeconomics and Environmental Justice

The closest residences to the project area are single family homes located immediately adjacent to the project levee, approximately 150 feet from the riverbank. The levee is located between the construction area along the riverbank and the residences. The residents in the Little Pocket area do not meet the demographic characteristics to be considered a low income or minority population. The project would reduce flood risk to all populations protected by the levee and would not create disproportionate benefits or disproportionate adverse effects to residents of nearby single-family and multi-unit housing.

Small numbers of homeless individuals sometimes camp in the vicinity of the project area. These camps are temporary and often relocate along the Sacramento River and American River Parkway. Since these groups are transient by nature, the likelihood that a homeless encampment would be active near the project area during construction is difficult to forecast. Such a group could be temporarily disturbed during construction by noise and air pollutant emissions. If homeless encampments are present in areas where construction would occur as part of the

project, USACE, CVFPB, and the construction contractor would work with the City and County of Sacramento and the City's Police Department to notify and remove these encampments while construction occurs. Therefore, there would be no Socioeconomic or Environmental Justice impacts as part of the Proposed Action.

3.1.3 Hazardous Wastes and Materials

An Environmental Site Assessment was completed in August of 2012 for the ARCF GRR by USACE (2016 ARCF GRR EIS/EIR, Appendix H). A search of environmental databases was conducted and a list of sites with recognized environmental concerns in proximity to the project, was produced. The report concluded that no sites located in or within close proximity to the project area have Hazardous, Toxic, Radiologic Waste concerns. Mitigation measures and BMPs outlined in Section 3.17.6 and 3.5.6 of the ARCF GRR EIS/EIR would, in compliance with the applicable regulations, be adhered to by USACE, NFS, and contractors to reduce the potential for accidental release of hazardous materials during construction. Based on current site data, available information, BMPs, and mitigation measures, no effects from hazardous wastes and materials are anticipated during construction.

The ARCF GRR EIS/EIR stated that Project areas would be tested for contaminants prior to construction, and any materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Implementation of HAZ-1 would reduce impacts of hazardous waste and materials on the environment.

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

USACE would require that Project Areas be tested for contaminants prior to construction. Any hazardous materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site. Where construction activities would occur in close proximity to sites identified as RECs in the Phase I ESA (HDR 2019), a Phase II site investigation should also be conducted.

3.1.4 Land Use

The entire Sacramento River east bank and levee are currently zoned for parks and recreation and are encompassed within the overall ARCF 2016 Project Area. The neighborhood adjacent to the project area is zoned for low density suburban use and the area north of the study area, located near the Westin Hotel, is zoned as a suburban center (City of Sacramento, 2015). There would be no change in these land use designations as a result of project implementation. Additionally, the project does not occur in an area covered by an approved Habitat Conservation Plan or Natural Community Conservation Plan.

3.1.5 Transportation and Circulation

Construction of the Proposed Action would occur via barges. Materials and equipment would be hauled to the site from the river and therefore would not impact vehicle traffic on road ways. The only vehicles with access to the site from area roadways would be construction crew

members using their POVs and occasional deliveries. In order to ensure the use of area roadways by contractors' vehicles would not cause significant adverse effects to motor vehicle traffic, the following measures would be implemented during construction:

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

3.1.6 Hydraulics and Hydrology

The ARCF GRR states the Proposed Action combines the construction of improvement measures while maintaining the present levee alignment in its existing location (fix in place) (Section 3.4.4). The Proposed Action would not alter flows from those expected in the future without project condition. There would also be no significant change to or effect on the hydraulics and hydrology with the project in place. Long-term O&M of the project site would not be significantly different under this Proposed Action from existing conditions and would have no impact of hydrology and hydraulics. 2D HEC-RAS model results show that adding bank protection to the proposed project site at RM 55.2L would not substantially alter the existing drainage pattern of the site and river therefore not causing erosion on the opposite bank (DDR, Appendix X). The proposed action would not 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. The proposed action would not place housing within a 100-year flood hazard or expose people or structures to a significant risk of loss, injury, or death involving flooding. The proposed action would not place structures within a 100-year flood hazard area which would impede or redirect flood flows. No effects to hydraulics and hydrology due to the Proposed Action are anticipated.

3.2 Resources Considered in Detail

Significant adverse effects to air quality, climate, cultural artifacts, hazardous waste, recreation, traffic, visual resources, special status species, vegetation and wildlife, and water

quality could occur if the Proposed Action is constructed. As a result, these subjects are discussed in detail below. In many cases the regulatory setting and methodology of assessment, are incorporated by reference from the ARCF GRR EIS/EIR, where this supplemental analysis utilizes the same parameters. Supplemental information on existing conditions (environmental and regulatory setting under CEQA) is provided where necessary for particular resource topics and in support of the supplemental impact analysis. Thresholds used to evaluate the significance of impacts are carried forward from the ARCF GRR EIS/EIR, with additional thresholds identified where necessary. For resources on which the Proposed Action may have significant effects, mitigation measures are proposed as identified in the ARCF GRR EIS/EIR. For some impacts, mitigation measures described in the ARCF GRR EIS/EIR may not apply to the Proposed Action. For other impacts, additional or different mitigation measures are required to reduce effects of the project refinements described in the Proposed Action.

3.2.1 Fisheries

The environmental and regulatory framework described in Section 3.7 of the ARCF GRR EIS/EIR is applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, additional information relevant to the Proposed Action is provided below. State and Federally listed fish species are discussed further in Section 3.2.2.

Existing Conditions

Native fish species present in the Sacramento River can be separated into anadromous species and resident species. Native anadromous species include four runs of Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirostris*), white sturgeon (*A. transmontanus*), and Pacific lamprey (*Entosphenus tridentatus*). Native resident species include delta smelt (*Hypomesus transpacificus*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento splittail (*Pogonichthys macrolepidotus*), Sacramento sucker (*Catostomus occidentalis*), hardhead (*Arius felis*), California roach (*Hesperoleucus symmetricus*), and rainbow trout (*O. mykiss*). Native resident species 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 in the ARCF GRR EIS/EIR. The aforementioned State and Federally listed fish species are discussed in further detail in Section 3.2.2.

Important attributes of the aquatic habitat within the American and Sacramento Rivers are aquatic vegetation and SRA habitat. Aquatic habitat is represented by floating, submerged, and emergent vegetation, as well as substrate conditions and benthic habitat. Aquatic vegetation serves as hiding cover and an invertebrate food production base for nearly all aquatic species. Aquatic vegetation, also known as in-water cover, provides a diversity of microhabitats which allows for high species diversity, abundance, and a food source for instream invertebrates. Instream invertebrates are imperative nutrient sources for several native fish species.

SRA habitat is represented by overhead canopy cover. Overhanging SRA habitat provides shade coverage important to the survival of many aquatic organisms, including fish. Overhanging vegetation moderates water temperatures, imperative to the various life stages of native fish species. Vegetation provides food and habitat for terrestrial and aquatic invertebrates as well as several native fish species. Thus, a broad food base, extensive cover, and habitat niches are supported by SRA and IWM. These values in turn create high fish diversity and abundance (USFWS 1992a).

Environmental Effects

Significance Criteria

For this analysis, an effect is considered significant if it:

- interferes substantially with the movement of any native resident or migratory fish species or with established native resident or migratory corridors;
- impedes the usage of native wildlife nursery sites;
- substantially reduces the habitat of a fish population; and/or
- causes a fish population to drop below self-sustaining levels.

Alternative 1 – No Action

Under this alternative, USACE would not construct the Proposed Action, therefore there would be no direct effects to fish species as a result of construction. The habitat conditions in the Project Area would remain consistent with the existing conditions. However, if a high-water event were to occur causing levee failure, effects of flood fighting and habitat degradation on fish could be significant. In the event large rock would be utilized to mitigate levee failure the future growth of trees and vegetation on the levee slopes would be prevented or impeded resulting in substantially reducing and or degrading the quality of fish habitats. Emergency cleanup and earth-moving activities could increase sedimentation and turbidity resulting in the degradation of habitable water quality. As the timing, magnitude, and duration of any flood event or flood fighting are speculative and unpredictable, the potential for such occurrences is uncertain. Therefore, a precise determination of significance under a no action alternative is not feasible.

Alternative 2 – Proposed Action

The proposed action would most likely disrupt native fish during rock placement and erosion protection activities by temporarily increasing local noise and turbidity, causing them to move away from the area that might be providing habitat and cover. As some juvenile species utilize near shore habitat for cover, the increase of noise and turbidity may cause juveniles to move away from shore and into the river channel increasing their risk of predation.

Construction may disturb soils and the near shore environment, leading to increases in turbidity and sedimentation in the near shore aquatic habitat. This disturbance would be temporary and short-term. Following the completion of construction, the site would return to pre-construction conditions.

As studied in the ARCF GRR EIS/EIR, the Proposed Project impacts were not considered to be significant to resident fish species because the existing condition would not be worsened by the project. The planting bench and IWM would provide additional shade and cover which are material elements of SRA. The irrigation pump system and fish screen to be installed for the planting bench would conform to Mitigation Measure FISH-1 (Section 3.2.2).

With the implementation of the mitigation measures described below and the expectation that long term conditions at the site would result in improved conditions compared to pre-construction, effects to fish species would be reduced to less than significant.

Avoidance, Minimization, and Mitigation Measures

Implementation of BMPs and mitigation measures described in Special Status Species (Section 3.2.2) and Water Quality (Section 3.2.10 of this SEA/EIR and Section 3.5 of the ARCF EIS/EIR) would reduce sedimentation and turbidity effects from construction related impacts to where they would be short-term and minor, and therefore less than significant. All measures associated with SRA removal are addressed in Special Status Species and Vegetation and Wildlife (Section 3.2.9 of this EA/EIR and Section 3.6 of the ARCF EIS/EIR).

The following summarizes ARCF GRR EIS/EIR mitigation measures (pages 143-144) that are incorporated into the Proposed Action. In addition to the mitigation measures described below, mitigation measures associated with SRA and riparian habitat removal would further reduce impacts on fisheries.

Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

Refer to Section 3.2.2 for the full text of this mitigation measure.

Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.

Refer to Section 3.2.2 for the full text of this mitigation measure.

3.2.2 Special Status Species

The environmental and regulatory framework described in Section 3.8 of the ARCF GRR EIS/EIR is applicable to the analysis in this SEA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

Special-status species evaluated for potential to occur in the Project Area for the Proposed Action were identified based on review of current U.S. Fish and Wildlife Service (USFWS) species lists (USFWS 2019a and 2019b) (see Appendix A), resource databases, and other information available from National Marine Fisheries Service (NMFS), California Natural Diversity Database occurrences (CDFW 2019), and the California Native Plant Society online inventory (CNPS 2019).

Species that have the potential to occur in or adjacent to the project site are giant garter snake (*Thamnophis gigas*), Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Swainson's Hawk (*Buteo swainsoni*), Sanford's arrowhead (*Sagittaria sanfordii*), wooly rose-mallow (*Hibisus lasicocarpos*), delta smelt, green sturgeon southern distinct population segment (sDPS), Sacramento River winter-run and Central Valley (CV) spring- and fall-runs Chinook salmon, and CV distinct population segment (DPS) steelhead.

Environmental Effects

Significance Criteria

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

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

Alternative 1 – No Action

Under this alternative, USACE would not construct the Proposed Action, therefore there would be no direct effects to listed species as a result of construction. The habitat conditions in the project area would remain consistent with the existing conditions. However, if a high-water event were to occur and the levee were to fail, there could be direct impacts to special status fish species from water quality and toxicity issues in the floodwaters, and a loss of habitat for both aquatic and terrestrial listed species from flood fighting and emergency repairs. As the timing, magnitude, and duration of any flood event or flood fighting are speculative and unpredictable,

the potential for such occurrences is uncertain. Therefore, a precise determination of significance under a no action alternative is not feasible.

Alternative 2 – Proposed Action

Based on a focused elderberry survey conducted in 2020, there are no elderberry shrubs, the host plant for the valley elderberry longhorn beetle (VELB), are within the project site; therefore no effects are anticipated. If any elderberry shrubs are found in the project site, implementing Mitigation Measure VELB-1 would reduce potentially significant effects to a less-than-significant level by avoiding and minimizing impacts on elderberry shrubs, transplanting elderberry shrubs that cannot be avoided, and compensating for unavoidable impacts.

Other than the Sacramento River, there are no aquatic features in the project area and no connectivity to rice fields, therefore the project area does not contain suitable habitat for the giant garter snake.

Trees along the Sacramento River east levee and adjacent narrow riparian corridor along the river support several active nests of Swainson's Hawk. This corridor also provides suitable nesting and/or foraging habitat for special status birds, such as Western Yellow-billed Cuckoo, White-tailed Kite (*Elanus leucurus*), and Purple Martin (*Progne subis*). Nesting habitat for Swainson's Hawk, White-tailed Kite, and Purple Martin occurs throughout the Project Area. The site does not provide suitable nesting habitat for Yellow-Billed Cuckoo, but transient individuals could use the area during migration. Tree removal from construction activities would reduce the amount of habitat available to these species and could destroy active nests, resulting in the loss of eggs and young. In addition, noise from construction activities could disturb nearby active nests, potentially resulting in nest failure.

Starting in spring 2018 and continuing through 2020, preliminary nesting raptor and nesting migratory bird surveys occurred in the project area to determine if any special status bird species were likely to be present on the site. The studies focused on finding nesting birds protected by the State of California such as Swainson's Hawk and White-tailed Kite, and other birds protected under the Migratory Bird Treaty Act (MBTA). In April 2020, a pair of Swainson's Hawks were observed building a nest in a tree adjacent to the project area. They may return the nest or another raptor, protected under MBTA, may occupy the nest during the 2021 nesting season. The implementation of mitigation measures would reduce impact to nesting birds.

Additional special-status and MBTA bird surveys would be conducted in spring 2021 to verify the presence or absence of these species prior to the start of construction. If nesting birds are identified within ½ mile of the project area, coordination with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) would occur to ensure that appropriate avoidance and minimization measures are implemented. To the extent practical, tree removal associated with the Proposed Action would occur during the non-nesting season to avoid removing vegetation with active nests (August 16 – January 31). Additionally, compensation for SRA removal would occur (as described in Mitigation Measure SRA-1 and Section 3.6 of the ARCF GRR EIS/EIR). Implementing these measures would reduce impacts to special-status bird species to a less than significant level by implementing appropriate buffers

around active nests that could be affected by project activities and mitigating for nesting habitat lost due to construction.

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

The placement of rock riprap below the OHWM would occur during the anadromous fishes and delta smelt activity windows. The project actions are not likely to result in long-term habitat losses to Sacramento River winter-run Chinook salmon, CV steelhead, CV spring- and fall-runs Chinook salmon, green sturgeon sDPS, and delta smelt, as long as the applicable minimization and compensatory mitigation measures are implemented. This conclusion is based on USACE' commitment to: (1) minimize temporary habitat losses through the incorporation of on-site mitigation features (*e.g.*, vegetated riparian and wetland benches, riparian plantings) in the project area measures; and (2) implementation of off-site habitat compensation measures (*e.g.*, riparian planting, rock removal, marsh restoration, conservation bank credits). However, project actions may adversely affect these focus species due to: (1) incidental take during construction; (2) fragmentation of existing natural bank habitats due to the placement of revetment; and (3) the potential loss of long-term fluvial functioning necessary for the development and renewal of SRA habitat.

Impacts to delta smelt were calculated according to the 2015 USFWS BO. Effects to delta smelt would result in 0.65 acres of spawning habitat impacts. The planting bench would create 0.22 acre of on-site mitigation (SRA habitat) therefore, 0.43 acres of off-site mitigation is needed for spawning habitat impacts. The remainder of the mitigation will be offset as recommended in the USFWS BO, to be issued this year. Shallow water habitat impacts were calculated at +0.19 acre. The impact is not negative therefore, off-site mitigation is not needed for shallow water habitat impacts according to the 2015 BO. Impacts to salmonids and green sturgeon would result in 3.27 acres of habitat effects. 2.89 acres of onsite mitigation would be completed for salmonids. The remaining mitigation acreage would occur offsite as recommend by the forthcoming NMFS BO.

Impacts to relevant salmonids were analyzed using Standard Assessment Methodology (SAM) parameters measured from the specific project designs and from field surveys conducted in fall 2019 to winter 2020 to establish existing conditions (Appendix A). The SAM analysis does not drive design plans for the Proposed Action but instead, measures the impacts to listed salmonids. The SAM analysis was conducted consistent with the methods described in the

ARCF GRR National Marine Fisheries Service (NMFS) Biological Opinion (BO; NMFS 2015). Special-status fish species expected to occur at the project site and included in this analysis are:

- Central Valley Spring-run Chinook Salmon Evolutionarily Significant Unit (ESU)
- Sacramento River Winter-run Chinook Salmon ESU
- Central Valley Fall-run Chinook Salmon ESU
- Central Valley Late Fall-run Chinook Salmon ESU
- Central Valley Steelhead Distinct Population Segment (DPS)

As described in the original NMFS BO (NMFS 2015, pp. 25-26), SAM results are weighted relative response index (WRI) values that represent the difference between modeled fish response to existing (without-project) and designed (with-project) conditions. Negative WRI values indicate that existing conditions are more beneficial for fish and positive WRI values indicate that designed conditions are more beneficial for fish. WRI values are weighted by shoreline length to maintain consistency with the original NMFS BO. WRI values do not directly represent actual lengths. However, NMFS has used WRI values as proxies to determine mitigation.

For salmonids, most season/life stage combinations show a WRI deficit for a number of years following project completion that eventually begins to show a WRI benefit (Table 5). In each instance, the benefit duration exceeds the deficit duration, often significantly. There are a number of season/life stage combinations that have a WRI benefit throughout the entire 50-year modeled time period. Chinook salmon adult migration in winter is the only salmonid season/life stage combination that has a WRI deficit throughout the entire 50-year modeled time period, and this trend is consistent among all Chinook salmon ESU's. The maximum WRI deficit for Spring-run, Winter-run, and Late Fall-run Chinook salmon is -66; each occurs in fall for juvenile migration. The maximum WRI deficit for Fall-run Chinook salmon is -56 and occurs in fall for adult migration. The maximum WRI deficit for Steelhead is -87 and occurs in fall for juvenile migration. Figure 4 and Figure 5 show the yearly WRI values by season for the Chinook salmon juvenile migration and the Steelhead adult residence life stages, respectively. The temporal trends in each figure generally are representative of the other salmonid season/life stage combinations.

Table 5. Maximum SAM Modeled WRI Deficits and Benefits, RM 55.2L

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
Spring-Run Chinook Salmon					
Fall	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
	Juvenile Migration	**-66**	13	63	37
Winter	Adult Migration	-54	50	None	None

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
	Fry & Juvenile Rearing	None	None	102	50
	Juvenile Migration	None	None	340	50
Spring	Adult Migration	-51	8	31	42
	Fry & Juvenile Rearing	None	None	157	50
	Juvenile Migration	None	None	**378**	50
Summer	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
	Juvenile Migration	-66	13	63	37
Winter-Run Chinook Salmon					
Fall	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
	Juvenile Migration	**-66**	13	63	37
Winter	Adult Migration	-54	50	None	None
	Fry & Juvenile Rearing	None	None	102	50
	Juvenile Migration	None	None	340	50
Spring	Adult Migration	-51	8	31	42
	Fry & Juvenile Rearing	None	None	157	50
	Juvenile Migration	None	None	**378**	50
Summer	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
Fall-Run Chinook Salmon					
Fall	Adult Migration	**-56**	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
Winter	Adult Migration	-54	50	None	None
	Fry & Juvenile Rearing	None	None	102	50
	Juvenile Migration	None	None	**340**	50
Spring	Fry & Juvenile Rearing	None	None	157	50
Summer	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
Late Fall-Run Chinook Salmon					
Fall	Adult Migration	-56	19	27	31
	Fry & Juvenile Rearing	-17	9	35	41
	Juvenile Migration	**-66**	13	63	37
Winter	Adult Migration	-54	50	None	None
	Fry & Juvenile Rearing	None	None	102	50
	Juvenile Migration	None	None	**340**	50
Spring	Adult Migration	-51	8	31	42
	Fry & Juvenile Rearing	None	None	157	50

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
Summer	Fry & Juvenile Rearing	-17	9	35	41
Steelhead					
Fall	Adult Migration	-78	14	70	36
	Fry & Juvenile Rearing	-31	9	51	41
	Juvenile Migration	**-87**	21	33	29
	Adult Residence	-78	14	70	36
Winter	Adult Migration	-74	9	33	41
	Fry & Juvenile Rearing	None	None	138	50
	Juvenile Migration	None	None	214	50
	Adult Residence	-74	9	33	41
Spring	Adult Migration	-67	4	82	46
	Fry & Juvenile Rearing	None	None	203	50
	Juvenile Migration	None	None	**253**	50
	Adult Residence	-67	4	82	46
Summer	Adult Migration	-78	14	70	36
	Fry & Juvenile Rearing	-31	9	51	41
	Adult Residence	-78	14	70	36

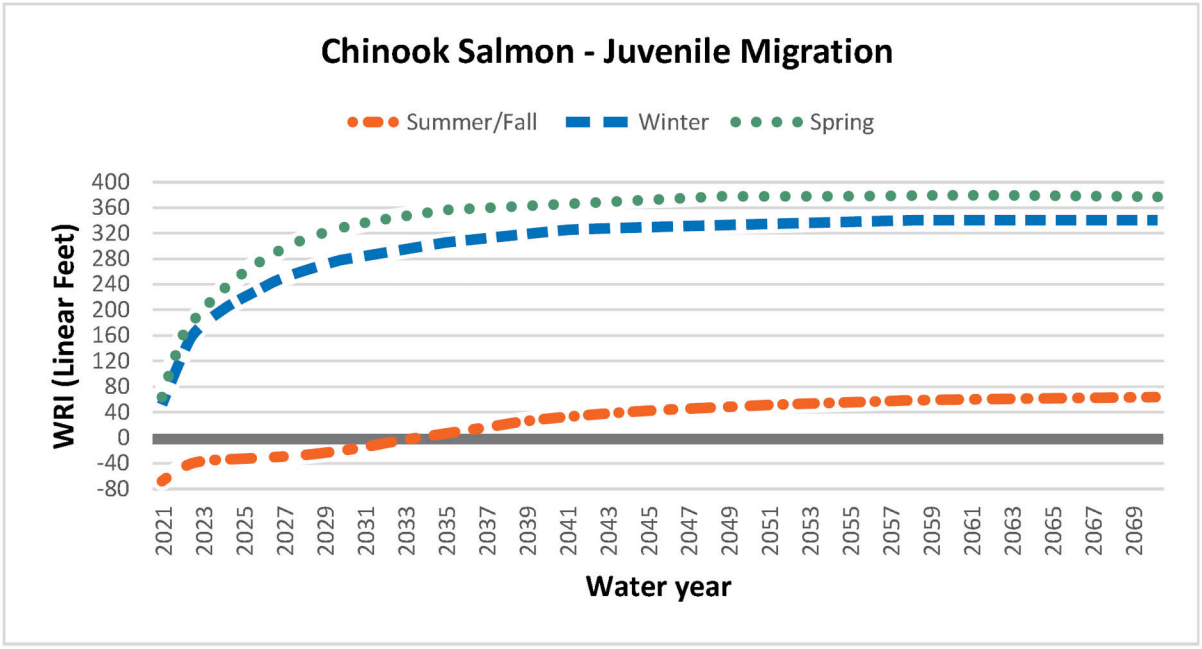

Figure 4. Yearly SAM-Modeled WRI Values for Each Season of the Chinook salmon Juvenile Migration Life Stage, RM 55.2L

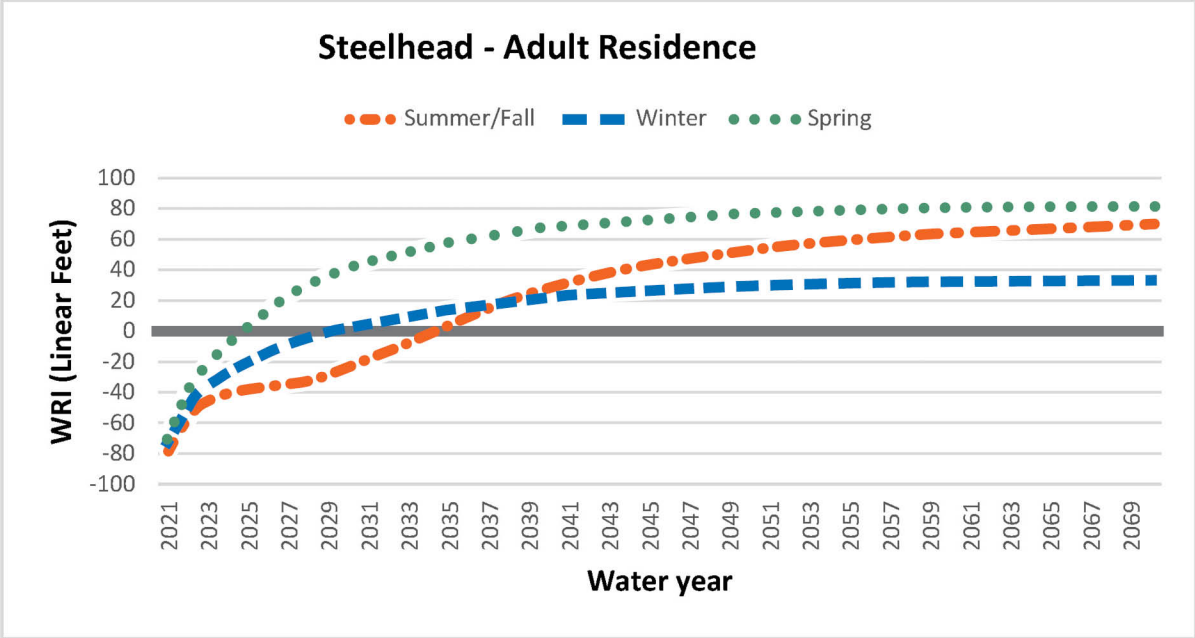

Figure 5. Yearly SAM-Modeled WRI Values for Each Season of the Steelhead Adult Residence Life Stage, RM 55.2L

The natural bank element of SRA would be lost with rock placement along the levee slope. Ground disturbing activities related to rock placement could potentially cause erosion and soil disturbance, subsequently resulting in sediment transport and delivery to aquatic habitats. Increases in sedimentation and turbidity have been shown to affect fish physiology, behavior, and habitat. However, over time sediment would settle into the rock voids and provide similar substrate characteristics as a natural bank.

Adverse short-term impacts to special status fishes are anticipated as a result of the Proposed Action. Restricting in-water activities to the proposed in-water work window, implementing BMPs and mitigation measures, would minimize the potential for adverse effects. In the long-term, special status fishes are anticipated to benefit from the Proposed Action as long as the applicable minimization and compensatory mitigation measures are implemented. Implementing mitigation measures described below would reduce long-term impacts of the Proposed Action to less-than-significant for special status birds, bats, insects, and vegetation. Off-site mitigation options are currently being analyzed with the resource agencies for impacts to SRA habitat and special status species.

Avoidance, Minimization and Mitigation Measures

Avoidance, minimization, and mitigation measures are also described in detail in the ARCF GRR EIS/EIR and the project Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP). Biological Opinions from USFWS and NMFS were received in 2015 as well as 2 subsequent re-initiations from USFWS (2017 and 2019).

In the 2015 and 2019 BO, USFWS stated that after reviewing the current status of VELB, delta smelt, giant garter snake, and Yellow-billed Cuckoo, the environmental baseline for the

action area, the effects of the proposed ARFC project, and the cumulative effects on these species, it is the Service's biological opinion that the proposed AFRC project, is not likely to jeopardize the continued existence of these species.

NMFS stated that the proposed action is not likely to jeopardize the continued existence of Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, CCV steelhead and sDPS green sturgeon or destroy or adversely modify their designated critical habitat in their biological opinion (2015).

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

USACE would implement the following measures to minimize potential effects on active nests of Swainson's Hawk, White-tailed Kite, Purple Martin and other migratory birds:

- Before on-site project activities begin, all construction personnel would participate in a USFWS-approved worker environmental awareness program. A qualified biologist shall inform all construction personnel about the life history of Swainson's hawk and other relevant species, as well as the importance of nest sites.

- A breeding season survey shall be conducted for active Swainson's hawk nests within 0.5 mile of construction activities, including grading. A survey shall also be conducted for active nests of white-tailed kite and purple martin within 500 feet of construction activities and active nests of other migratory birds within 100 feet of construction activities. Swainson's hawk surveys shall be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30 with no fewer than three surveys completed in at least two survey periods and with at least one survey occurring immediately prior to project initiation (Swainson's Hawk Technical Advisory Committee 2000). Other bird nest surveys could be conducted concurrent with Swainson's hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation.

- For any active migratory bird nest found, a protective buffer shall be established and implemented until the nest is no longer active. The size of the buffer shall be determined based on the species, nest stage, type and intensity of project disturbance in the nest vicinity, presence of visual buffers, and other variables that may affect susceptibility of the nest to disturbance. A qualified biologist shall monitor the nest during project activities to confirm effectiveness of the buffer and adjust the buffer as needed to ensure project activities do not adversely affect behavior of adults or young.

- Where feasible, 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 through August 31, depending on the species and environmental conditions for any given year).

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

USACE 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, in the event that any are found on the project site:

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

- Compensation. Effects shall be compensated at ratios ranging from 1:1 to 3:1, depending on the compensation approach and circumstances of the affected shrubs. Affected area would be re-vegetated with appropriate native plants.

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

The 2016 ARCF GRR EIS/EIR did not identify a significant impact associated with special-status bats. Therefore, the following is a new mitigation measure. USACE would implement the following measure to avoid and minimize effects on special status bats.

- Wherever feasible, USACE would conduct construction activities outside of the active season for bats (generally April 1 to August 31).

- If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark.

- If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. No project activity shall commence within the buffer areas until the end of the pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the buffer, a qualified biologist would monitor activities either continuously or periodically during the work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated adverse effects on specials status bats. If construction activities are stopped, CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects.

- For trees containing cavities, cracks, crevices, or deep bark fissures that are planned for removal or trimming (irrespective of time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day (in the afternoon), limbs and branches would be removed, using chainsaws only. Removal activities must avoid limbs with cavities, cracks, crevices, or deep bark fissures, and remove only branches and limbs without those features. On the second day, the entire tree would be removed. A qualified biologist would monitor removal of these trees.

Mitigation Measure PLANT-1: Implement Measures to Protect Special Status Plants

USACE would implement the following measures to minimize potential effects on Sanford's arrowhead and wooly rose-mallow:

- Preconstruction surveys would 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, likely be during the blooming period.
- If special status plant species are found during preconstruction surveys, the habitat would be marked or fenced as an avoidance area during construction. A buffer of 25 feet would be established. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer.
- If special status plant species cannot be avoided during construction, USACE would coordinate with the resource agencies to determine additional appropriate mitigation measures.

Mitigation Measure FISH-1: Implement Measures to Avoid and Minimize Effects on Listed Fish Species.

To avoid and minimize effects on listed fish species, the following measures would be implemented:

- In-water construction activities (e.g., placement of rock revetment) would be limited to the work window of July 1 through October 31. If USACE needs to work outside of this window, it would consult with USFWS and NMFS.
- Erosion control measures (BMPs) would be implemented, including a Storm Water Pollution Prevention Plan and Water Pollution Control Plan, to minimize the entry of soil or sediment into the American River. BMPs would be installed, monitored for effectiveness, and maintained throughout construction operations to minimize effects on federally listed fish and their designated critical habitat. Maintenance would include daily inspections of all heavy equipment for leaks.
- USACE would participate in an existing Interagency Working Group or work with other agencies to participate in a new Bank Protection Working Group to coordinate stakeholder input into future flood risk reduction actions associated with the ARCF 2016 Project, Sacramento River Contract 1, RM 55.2L.
- USACE would 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 would include 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 would implement 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 would 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 impacts on listed fish species.

- USACE would 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 would seek to avoid and minimize adverse construction effects on listed species and their critical habitat to the extent feasible, and would implement on-site and off-site compensation actions as necessary.

- For identified designated critical habitat, where feasible, all efforts would be made to compensate for impacts where they have occurred or in close proximity. USACE would develop and implement a compensatory mitigation accounting plan to ensure the tracking of compensatory measures associated with implementation of the Proposed Action. USACE would 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 would minimize the removal of existing riparian vegetation and IWM to the maximum extent practicable. Where appropriate, removed IWM would be anchored back into place, or if not feasible, new IWM would be anchored in place.

- USACE would 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 would provide a copy of the BO, 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 BO.

- A NMFS-approved Worker Environmental Awareness Training Program for construction personnel would be conducted by the NMFS-approved biologist for all construction workers before the start of construction activities. Written documentation of the training would be submitted to NMFS within 30 days of the completion of training.

- USACE would consider installing IWM of at least 40 percent shoreline coverage at all seasonal water surface elevations in coordination with the Interagency Working Group or the Bank Protection Working Group. The purpose is to maximize the refugia and rearing habitats for juvenile fish.

- USACE would protect in place all riparian vegetation on the lower waterside slope of any levee, unless removal is specifically approved by NMFS, following completion of project construction.

The following conservation measure from the 2015 NMFS Biological Opinion on the ARCF GRR is also incorporated into the Proposed Action:

- Screen any water pump intakes, as specified by the 2011 NMFS screening specifications. 68F water pumps would maintain an approach velocity of 0.2 feet per second or less. Screen openings would be for a perforated plate: circular or square openings shall not exceed 3/32 inch (2.38 millimeters [mm]), measured on a side, and slotted or rectangular screen face openings must not exceed 1.75 mm (approximately 1/16 inch) in the narrow direction. Screen material shall provide a minimum of 27 percent open area.

Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.

USACE would implement the following avoidance, minimization, and compensation measures.

- For identified designated critical habitat of listed fish species, where feasible, all efforts would be made to compensate for impacts where they have occurred, or elsewhere in the Sacramento or American River Basins. Impacts on designated critical habitat, SRA habitat, and instream components combined and the compensation value of replacement habitat would be based on the interagency-approved SAM model used throughout the Sacramento River basin and Sacramento–San Joaquin Delta flood control system.

- USACE would incorporate compensation for SRA habitat losses either by constructing off-site compensation sites or purchase of credits at a NMFS-approved conservation bank, where appropriate, or by implementing a combination of the two. USACE would 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 would be established in coordination with NMFS and USFWS as part of consultation under Section 7 of the Endangered Species Act for the ARCF GRR, consistent with the American River Parkway Plan, and

in coordination with the Sacramento County Department of Parks and Recreation. On-site created SRA habitat acreage would also be counted toward offsetting lost SRA habitat.

- Compensation sites would be monitored and vegetation would be replaced as necessary based on performance standards in the ARCF GRR HMMAMP.

Due to new information and updates to the project description that may affect these listed species or critical habitat in a manner or to an extent not previously considered, consultations have been reinitiated and are currently pending from USFWS and NMFS. If any additional avoidance, minimization, and mitigation measures are recommended, they would be implemented to the extent possible.

3.2.3 Air Quality

The environmental and regulatory framework described in Section 3.11 of the ARCF GRR EIS/EIR is applicable to the analysis in this Supplemental EA/EIR and incorporated by reference. Some updated and additional information is provided below.

Existing Conditions

Criteria Pollutants

The Clean Air Act established the National Ambient Air Quality Standards (NAAQS) for specific air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). O_3 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 aforementioned criteria pollutants. The U.S. Environmental Protection Agency (USEPA) 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 determined "non-attainment" areas. The State and Federal attainment status for the Sacramento Valley Air Basin (SVAB) are shown on Table 6 below.

Due to the non-attainment designations for the SVAB, the Sacramento Metropolitan Air Quality Management District (SMAQMD) is required to prepare SIPs for O_3, PM_{10}, and $PM_{2.5}$ to establish how the area would attain the standards by dates specified within the plans.

Barges transporting material to the site would travel through the San Francisco Bay Area Air Basin (SFBAAB) in addition to the SVAB. The SFBAAB is in nonattainment for O_3 (1-hour and 8-hour averaging), PM_{10} (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 O_3, PM_{10}, 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 the USEPA has established these standards, and in any areas designated as "maintenance" areas. The rule covers both direct and indirect emission of criteria pollutants or their precursors that result from a Federal project, are reasonably foreseeable, and can be practicably controlled by the Federal agency through its continuing program responsibility.

Table 6. Sacramento Valley Air Basin Attainment Status.

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

Notes: PM10 = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; PM2.5 = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
Source: Sacramento Metropolitan Air Quality Management District 2020

Environmental Effects

Significance Criteria

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

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

Local air district (Sacramento Metro Air Quality Management District and Bay Area Air Quality Management District) significance thresholds used in this analysis, and General Conformity *de minimis* thresholds that apply to the project. The ARCF GRR Final EIS/EIR identified construction of the project over a longer timeline (10 years compared to 5 years as currently proposed), therefore the reduced project timeline would increase annual air emissions for the ARCF Project as a whole. This document therefore includes a revised comparison to the General Conformity *de minimis* standards.

Table 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
Source: Sacramento Metropolitan Air Quality Management District 2015

Table 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

Fine Particulate Matter ($PM_{2.5}$) - Exhaust	54

Source: Bay Area Air Quality Management District 2017

Table 9. General Conformity *de minimis* Thresholds

Pollutant	Threshold (tons per year)
Carbon Monoxide (CO)	100
Oxides of Nitrogen (NO_X)	25
Volatile Organic Compounds (VOC)/ Reactive Organic Gases (ROG)	25
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	100

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

Alternative 1 – No Action

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

Alternative 2 – Proposed Action

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

Construction Emissions

Air quality emissions would be generated by heavy equipment constructing the Proposed Action, hauling of material from the borrow source to the project area (including both truck and barge transportation) construction worker trips, and other construction-related trips. There would be no change in operation and maintenance (O&M) emissions associated with the proposed action. Air emissions were modeled using SMAQMD's Road Construction Emissions Model version 8.1.0, and Harborcraft, Dredge and Barge Emission Factor Calculator (refer to Appendix B for modeling data). The total estimated air emissions for the Proposed Action are presented in Tables 10 and 11. As shown in Tables 10 and 11, the emissions resulting from the Proposed Action would potentially exceed the local air district thresholds for NO_x. Avoidance,

minimization, and mitigation measures identified as Mitigation Measures AIR-1, AIR-2, AIR-3, and AIR-4 would be implemented to reduce this impact to a less-than-significant level.

Table 10. Emissions Estimates for the Proposed Action – Sacramento Valley Air Basin

Pollutant	Unmitigated/ Mitigated (pounds per day)	Unmitigated/ Mitigated (tons per year)	Significance Threshold
ROG	14.49/9.18	0.54/0.30	N/A
CO	100.05/103.36	3.97/4.13	N/A
NO_x	**171.78/97.43**	5.67/2.35	85 pounds/day
PM_{10}	24.33/23.51	0.57/0.39	80 pounds/day and 14.6 tons/year
$PM_{2.5}$	8.46/7.29	0.32/0.16	82 pounds/day and 15 tons/year

Notes: Bold numbers indicate concentrations above thresholds
CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; Sacramento Metropolitan Air Quality Management District (SMAQMD) considers construction activities unlikely to generate substantial quantities of CO (SMAQMD 2018)
CEQA significance thresholds for PM assume that fugitive dust Best Available Control Technology/Best Management Practices are implemented in accordance with SMAQMD guidance.

Table 11. Emissions Estimates for the Proposed Action – San Francisco Bay Area Air Basin

Pollutant	Barge Emissions (pounds per day)	Significance Threshold (pounds per day)
ROG	18.8	54
CO	80.8	N/A
NO_x	**315**	54
PM_{10} - Exhaust	13.1	82
$PM_{2.5}$ - Exhaust	11.6	84

Notes: Bold numbers indicate concentrations above thresholds
CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; The Bay Area Air Quality Management District has not established a construction threshold for CO.

Tables 12 and 13 present combined emissions for the Proposed Action and the other components of the ARCF 2016 Project that are anticipated to be constructed during calendar year 2021, for comparison to General Conformity *de minimis* standards. For purposes of General Conformity, the entire ARCF 2016 Project is considered a single action. As shown in Tables 12 and 13, implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3 would reduce emissions below the *de minimis* standards, resulting in a less-than-significant impact.

Table 12. Emissions Estimates for the ARCF 2016 Project – Sacramento Valley Air Basin

Project	Tons per year (Unmitigated)				Tons per year (Mitigated)	
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NO_x**
American River Erosion Contract 1	0.26	2.34	0.49	0.14	0.20	0.90
RM 55.2L Project	0.27	1.98	0.37	0.13	0.27	1.98
Sacramento Weir	1.31	17.01	39.44	8.61	0.85	6.00
Sacramento River Seepage/Stability Contract 2	2.91	**31.29**	6.77	2.40	1.53	7.03
Total ARCF 16 Project Emissions	*4.8*	***52.6***	*47.1*	*11.3*	*2.8*	*15.9*

Notes: Bold numbers indicate concentrations above thresholds
CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases

Table 13. Emissions Estimates for the ARCF 2016 Project – San Francisco Bay Area Air Basin

Project	Tons per year (Unmitigated)			
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
RM 55.2L Project	0.08	1.31	0.05	0.05
Sacramento Weir	0.08	1.43	0.06	0.06
Total ARCF 16 Project Emissions	*0.16*	*2.74*	*0.11*	*0.11*

Notes: Bold numbers indicate concentrations above thresholds
CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases

Avoidance and minimization measures would be implemented to reduce criteria pollutant emissions and mitigation measures (including payment of fees), would be implemented to reduce air quality impacts to a less-than-significant level. The measures described below would reduce criteria pollutant emissions, diesel particulate emissions, and fugitive dust associated with construction activities. As a result, there would be no short- or long-term significant impacts to air quality in the region due to construction of the Proposed Action. This action individually would not exceed federal General Conformity *de minimis* thresholds before or after mitigation in either air basin and when considered with other ARCF features being constructed in 2021, ARCF would not exceed General Conformity thresholds after implementing avoidance and minimization measures described in Mitigation Measures AIR-1, AIR-2, and AIR-3.

Avoidance, Minimization, and Mitigation Measures

The following measures are consistent with mitigation identified in the ARCF GRR EIS/EIR. Exhaust emission mitigation has been adjusted to reflect mitigation and offset requirements associated with the General Conformity determination for the ARCF projects. Marine engine standards identified in the ARCF GRR EIS/EIR are not being applied to the activities included in

the Proposed Action due to concerns about the availability of Tier 2 and 3 marine engines. The air quality modeling for the Proposed Action assumed use of 1997 to 2002 marine engines. Mitigation fee payment is proposed in lieu of the marine engine standards identified in the ARCF GRR EIS/EIR and would be effective to reduce impacts to a less-than-significant level. Tables 10 and 11 show estimated emissions of the Proposed Action, after implementing the avoidance, minimization, and mitigation measures shown below in AIR-1 through AIR-4. Tables 12 and 13 show estimated emissions of the ARCF 2016 projects that would be constructed in 2021, after implementing avoidance and minimization measures shown below in AIR-1 through AIR-3.

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

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

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

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

SMAQMD recommends that construction projects that would exceed or contribute to the 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 Action would involve substantial material movement activities and would be located in proximity of residential receptors, USACE shall require its construction contractors to implement the Enhanced Fugitive PM Dust Control Practices listed below to help reduce potential fugitive PM dust emissions.

Soil Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil; however, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 miles per hour.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible 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 would respond and take corrective action within 48 hours. The phone number of SMAQMD also would be visible to ensure compliance.

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

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

- The construction contractor shall submit to USACE and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that would be used an aggregate of 40 or more hours during any portion of the construction project.

- The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and 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, except for any 30-day period in which no construction activity occurs.

- The construction contractor shall provide a plan for approval by USACE and SMAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, would 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 would 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 PM_{10} emissions and mileage traveled by on-road trucks, reporting results to USACE and SMAQMD on a monthly basis.

Mitigation Measure AIR-4: Use the SMAQMD's Off-site Mitigation Fee to Reduce NO_x Emissions.

USACE 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 NO_x 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 and CVFPB would enter into an agreement with SMAQMD and/or BAAQMD to purchase offsets for all NO_x 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. (Estimated fees for the Proposed Action are $23,500 to SMAQMD for emissions in the SVAB and $37,350 to BAAQMD for emissions in the SFBAAB.) 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 and CVFPB shall work with SMAQMD and BAAQMD to ensure emission calculations and fees are adjusted appropriately.

3.2.4 Climate Change

The environmental and regulatory framework described in Section 3.12 of the ARCF GRR EIS/EIR is applicable to the analysis in this SEA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

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

Environmental Effects

Significance Criteria

For an analysis, an effect pertaining to climate change was analyzed based on professional judgment and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.). This analysis concluded an effect is considered significant if it would:

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

In October 2014, the SMAQMD adopted a resolution that recommends GHG thresholds of significance which could influence how the Proposed Action is operated in accordance with

CEQs guidance. As SMAQMD has local jurisdiction over the project area, GHG thresholds to be maintained during the Proposed Action are as follows:

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

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

Alternative 1 – No Action

Under the No Action Alternative, the Proposed Action would not be constructed and global climate change could expose this reach of the Sacramento River levee to increased rainfall runoff and flood flows. Without levee improvements, the risk of levee failure due to erosion damage and subsequent flooding of the downtown Sacramento area remains high. If a catastrophic flood were to occur, emergency flood fighting and clean-up actions would require the use of a considerable amount of heavy construction equipment. The use of equipment in this scenario would likely generate GHG emissions above the stated thresholds. However, the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not possible.

Alternative 2 – Proposed Action

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

The air quality modeling (Section 3.2.3) also assesses the estimated GHG emissions that would result from the proposed construction activities. The modeling identified an estimated 629 metric tons of CO_2e that would be emitted by construction activity and transport of material by barge. The project's estimated annual emission of CO_2e would not reach the significance threshold of 1,000 metric tons of CO_2e per year for project construction, as described above, and this impact would be less than significant in the short- and long-term.

While emissions associated with this alternative would not reach GHG thresholds, these emissions would still contribute to the overall global cumulative GHG emissions. As a result, during implementation of the proposed action, USACE would implement avoidance and

minimization measures, as discussed below, to reduce GHG emissions to the greatest extent feasible.

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. Climate change effects to rainfall, snowpack, and consequently runoff would potentially result in higher winter flows than those that currently occur (2016 ARCF GRR EIR/EIS). It is not anticipated that climate change would have an adverse effect on the Proposed Action, rather, the Proposed Action would improve the levee and provide improved flood protection to the densely populated City of Sacramento and some unincorporated Sacramento County areas. Therefore, the Proposed Action is an adaptive measure against the potential effects of climate change.

The climate change assessment contained in the 2018 Safeguarding California Plan, California's Climate Adaptation Strategy (CAS) identified floods (among heat waves, wildfires, and droughts) as likely being one of the earliest climate change effects experienced in California (CNRA 2018). The Updated AB 32 Scoping Plan cites the need to buffer from the increasing effects of climate change, including flood (ARB 2017). Therefore, in addition to reducing GHG emissions, which is the primary goal of the Scoping Plan, it is also critical to implement actions and projects that would prevent, avoid, and minimize the detrimental effects of climate change. This project would potentially aid in avoiding reconstruction and repair expenditures, losses and disruptions to economic activities, and effects on local residents as a result of a flood event and the levee being breached at this location, as described in the Alternative 1 - No Action above. Therefore, the project would be consistent with the goals of the 2018 CAS and the 2017 AB 32 Scoping Plan to protect against the detrimental effects of climate change without impeding current economic growth, and the Proposed Action would have a less-than-significant effect.

Avoidance and Minimization Measures

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

Mitigation Measure GHG-1: Implement GHG Reduction Measures.

Additional measures that would be implemented to further reduce the project's contribution from generation of GHGs include the following measures would also be implemented to the extent feasible to minimize GHG emissions:

- Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- Recycle at least 75% of construction waste and demolition debris.
- Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxic control measure [Title 13, sections 2449(d)(3) and 2485 of the

California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- Use an ARB approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)

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

3.2.5 Cultural Resources

The environmental and regulatory framework described in Section 3.9 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this SEA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

The area in which cultural resources are identified and in which potential effects on historic properties are analyzed is called the Area of Potential Effects (APE). The APE for the Proposed Action includes the project footprint (the area where any ground-disturbance would occur), such as bank excavation, rip-rap placement, and staging areas. This also includes the area in which built-environment resources could be affected physically, including through vibration. No permanent substantial visual or auditory changes would occur as a result of project implementation; therefore, no area of indirect effect (the area in which changes in the visual or auditory setting may occur) has been identified. The vertical extent of the project APE is variable but has the potential to include subsurface cultural resources.

USACE has consulted with the State Historic Preservation Officer (SHPO) and other parties and as a result has executed a Programmatic Agreement (PA). Compliance with Section 106 of the National Historic Preservation Act (Section 106) is guided by the Programmatic Agreement among USACE and the California State Historic Preservation Officer Regarding the American River Common Features Project, Sacramento and Yolo Counties, California (PA). The PA establishes the process USACE shall follow for compliance with Section 106 of the National Historic Preservation Act (NHPA), taking into consideration the views of the signatory and concurring parties and interested Native American Tribes. The PA stipulates time frames and

document review procedures; delineation of project APEs; development of a Historic Properties Management Plan (HPMP) to guide identification, evaluation, and findings of effect; Historic Property Treatment Plans (HPTPs) to identify treatment for Historic Properties that would be adversely affected; a process to guide limited geotechnical investigations; Native American consultation procedures; and other processes and implementation procedures. The term "historic property" refers to any cultural resource that has been found eligible for listing, or is listed, in the NRHP.

Native American Consultation

USACE is the lead Federal agency responsible for compliance with Section 106 of the NHPA and conducts all consultations with Native American Tribes and interested parties according to the PA. Several Native American Tribes and interested parties were contacted while developing the PA and provided with general information about the ARCF 2016 Project. Consultations specifically related to the project are a continuation of the ongoing process. All Native American Tribes identified in the PA have been contacted and provided with a description of the project and were requested to provide information on resources important to Native Americans and potentially found within areas sited. Native American consultation for compliance with Section 106 of the NHPA is conducted concurrently with the Section 106 cultural resources inventory and evaluation process.

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. CVFPB has adopted this Policy. As such, Native American consultation would 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. USACE has contacted the California Native American Heritage Commission (NAHC). USACE and CVFPB would contact Native American contacts identified by the NAHC in an effort to identify cultural resources important to Native Americans, including Tribal Cultural Resources as defined in California Public Resources Code 21074, which may be present in the project area.

Identification of potential Historic Properties

Records searches conducted at the North Central Information Center (NCIC) on October 21, 2019 and the Northwest Information Center (NWIC) on October 23, 2019 identified one Historic Property within the APE: P-34-002143, the Sacramento River East Levee Unit 115.

Letters describing the proposed project and APE were mailed to potentially interested Native American Tribes on October 8, 2019. No responses were received regarding potential resources within the Proposed Action APE.

The archaeological survey was conducted by a contracted Cultural Resources consulting firm. They were accompanied on the survey by a tribal monitor. No potential Historic Properties were observed.

Environmental Effects

Significance Criteria

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

- specific changes in the characteristics of Historic Properties in the APE;
- the temporary or permanent nature of changes to Historic Properties and the visual area around the Historic Properties; and
- the existing integrity considerations of Historic Properties in the APE and how the integrity was related to the specific criterion that makes a Historic Property eligible for listing in the NRHP.

An assessment of effects for the purposes of this SEA/EIR and a determination of effect under Section 106 of the NHPA is made only for those resources determined to be eligible for listing in the NRHP. Resources that have been found or recommended to be ineligible for listing in the NRHP are not considered further in this SEA/EIR. Similarly, because isolated artifacts are generally not considered to be potentially eligible for listing in the NRHP and because assessments of effects for the purposes of this SEA/EIR and Section 106 of the NHPA are made only for those resources determined to be eligible for listing in the NRHP or that are listed in the NRHP, isolated artifacts are not considered to be Historic Properties and an assessment of effects on those resources is not necessary. Therefore, isolated artifacts are not considered further in this SEA/EIR.

This evaluation of potential effects on cultural resources is based on detailed information compiled since the ARCF GRR EIS/EIR was prepared, as described above under "Existing Conditions." The effects analysis considered the following factors related to the Proposed Action: project elements, including erosion protection counter measures, staging areas, potential effect mechanisms; the area that would be temporarily and permanently disturbed; known or potential locations of cultural resources, including locations identified by culturally affiliated Native Americans as cultural landscapes, Traditional Cultural Properties, sacred sites or other sensitive resources. In particular, the significance of each effect was evaluated in terms of its potential effect on resources that are eligible or potentially eligible for listing in the NRHP/CRHR. The mitigation identified in the ARCF GRR EIS/EIR for potential impacts to cultural resources included implementing stipulations of the ARCF PA. Where feasible, more specific measures are identified in this SEA/EIR to reduce adverse effects.

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

The following analysis uses the same basis of significance described in Section 3.9 (page 195) of the ARCF GRR EIS/EIR which are summarized below. Any adverse effects on cultural resources that are listed or eligible for listing in the NRHP (i.e., historic properties) are considered to be significant. Effects are considered to be adverse if they:

- Alter, directly or indirectly, any of the characteristics of a cultural resource that qualify that resource for the NRHP so that the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association is diminished.
- Cause a substantial adverse change in the significance of a historic property through the physical demolition, destruction, relocation, or alteration of the historic property of its immediate surroundings such that the significance of the resource would be materially impaired.

Under California law, effects to a historic resource or unique archeological resource are considered to be adverse if they:

- Materially impair the significance of a historic resource or unique archeological resource.
- Require the demolition of a historic resource.

Two additional significance thresholds not included in the ARCF GRR EIS/EIR are considered in this analysis. The project was determined to result in a potentially significant effect under CEQA if it would:

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

Alternative 1 - No Action

Under the No Action Alternative no cultural resources would be impacted. However, a failure of the levee could result in damages to historic and prehistoric resources, which are assumed to be significant. As the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not possible.

Alternative 2 – Proposed Action

Erosion counter measures would include substantial ground disturbance, including bank excavation and riprap placement, and use of staging areas. These earthmoving activities could result in damage to or destruction of unknown or subsurface historic-period sites, prehistoric-period archaeological sites, and Native American identified Tribal Cultural Resources.

The only recorded Historic Property within the APE is P-34-002143, the Sacramento River East Levee Unit 115. The proposed action would have No Adverse Effect to Sacramento River East Levee Unit 115 as it would not affect the integrity of the resource, including aspects of setting, feeling, and association. In accordance with the ARCF PA, confirmation of NRHP eligibility and findings of effect and appropriate mitigation would be made through consultation between USACE, SHPO, and other ARCF PA Parties as appropriate prior to initiating construction of the Proposed Action. Compliance with the terms of the ARCF PA reduces effects to less than significant under NEPA.

To date, cultural resources investigations have not identified archeological resources or TRCs (Tribal Cultural Resources are a type of resource recognized under CEQA but not Section 106 of the NHPA) in the APE. Although intensive pedestrian archeological surveys have been conducted within the APE, Native American consultation has not been completed, and it is possible that unknown archeological resources and TCRs could be identified in the APE during additional studies and consultation conducted in compliance with the PA and CEQA mitigation measures. Unknown archeological resources and TCRs also could be discovered and inadvertently damaged during project construction.

Implementing mitigation measures CR-1, CR-2, CR-3, CR-4, and CR-5 described below would reduce the potential for a significant effect resulting from inadvertent damage to or destruction of presently undocumented archeological resources and TCRs to a less-than-significant level under CEQA because the measures would require that if archeological resources or TCRs are discovered prior to or during project-related construction, appropriate treatment and protection measures must be implemented.

Although no Native American human remains have been discovered in or near the APE, they could be encountered during earthmoving activities associated with the project. This potential impact would be significant. Implementing the new mitigation measure (MM CR-6) described below would reduce the potential for a significant effect resulting from inadvertent damage to or destruction of presently undocumented human remains to a less-than-significant level because it requires that if human remains are discovered during project-related construction activities, disturbances in the area of the find must be halted and appropriate treatment and protection measures must be implemented. These actions shall all be completed in consultation with the California Native American Heritage Commission (NAHC), Most Likely Descendant (MLD), and landowners, in compliance with California Health and Safety Code Section 7050 et seq. and California PRC Section 5097.9 et seq.

Avoidance and Minimization Measures

The following mitigation measures augment the mitigation identified in the ARCF GRR EIS/EIR, including actions to address Tribal Cultural Resources under CEQA and specifically address discovery of archeological resources and human remains. If the project is implemented, USACE and CVFPB would implement the measures as described.

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

A Programmatic Agreement has been executed for the ARCF Project. A HPTP would be developed if the proposed action is found to result in adverse effects to historic properties.

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

In accordance with the procedures described in Sections 9.2 and 9.3.9 of the ARCF HPMP, an archaeological monitoring and discovery plan shall be developed for the Proposed Action. This plan shall identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and shall include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials or human remains.

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 Secretary of the Interior Professional Qualifications Standards for Archaeology, as well as culturally affiliated Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training shall be conducted before any project-related construction activities begin in the APE and shall include relevant information regarding sensitive cultural resources and Tribal Cultural Resources, including applicable regulations, protocols for avoidance, and consequences of violating Federal and State laws and regulations. The training shall also describe appropriate avoidance and impact minimization measures for cultural resources and Tribal Cultural Resources that could be located in the APE and shall outline what to do and who to contact if any potential cultural resources or Tribal Cultural Resources are encountered. The training shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and shall discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

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

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

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

California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise concerning their Tribal Cultural Resources (California PRC Section 21080.3.1). Consistent with the California Natural Resources Agency Tribal Consultation Policy, culturally affiliated Tribes shall be consulted concerning Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. 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 would 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, USACE, in consultation with CVFPB, would avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that would avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant adverse impacts:
    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.

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

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

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

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

mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following site protection measures employed by CVFPB shall include:

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

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 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 to protect the burial remains. Construction work in the vicinity of the burials shall not resume until the mitigation is completed.

3.2.6 Recreation

The environmental and regulatory framework described in Section 3.14 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

Fishing, picnicking, water skiing, and bicycling are the most popular recreational activities within the vicinity of the Proposed Action. The Sacramento River Parkway extends along the entire length of the Sacramento River East Levee within the vicinity of where improvements are proposed. Developed portions of the parkway accommodate pedestrians and bicyclists and provide access to the Sacramento River. The Proposed Action is immediately downstream from the Westin Hotel (left bank) and the Sacramento Yacht Club (right bank), and recreational boaters frequently use the Sacramento River within the vicinity of the Proposed Action.

Environmental Effects

Significance Criteria

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

- eliminate or substantially restrict or reduce the availability, access, or quality of existing recreational sites or opportunities in the project area;
- cause substantial long-term disruption in the use of an existing recreation facility or activity; or

- result in inconsistencies or non-compliance with regional planning documents.

Alternative 1 – No Action

Under the No Action Alternative, USACE would not construct the Proposed Action and the Sacramento River east levee would remain susceptible to erosion damage. As a result there would be no construction in the project area and no effects to recreation from construction activities. However, if a flood event were to occur and the levee were to fail, existing recreational facilities, trails, bike paths, and recreational areas would be unusable until cleanup and restoration activities took place. This could result in significant impacts to recreation facilities and could reduce recreational opportunities in the area. However, the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not possible.

Alternative 2 – Proposed Action

Under Alternative 2, access to the levee crown would be restricted during construction and detours would be established as needed. This portion of the levee within the Project Area is gated and not available for use by the general public. However, it is utilized by some nearby residents. Although the Proposed Action would result in temporary closures to a portion of the levee, this would not eliminate or substantially restrict the availability of the recreational value of the levee, because this portion of the levee is not available for use by the general public.

Additionally, construction would occur from the water side which would require up to two barges to be temporarily staged in the river adjacent to the project site. This could cause a temporary impact to boating traffic during construction from August to November 2021, which would be a significant effect on recreation. However, the Proposed Action would not result in the closure of any boating facilities. Boaters would still be able to move through the area and appropriate signage would be utilized to inform boaters of any obstructions. The proposed action does not result in inconsistencies or non-compliance with regional planning documents (Section 5).

The ingress and egress to the construction site would be on the levee road between Seamas Ave and the construction site from surface streets. POVs would be the primary construction traffic. This portion of the levee is also unavailable for public recreation therefore, the impact would be less than significant and temporary.

This project site differs from other ARCF project sites on the Sacramento River because there is less public recreation on the levee. However, the ARCF GRR EIS/EIR concluded that the mitigation measures would reduce project impacts on recreation, but construction-related impacts would remain significant and unavoidable. The mitigation measures adopted in the ARCF GRR EIS/EIR would also reduce many of the impacts of the Proposed Action on recreation to a less-than-significant level. However, the temporary closures of recreational facilities would remain significant and unavoidable. Construction of the Proposed Action would not result in recreation impacts that would be new or more severe than those addressed in the

ARCF GRR EIS/EIR. Therefore, the construction-related temporary closures of recreation facilities are already adequately addressed in the ARCF GRR EIS/EIR.

Avoidance and Minimization Measures

All applicable avoidance and minimization measures described in Section 3.14.6 of the ARCF GRR EIS/EIR would be implemented, including advance notice for recreation users to alert them of anticipated activities, delays, or possible detours that might occur.

Mitigation Measure REC-1: Implement Pedestrian Detours, Provide Construction Period Information on Facility Closures.

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

- Provide marked detours for pedestrian routes. Detours should be developed in consultation with the City of Sacramento Bicycle and Pedestrian Coordinator at least 10 days before the start of construction activities, as applicable. Post signs that clearly indicate closure routes at major entry points for trails, and would provide a contact number to call for questions or concerns.
- Post signs at major entry points for trails, and boat launch ramps at the Westin Hotel and the Sacramento Yacht Club clearly indicating closures of trails and estimated duration of closures. Information signs would notify the public of alternate parks and recreation sites, including boat launch ramps, and would provide a contact number to call for questions or concerns.
- Upon completion of levee improvements, coordinate with the City of Sacramento to restore access and repair any construction-related damage to recreational facilities to pre-project conditions.

Mitigation Measure REC-2: Implement Measures to Notify Boaters

- Post signs at the Westin Hotel and the Sacramento Yacht Club to clearly indicate the estimated duration of in-water work windows and construction duration.
- Buoys would be placed at the upstream and downstream ends of the construction site to warm 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.

3.2.7 Visual Resources

The environmental and regulatory framework described in Section 3.15 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

The main group of viewers along the Sacramento River at 55.2L are residents living adjacent to the levee and boaters on the Sacramento River. The Proposed Action is located within a primarily residential area of the Sacramento River with residential properties on the landside and a narrow riparian corridor on the waterside. Much of this stretch of the levee is closed to the general public by gates that prevent public access.

The residents and recreationalists on the river have views of large riparian trees and open views of the Sacramento River. Views from the levee crown consist of scenic images of the Sacramento River including tall green shade trees and other riparian vegetation on both sides of the river. Boaters on the Sacramento River have similar views of green riparian vegetation lining both banks of the river as well as views of tops of homes and buildings adjacent to the levee. These views present a high degree of vividness and unity within the Proposed Action area therefore, the visual quality is considered high.

Environmental Effects

Significance Criteria

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

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

Alternative 1 – No Action

Under the No Action Alternative, USACE would not construct the Proposed Action and the Sacramento River east levee at 55.2 would remain susceptible to erosion damage. There would be no change to the visual condition of the project area as a consequence of construction. If the

levee were to breach in this area as a consequence of a flood, the visual condition of the project area would be severely degraded by flood fighting activities and impacts from floodwaters. However, the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not possible.

Alternative 2 – Proposed Action

Temporary impacts on visual resources during construction would be significant due to the presence of equipment and construction activities, including bank protection placement and vegetation removal, as identified in the ARCF GRR EIS/EIR, with no feasible mitigation measures to reduce this effect. Construction activities associated with Alternative 2 would require hauling of material and equipment to the site via barges loaded with large construction equipment and materials on the Sacramento River. Impacts would be realized by boaters and pedestrians who would be able to see the construction equipment and activity as well as. Residents whose properties back up to the levee would also see the construction from their backyards and windows. Additional impacts could be realized by guests at the Westin Hotel directly upstream of the project site who may also be able to see some of the construction activity. In summary, this project would degrade the visual quality of this area of the Sacramento River for residents, visitors, and recreational users. However, as construction is only anticipated to occur for one construction season, the reduction in visual quality from construction activities would be short-term and temporary.

As the Proposed Action would require the removal of trees and vegetation at the project site, this would have a significant and unavoidable short-term impact and could have a long term effect on the visual quality of the project area. However, as discussed in sections 2.3.3 and 3.2.2, after construction is complete, the riparian bench would be replanted with native trees and shrubs and the management plan would ensure the success of the re-vegetation. Over time, the maturation of the riparian vegetation would return the visual quality of the project area to pre-construction conditions. Therefore, the Proposed Action would not result in a long-term significant effect to scenic resources or visual character.

None of the project-related activities would include buildings or other facilities that would require permanent lighting therefore, no long-term sources of light or glare would be introduced into view-sheds. As construction hours are held to county ordinances as discussed in sections 2.3.2 and 3.2.8, no night-time construction work is planned as part of the Proposed Action. During construction of the Proposed Action, the levee crown and barges may be equipped with lighting for security purposes of construction equipment and stored materials, which would result in new sources of nighttime light pollution and would be visible by neighboring residences and boaters passing near the project site. Lighting may illuminate adjacent residences but the levee and trees on the crown and landside of the levee are expected to aid in screening light disturbances for the residences, along with the implementation of shielding via the Mitigation Measure VIS-1. This would result in a short-term and temporary significant impact however, Mitigation Measure VIS-1 would reduce the impact of nighttime light to less-than-significant because the contractor would direct lighting away from light-sensitive receptors.

Avoidance and Minimization Measures

All applicable avoidance and minimization measures described in Section 3.15.6 of the ARCF GRR EIS/EIR would be implemented. The ARCF GRR EIS/EIR concluded that mitigation measures would be reduce the potential for permanent impacts on visual resources to a less-than significant level because once vegetation has become fully developed, the visual quality of the Project Area would be similar to existing conditions. Consistent with the ARCF GRR EIS/EIR, the long-term effects to visual resources from the Proposed Action would be reduced to less than significant with inclusion of the on-site riparian planting bench (Mitigation Measures VEG-1 and SRA-1). The ARCF GRR EIS/EIR also concluded that short-term impacts on visual resources associated with construction along the Sacramento River would be significant and unavoidable. Construction of the Proposed Action would not result in short-term visual impacts that would be new or more severe than those addressed in the ARCF GRR EIS/EIR and, therefore, those construction-related short-term visual impacts are already adequately addressed in the ARCF GRR EIS/EIR.

The ARCF GRR EIS/EIR did not consider the use of nighttime lighting for staging areas, and, therefore, there would be a temporary short-term impact from nighttime lighting. Implementation of the following new mitigation measure would reduce impacts from the use of nighttime light under the Proposed Action to a less-than-significant level.

Mitigation Measure VIS-1: Reduce Light Pollution.

USACE would require its construction contractors to ensure that all temporary lighting related to security of the staging areas to be shielded or directed to avoid or minimize any direct illumination onto light-sensitive receptors located outside of the Project Area.

3.2.8 Noise

The environmental and regulatory framework described in Section 3.13 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

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

The project is located in an urban area where primary sources of noise are traffic, common urban uses, and boating operations. Sensitive receptors include residents along the levee system, and boaters and recreationalist along the Sacramento River.

Environmental Effects

Significance Criteria

Construction of the Proposed Action would cause a significant adverse noise impact if construction activities resulted in any of the following:

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

Alternative 1 – No Action

Under the No Action alternative, USACE would not construct the Proposed Action and the Sacramento River east levee at 55.2 would remain susceptible to erosion damage. Under this alternative, there would be no construction-related noise effects and the noise levels in the project area would remain consistent with existing conditions. However, if the project were not constructed, a flood event could result in levee failure. The amount of noise that would be generated by activities to repair the levee and remove debris from the inundation area would likely exceed the relevant standards. However, the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not feasible.

Alternative 2 – Proposed Action

Construction noise would be generated by equipment and material placement. A crane and excavator on barges would place quarry stone, soil bedding/soil fill, soil filled quarry stone, aggregate base, and IWM.

Construction activities associated with the Proposed Action would result in temporary, short term, and intermittent increases of noise for sensitive receptors. As several residences and the Westin Hotel are within 1,000 feet of the construction zone, there would be very little attenuation to reduce the noise effects from construction for many of the residents. While Sacramento County has a noise exemption during daylight hours, as described above, noise levels above 55 dBA are generally considered to have a significant effect on sensitive receptors. Activities such as soil placement/compaction and rip rap installation can result in noise levels of up to 95 dBA at 50 feet. Residences adjacent to the project would be further than 50 feet from the construction activities, the levee crown and trees left in place could aid in buffering the noise. Boaters on the

Sacramento River would be required to be 50 feet away from the construction activities however, they would not have the benefit of screen trees.

Implementation of Mitigation Measures NOI-1 and NOI-2 would reduce impacts associated with temporary noise levels and vibration during construction activities to less than significant; this is the same conclusion as in the ARCF GRR EIS/EIR.

Avoidance and Minimization Measures

All applicable avoidance and minimization measures are also described in Section 3.13.6 of the ARCF GRR EIS/EIR would be implemented. These measures would ensure that construction noise complies with local ordinances. Prior to start of construction, a noise control plan would be prepared that would identify all feasible measures to reduce construction noise, when necessary.

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

USACE and CVFPB would require construction contractors to implement measures at each work site to avoid and minimize construction noise and vibration effects on sensitive receptors. Prior to the start of construction, a noise control plan would be prepared 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, to the extent practicable and feasible 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 location, 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.);

- 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;
- employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel;
- if the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors or take advantage of existing barrier features, such as existing terrain or structures to block noise transmission;
- if the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with State and Federal worker safety regulations;
- locate construction staging areas as far as practicable from sensitive receptors; and
- design haul routes to avoid sensitive receptors.

In addition to noise reduction measures, to the extent feasible and practicable, the primary construction contractors shall employ vibration-reducing construction practices compliant with applicable noise-level rules and regulations. These practices must comply with vibration standards established for construction vibration-sources by applicable agencies (City of Sacramento and Sacramento County), depending on the jurisdictional location of the affected receptor(s). Project construction specifications would require the contractor to limit vibrations to less than 0.2-inch per second PPV and less than 72 VdB within 50 feet of 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:

- avoid vibratory rollers and packers near sensitive areas;
- route heavily loaded trucks away from residential streets. and if no alternatives are available, select routes with the fewest homes;
- a voluntary pre- and post-construction survey would be conducted to assess potential architectural damage from levee construction vibration at each residence within 75 feet of the proposed construction area. The survey would include visual inspection of the structures that could be affected and include supporting documentation of structures by means of photographs and video. This documentation would be reviewed with the individual owners prior to any construction activities for their awareness and concurrence. Post-construction monitoring of structures shall be performed to identify (and repair, if necessary) damage, if any, from construction vibrations. Any damage shall be documented, reviewed with the individual property owners and supported by photographs and video; and
- place vibration monitoring equipment at the property line adjacent to large equipment and, with owner approval, at the back of the residential structures adjacent to the large equipment. Vibration measurements must be recorded daily.

3.2.9 Vegetation and Wildlife

The environmental and regulatory framework described in Section 3.6 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below.

Existing Conditions

The project area consists primarily of riparian and SRA habitat. The USFWS defines SRA as near shore aquatic area occurring at the interface between a river and adjacent woody riparian habitat. The principal attributes of SRA habitats include: (1) adjacent bank being composed of natural, eroding substrates which supports riparian vegetation that either overhangs or protrudes into the water; and (2) water containing variable amounts of woody debris such as leaves, logs, branches, and roots, as well as variable depths, velocities, and currents (USFWS, 1992).

The riparian habitat in the area consists of mature, well established trees such as Fremont cottonwood, valley oak (*Quercus lobata*), black willow (*Salix gooddingii*), and box elder, Oregon ash (*Fraxinus latifolia*), western sycamore (*Platanus racemosa*), and white alder (*Alnus rhombifolia*). The riparian shrub layer consists of smaller trees and shrubs; representative species commonly observed are poison oak (*Toxicodendron diversilobum*), sandbar willow (*Salix exigua*), and Himalayan blackberry (*Rubus discolor*). Elderberry shrubs (*Sambucus mexicana*), the host plant of the federally listed valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) are commonly observed in the riparian habitat along the Sacramento River; however, none were observed during surveys conducted by consultants within the project footprint from December 19, 2019 through March 4, 2020.

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, Red-tailed Hawk, Red-shouldered Hawk, Cooper's Hawk, and Great Horned Owl, 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 River levees and 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*). Riparian scrub supports large numbers of insects and attracts passerines, including several species of warblers and hummingbirds. Due to the urban development adjacent to the levees in the project area, wildlife is limited to mostly small mammals and various avian species.

Detailed habitat maps are included in Appendix B of the ARCF GRR EIS/EIR.

Environmental Effects

Significance Criteria

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

- substantial loss, degradation, or fragmentation of any natural communities or wildlife habitat;
- substantial effects on a sensitive natural community, including federally protected wetlands and other waters of the U.S., as defined by Section 404 of the Clean Water Act;
- substantial reduction in the quality or quantity of important habitat, or access to such habitat for wildlife species; and
- substantial conflict with the City of Sacramento or County of Sacramento Trees Ordinance.
- The following threshold for State and Federally protected waters of the United States has been updated to reflect the most current CEQA Guidelines:
    - Substantial adverse effects on State and Federally protected waters of the United States, including wetlands, through direct removal, filling, hydraulic interruption, or other means.

Alternative 1 – No Action

Under the No Action Alternative, USACE would not construct the Proposed Action and the Sacramento River east levee would remain susceptible to erosion damage. Under this alternative, there would be no project-related impacts and the vegetation or wildlife in the project area would remain consistent with existing conditions. However, if a flood event were to occur and flood fighting were required in this area, significant impacts to existing vegetation and wildlife could result. As the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not feasible.

Alternative 2 – Proposed Action

Construction of the proposed action would require the removal of up to 80 trees within the 1,150 linear feet of the project footprint; trimming may also be required. Implementing Mitigation Measure VEG-1 would reduce the long-term impact on vegetation and wildlife to less than significant by compensating for habitat removal in coordination with USFWS and NFMS. After construction is complete, the riparian bench would be replanted with native riparian tree and shrub species. However, the compensation habitat is expected to take many years to provide the value of habitat provided by the vegetation expected to be removed. Therefore, the short-term habitat loss would remain significant and unavoidable.

As stated in mitigation measure VEG-1, the riparian habitat slated to be removed for the Proposed Action would be compensated for according to the appropriate ratio. 1.258 acres of canopy would be removed for the placement of bank protection revetment, planting bench, and IWM. In the event more canopy is needed to be removed by trimming or removal of full trees, an additional 10% of canopy may be removed such that no more than 1.38 acres of canopy would be removed. The planting bench would compensate for 0.22 acres, the remaining compensation would be at an off-site location. Off-site mitigation options are currently being analyzed for riparian impacts. If additional canopy removal is required, it would be compensated for in accordance with VEG-1.

The re-vegetation portion of the Proposed Action seeks to mimic elements of the Great Valley Mixed Riparian Forest complex; a tall, dense, broad-leafed winter-deciduous riparian forest. The tree canopy is usually fairly well closed and moderately to densely stocked with several riparian species including box elder, black walnut (*Juglans hindsii*), sycamore, Fremont cottonwood, and several species of willows. Understories consist of these taxa plus shade-tolerant shrubs like button willow and Oregon ash. The temporary irrigation system would be installed for the establishment and maintenance period of the planting bench, as previously discussed in this SEA/EIR.

As discussed in Section 3.2.2, Mitigation Measure BIRD-1 would reduce impacts to nesting birds by protecting active nests if they are found in or near the project site.

As discussed in Section 3.2.2, Mitigation Measure SRA-1 would reduce impacts to SRA habitat by mitigating for lost habitat.

Construction work below the OHWM (23.25') in protected waters of the U.S. requires compliance with Section 404 and 401 of the Clean Water Act. A 404(b)(1) evaluation and 401 permit would be completed prior to the start of work below the OHWM, as stipulated in Mitigation Measure Waters-1, along with other measures to compensate for impacts to waters of the US. Mitigation Measure GEO-1 would control erosion, sedimentation, and waste discharge, therefore reducing impacts to vegetation and wildlife. Long term impacts to vegetation and wildlife would be less than significant with the implementation of the mitigation measures.

Implementation of flood protection activities by public agencies does not require a tree permit per City of Sacramento Code. Therefore, there would be no conflict with the City of Sacramento Tree preservation policy or ordinance.

The ARCF GRR EIS/EIR concluded that mitigation measures would reduce potential long-term impacts on vegetation and wildlife resources to a less-than-significant level because once vegetation has fully developed, the habitat quality of the Project Area would be similar or better than under existing conditions. The ARCF GRR EIS/EIR also concluded that short-term impacts on vegetation and wildlife resources associated with construction along the Sacramento River would be significant and unavoidable. Construction of the Proposed Action would not result in short-term impacts on vegetation and wildlife resources that would be new or more severe than

those addressed in the ARCF GRR EIS/EIR and, therefore, those construction-related short-term impacts on vegetation and wildlife are adequately addressed in the ARCF GRR EIS/EIR.

Avoidance, Minimization, and Mitigation Measures

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

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

Refining project designs to the extent practicable to reduce impacts to vegetation and wildlife are necessary to reduce the loss of riparian habitat. USACE would implement the following measures to compensate for riparian habitat degradation:

- reduce the impact footprint;
- construct bank protection rather than launchable rock trench whenever feasible; and
- design planting berms.

Where practicable trees would be retained in locations where the bank protection and planting berm are constructed. Additional plantings would be installed on the newly constructed berm to provide habitat for fish and avian species. The planting berm would be used where practicable to minimize impacts to fish and wildlife species.

To compensate for the removal of riparian habitat (1.258 acres), replacement habitat would be created at a ratio of 2:1 to account for the temporal loss of habitat while newly created habitat is growing. Species selected to compensate for the riparian corridor removal would be consistent with the approved list of trees, shrubs, and herbaceous plants native to the Great Valley Mixed Riparian Forest. The replacement habitat would be created in accordance with the ARCF GRR HMMAMP, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.

After construction has been completed, 0.22 acres of riparian vegetation would be planted in the planting bench. The remaining compensation for the temporal loss of riparian vegetation and habitat would be off-site and would occur at locations that would be protected in perpetuity. These sites would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act.

Mitigation Measure BIRD-1: Avoid and Minimize Effects on Nesting Birds.

Refer to Section 3.2.2 for the full text of this mitigation measure.

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

Refer to Section 3.2.2 for the full text of this mitigation measure.

Mitigation Measure PLANT-1: Implement Measures to Protect Special Status Plants

Refer to Section 3.2.2 for the full text of this mitigation measure.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters.

Refer to Section 3.2.11 for the full text of this mitigation measure.

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.

Refer to Section 3.2.11 for the full text of this mitigation measure.

Mitigation Measure SRA-1: Implement Measures to Avoid, Minimize, and Compensate for Effects on Shaded Riverine Aquatic Habitat.

Refer to Section 3.2.2 for the full text of this mitigation measure.

3.2.10 Water Quality

The environmental and regulatory framework and existing conditions described in Section 3.5 of the ARCF GRR EIS/EIR is generally applicable to the analysis in this Supplemental EA/EIR and therefore is not repeated here. However, as updated and additional information has become available since the initial studies, information relevant to the Proposed Action is provided below

Environmental Effects

Significance Criteria

An effect to water quality from construction of the Proposed Action would be considered significant if it would:

- violate water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with ground water recharge;
- substantially degrade water quality; and/or,

- alter regional or local flows resulting in substantial increases in erosion or sedimentation.

One additional threshold to the ARCF GRR EIS/EIR is considered in this analysis. The project was determined to result in a significant effect related to water quality if it would:

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

Alternative 1 – No Action

Under the No Action alternative, USACE would not construct the Proposed Action and the east levee of the Sacramento River at 55.2Lwould remain susceptible to erosion damage. No adverse impacts to water quality in the project area due to project construction would occur. However, in the event of levee failure in this location, and a consequent flood, there would likely be a significant degradation of water quality in the watershed including contaminants and wastes washed into floodwaters, thus creating hazardous water quality conditions within an indeterminate area for an indeterminate period of time. As the potential for such occurrences is uncertain and the timing, magnitude, and duration of any flood-fighting or flood event are speculative and unpredictable. Therefore, a precise determination of significance under this alternative is not feasible.

Alternative 2 – Proposed Action

Construction of this alternative would include the placement of rock revetment along the riverbank below the OHWM of the Sacramento River. This would temporarily generate increased turbidity in the vicinity of the construction area. Additionally, placement of revetment could result in temporary sediment plumes, generated from the river bottom and levee side. The use of barges to install the revetment could cause additional turbidity in the immediate vicinity of the project. Under the Clean Water Act, a 401 permit and 404(b)(1) evaluation (Appendix C) would be required before work below the OHWM begins. After construction is complete, a reduction in turbidity is expected in the area because there would be less exposed soil to erode and deposit into the river and overtime the spaces between the quarry stone would trap sediment.

The temporary irrigation system would have a smooth transition between the bankline and the screen structure of the pump used in the system would be important to minimize eddies and undesirable flow patterns in the vicinity of the screen that may cause bank or riverbed erosion and increase turbidity. The use of the water pump would be permitted under a Programmatic 401 permit from CVFPB for the entire ARCF project.

Due to the removal of waterside vegetation, the potential for some localized increases in water temperature is expected. Much of the vegetation that would be removed consists of shrubby vegetation and grasses which do not significantly contribute to shade. Short-term impacts as a result of the Proposed Action would be mitigated to less than significant with the implementation of mitigation measures. Trees would be protected in place to the extent possible however, with the removal of trees within the project footprint, some shade-contributing trees would have to be removed. Over time, the new plantings and trees installed after construction

would be expected to contribute to the riparian shade corridor and result in long term benefits to water quality and temperature.

Avoidance and Minimization Measures

Prior to construction, as applicable, the contractor would be required to prepare and implement a SWPPP and would obtain and comply with all conditions of a National Pollution Discharge Elimination System permit. This plan would detail the construction activities to take place, Best Management Practices (BMPs) to be implemented to prevent any discharges of contaminated stormwater into waterways, and require inspection and monitoring activities. The placement of material below the OHWM requires compliance with Section 401 and 404 of the Federal Clean Water Act as amended, 33 USC 1251, et seq. Compliance with these sections would occur prior to the start of construction.

Mitigation Measure WATERS-1: Compensate for Fill of State and Federally Protected Waters.

If the project is implemented, in compliance with the Clean Water Act, USACE would compensate for fill of State and federally protected waters to ensure the project causes no net loss of functions and values. Water quality certification pursuant to Section 401 of the Clean Water Act (CWA) would be obtained from the Central Valley RWQCB before starting project activities. Any measures determined necessary during the permitting processes would 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 method 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, a mitigation plan would be developed to detail appropriate compensation measures determined through consultation with USACE and Central Valley RWQCB. These measures would include methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails.

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

Please refer to Section 3.2.11 for the full text of this mitigation measure.

3.2.11 Geological Resources

Existing Conditions

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

Significance Criteria

An effect to geological resources from construction of the Proposed Action would be considered significant if it would:

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

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

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

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

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

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

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

Alternative 1: No Action

Under the No-Action Alternative, USACE would not construct the Proposed Action at RM 55.2L of the Sacramento River. As a result, if a flood event were to occur, the Sacramento area would remain at risk of a possible levee failure in this location due to seepage, slope stability, erosion, or overtopping, until any future construction of levee improvements.

Under this alternative, no temporary or short-term project related effects would occur. A flood event could lead to the loss of soil and result in the siltation of existing channels or alteration of the Sacramento River channel. If a levee breach were to occur, emergency repair activities would be implemented and could result in the loss of channel capacity and the alteration of present-day geomorphic processes due to the placement of large quantity of rock in the river to close the breach. All of these effects could be considered significant. However, the timing, duration, and magnitude of a flood event are speculative and unpredictable. Therefore a precise determination of significance is not feasible.

Alternative 2: Proposed Action

The Proposed Action involves the placement of rock protection on the river bank and does not involve a substantial amount of excavation within the project footprint at RM 55.2L of the Sacramento River. Therefore, the Proposed Action would not cause permanent loss of topsoil or destroy unique paleontological resources or geologic features through earthmoving work. Construction activities would occur between April and November when rainfall is the least likely and river flows are at their lowest. However, construction 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. Implementing Mitigation Measure GEO-1 would reduce potentially significant temporary, short-term construction-related erosion impacts to less-than-significant 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 would enable source control and re-vegetation which would reduce erosion and maintain surface water quality conditions in adjacent receiving waters as well as prevent the discharge of oil into navigable waters.

The Proposed Action does not involve substantial amounts of excavation and the project area is located in Holocene-age rock formations, which are considered to be of low paleontological sensitivity (2016 ARCF GRR EIS/EIR). Potential to encounter a unique paleontological resource is very low and the impact would be less than significant.

Avoidance, Minimization, and Mitigation Measures

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

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

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

- the use of an effective combination of robust erosion and sediment control BMPs and construction techniques that shall reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of mercury from project-related construction sites. These may include but would not be limited to temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;
- the implementation of approved local plans, 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 would be in place throughout all site work, construction/demolition activities, and would be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below.

- work window- conduct earthwork during low flow periods (July 1 through November 30);

- to the extent possible, stage construction equipment and materials on the landside of the levee in areas that have already been disturbed;
- minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations;
- stockpile soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion;
- install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters;
- install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials would 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, would be installed as needed to stabilize disturbed areas until vegetation becomes established;
- conduct water quality tests specifically for increases in turbidity and sedimentation caused by construction activities;
- prepare a Spill Prevention Control and Countermeasures Plan (SPCCP). An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with State and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. It would also describe how and when employees are trained in proper handling procedure, spill prevention, and response procedures;
- a copy of the approved SWPPP shall be maintained and available at all times on the construction site; and
- USACE and CVFPB would also prepare an SPCCP. An SPCCP is intended to prevent any discharge of oil into navigable water or adjoining shorelines. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction and operation

activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with state and Federal water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containments facilities and practices such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.

4.0 CUMULATIVE EFFECTS

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

The cumulative effects of the overall ARCF 2016 Project were covered in the ARCF GRR EIS/EIR (USACE 2016). The thorough cumulative analysis in the ARCF GRR EIS/EIR is incorporated by reference. Because the temporal scope of the analysis was necessarily vague in the ARCF GRR EIS/EIR, for the purposes of the Proposed Action, the temporal scope of the cumulative effects analysis in this SEA/EIR considers past projects that would continue to affect the project area in 2021 through 2023 and projects expected to be under construction in 2021 through 2023.

4.1 Past, Present, and Reasonably Foreseeable Future Projects

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

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

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

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

properly evaluate the cumulative effects of this action and these other similar projects on the environment.

4.1.1 Lower American River Common Features Project

Based on congressional authorizations in 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 the construction of 26 miles of slurry walls on the American River. The WRDA 1999 authorization included a variety of additional levee improvements to ensure that the levees could pass an emergency release of 160,000 cubic feet per second (cfs), such as levee raises and levee widening improvements. The WRDA 1996 and 1999 projects were completed in 2014.

4.1.2 Central Valley Flood Protection Plan of 2017

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

The Sacramento BWFS indicates improvements to the Yolo Bypass flood control system could be made and therefore are considered as future projects. Examples of such improvements are: constructing a setback levee in the Lower Elkhorn Basin on the east side of the Upper Yolo Bypass and on the north side of the Sacramento Bypass (discussed separately in further detail below); widening the Freemont Weir and the Sacramento Weir; widening the Upper Yolo Bypass by constructing setback levees along the east side of the Bypass in the Upper Elkhorn Basin; constructing fix-in-place improvements to the existing levees in various locations along the west and east sides of the Upper Yolo Bypass; widening the Upper Yolo Bypass by constructing setback levees north of Willow Slough and north of Putah Creek on the west side of the Bypass; adding a tie-in to the Stockton Deep Water Ship Channel and channel closure gates; and constructing a floodwall on the west side of the Sacramento River at Rio Vista. Additional actions contemplated under the Sacramento BWFS include the following: extending the life of the Cache Creek Settling Basin by expanding it to the north; degrading the step levees at the

north end of Liberty Island; widening the Lower Yolo Bypass by constructing a setback levee on the west side of the Bypass near the north end of Little Egbert Tract; degrading the existing levees along the Stockton Deep Water Ship Channel along the west side of Prospect Island; degrading the existing levees on the northern and southern ends of Little Egbert Tract; removing the Yolo Shortline Railroad tracks and crossing over the Yolo Bypass near the Interstate 80 overcrossing; and raising and strengthening the levees along the entire west side of the Lower Yolo Bypass (DWR 2016).

4.1.3 Sacramento River Bank Protection Project

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

4.1.4 West Sacramento General Reevaluation Report

The West Sacramento GRR study determined the Federal interest in reducing the flood risk within the West Sacramento project area. The purpose of the West Sacramento GRR is to bring the 50-miles of perimeter levees surrounding West Sacramento into compliance with applicable Federal and State standards for levees protecting urban areas. Proposed levee improvements would address: (1) seepage; (2) stability; (3) levee height; and (4) erosion concerns along the West Sacramento levee system. Measures to address these concerns would include: (1) seepage cutoff walls; (2) stability berms; (3) levee raises; (4) flood walls; (5) relief wells; (6) sheet pile walls; (7) jet grouting; and (8) bank protection. The GRR was authorized in WRDA 2016 and received initial funding to begin preconstruction design in the Fiscal Year 2019 work plan. However, under the West Sacramento Area Flood Control Agency's Early Implementation Program implemented in 2011, three levee segments have already been completed: a small segment along the Sacramento River adjacent to the I Street Bridge, a stretch along Sacramento River in the northern portion of the city near the neighborhood of Bryte, and improvements to the south levee of the Sacramento Bypass. In addition to these levee segments, the Southport setback levee has been completed as part of a local effort. This setback levee completion includes all of the proposed levee improvements under the study to the Sacramento River on the West Sacramento south basin.

4.1.5 Lower Elkhorn Basin Levee Setback Project

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

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

4.1.6 Folsom Dam Water Control Manual Update

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

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

4.1.7 Folsom Dam Safety and Flood Damage Reduction Project

The Folsom Dam Safety and Flood Damage Reduction Project, referred to as the Joint Federal Project, addressed the dam safety hydrologic risk at Folsom Dam and improved flood protection to the Sacramento area. Several activities associated the project included: the Folsom

Dam Auxiliary Spillway, static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam. The project was completed in fall 2017.

4.1.8 American River Common Features 2016 Project

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

Natomas Reach D Contract 1, a 500 foot long seepage berm was built in 2019. Mitigation for riparian, woodland, and VELB habitat is currently under construction at the Beach Stone Lakes Mitigation Site (BSLMS). SAFCA is leading the construction of BSLMS adjacent to the Sacramento River and Morrison Creek near the southern limits of the ARCF 2016 project area. The BSLMS would incorporate mitigation for the impacts to trees associated with other construction actions planned for 2020 and 2021 along the Sacramento River east levee.

4.1.9 The Bridge District Redevelopment

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

4.1.10 I Street Bridge Replacement Project

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

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

4.1.12 Folsom Dam Raise

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

4.1.13 SAC 5 Corridor Enhancement Project

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

4.1.14 Bridge District Specific Plan

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

4.1.15 Sacramento Railyards Project

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

4.1.16 Delta Shores Development Project

Delta Shores is an approximately 800-acre master planned development that would, upon completion, include an estimated 1.3 million square feet of planned retail, an estimated 250,000 square feet of hotel and commercial uses, and an estimated 4,900 residential units. Most of the project site is located east of I-5 at Cosumnes River Boulevard, east of Freeport and north of the SRCSD Wastewater Treatment Plant Bufferlands. The Beach Lake Levee (operated and maintained by SAFCA) is adjacent to the Delta Shores southern boundary (east of I-5). Approximately 100 acres of the Delta Shores project site is west side of I-5 and abuts the Sacramento River East Levee in the northwest corner and near the southwest corner. In this western portion of Delta Shores, medium- and high-density residential housing would be developed on the north side of Stonecrest Avenue. Adjacent to and north of the housing, and adjacent to Freeport Boulevard on the west side, a park would be developed. Medium- and low-density residential housing would be developed on the south side of Stonecrest Avenue.

Completed in 2015, Cosumnes River Boulevard was extended by approximately 3.5 miles (from the east side of SR 99 to I-5) and a new I-5 interchange was constructed to provide regional connectivity for local residents and access to the future Delta Shores development

(particularly the shopping center). Construction on the shopping center began in 2016 and the complex opened in 2017. Construction, road construction, and construction traffic associated with Delta Shores have the potential to contribute to cumulative impacts with the Proposed Action.

4.2 Cumulative Effects Analysis

4.2.1 Fisheries

Project implementation has the potential to contribute to the loss or degradation of fish habitat, including near-shore aquatic SRA habitat. Similar potential for adverse effects on fish and their habitats would be associated with Sacramento River Bank Protection Project, Lower Elkhorn Basin Levee Setback Project, West Sacramento GRR, I Street Bridge Replacement Project, future ARCF 16 projects, and the removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to adversely impact fish species. Most potential adverse effects of the Proposed Action and the related levee projects related to fish would be associated with construction disturbances of fish and their habitats however, permanent loss of habitat would result from some of the individual levee improvement projects. These adverse effects could contribute to species decline and losses of habitat which, due to historical impacts caused by other projects, have led to the need to protect other species under the ESA and California Endangered Species Act (CESA). The completion of the Folsom JFP and the new Water Control Manual Update for the Folsom Dam would likely improve conditions for fish species on the American River and subsequently the Sacramento River because of the ability to release colder water from deeper in the lake and better control outflows. Implementation of Mitigation Measures described in Section 3.2.1, "Fisheries," would reduce or avoid the effects of the Proposed Action in accordance with consultation with USFWS and NMFS. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on fisheries.

4.2.2 Special Status Species

Project implementation has the potential to adversely affect special-status species such as Chinook salmon, steelhead, green sturgeon, delta smelt, Swainson's hawk, other nesting birds, and bats. Similar potential for adverse effects on special-status species and their habitats would be associated with the flood-risk reduction projects and the development projects, including Sacramento River Bank Protection Project, Lower Elkhorn Basin Levee Setback Project, West Sacramento GRR, I Street Bridge Replacement Project, Folsom Dam Raise, ARCF 16 projects, and the removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to adversely impact special-status species. Most potential adverse effects of the Proposed Action and the other levee projects to special status species would be associated with construction disturbances of these species and their habitats however, permanent loss of habitat would 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 ESA and CESA. Implementation of Mitigation Measures described in Section 3.2.2, "Special-

Status Species," would reduce or avoid the effects of the Proposed Action in accordance with the requirements of the ESA and CESA. Therefore, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative adverse effects on special-status species.

4.2.3 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). Several other construction projects are expected to occur simultaneously in the SVAB during the planned construction period for the Proposed Action. The related projects have the potential to generate construction-related emissions that individually exceed SMAQMD's threshold of significance. However, all construction projects in the SMAQMD, including the Proposed Action are required to offset emissions that have the potential to negatively affect air quality in the SVAB through implementation of SMAQMD emissions reductions practices. In addition, many offset projects create long-term, permanent emissions reductions (which result in a benefit). Furthermore, the Proposed Action is part of the larger ARCF 16 project, which has been determined meet the requirements of general conformity with the provisions of the Clean Air Act (CAA) through payment of fees to offset NOx emissions. However, when considered with other ARCF features being constructed in 2021, ARCF would not exceed General Conformity thresholds after implementing avoidance and minimization measures described in the Mitigation Measures. As discussed in Section 3.2.3, "Air Quality," construction of the Proposed Action result in no significant impacts to air quality in the region and would not exceed federal General Conformity *de minimis* thresholds before or after mitigation in either air basin.

4.2.4 Climate Change

Climate change as related to GHG emissions is inherently cumulative. Though significance thresholds can be developed by air districts and State and Federal regulatory agencies, these thresholds and their related goals are ultimately designed to affect change at a global level. Therefore, the analysis presented in Section 3.2.4, "Climate Change," includes the analysis of both the project and cumulative effects. The Proposed Action and the related projects would result in the generation of GHGs, in proportion with the size of each individual project, amount and time of operation of construction equipment, and distances traveled. However, the Proposed Action and other projects stated which generate GHG emissions in excess of threshold levels would be required to implement the mitigation measures set forth in their respective CEQA/NEPA documents to reduce emissions and/or purchase carbon offsets. Most of the other related projects are flood risk management projects. By implementing these projects, the agencies would be reducing the potential future emissions associated with flood fighting and future emergency actions. The I Street Bridge Replacement would allow for safe pedestrian and bicycle use and provide a future light rail extension therefore reduce GHG emissions due to less vehicle traffic compared to the current bridge. The Proposed Action would not exceed CEQ GHG threshold guidance levels and would be consistent with statewide climate change adaptation strategies. Therefore, the Proposed Action would not result in a cumulatively

considerable incremental contribution to a significant cumulative effect related to climate change.

4.2.5 Cultural Resources

Implementation of the Proposed Action, other flood-risk reduction projects, and development projects considered in this cumulative analysis, have the potential to contribute to the loss or degradation of known and unrecorded archaeological resources, known Tribal Cultural Resources, known and unknown human remains, known and unknown historic-period archaeological resources. Most potential effects of the Proposed Action and other related projects to cultural resources would be associated with construction disturbances of archaeological sites, Tribal Cultural Resources, and human remains. These effects could contribute to the loss of intact cultural resources and human remains in the Sacramento region.

Implementation of the Mitigation Measures presented in Section 3.2.5, "Cultural Resources," would reduce or avoid the effects of the project on known resources and on unknown archaeological resources and human remains that could potentially be discovered during project construction. However, the project could contribute to a cumulatively significant effect.

4.2.6 Recreation

The Proposed Action, along with the related projects, may result in temporary closure of recreational facilities, potential damage to recreational facilities, and temporary diminishment of recreational experiences at nearby parks during construction. Implementation of Mitigation Measures described in Section 3.2.6, "Recreation," would reduce the Proposed Action's effects to a less-than-significant level. Due to the temporary nature of the construction effects and the likelihood that any access restrictions or degradation to the quality of recreational experiences would last for longer than 3–6 months in any location, the Proposed Action's effects on local recreation are not anticipated to overlap with effects of other related projects. The nearby Delta Shores development project includes internal parks for use by residents which aids in alleviating some temporarily unavailable recreation opportunities during levee construction. The construction of the I Street Replacement Bridge would provide more recreation opportunities by providing more river access on both sides of the river and provide safer pedestrian and bicycle routes than the current I Street Bridge. Consequently, cumulative effects related to recreation resources would be less than significant and the Proposed Action would not result in a cumulatively considerable effect related to short-term, temporary changes in recreational opportunities during project construction activities.

4.2.7 Visual Resources

State Route 160 is a State- and County-designated scenic highway from Freeport south to the County line and most project-related activities would not be visible from. The southwestern end of the Delta Shores project would be visible from SR 160 however, development within the Delta Shores project is required to follow the City of Sacramento design guidelines regarding form, color, texture, mass, landscaping, and signage, as well as the Delta Shores Planned Unit Development Guidelines approved by the City of Sacramento. These guidelines are specifically

designed to ensure that new development is aesthetically pleasing and blends with the surrounding landscape (City of Sacramento 2008). Therefore, there would be no significant cumulative impact related to damage to scenic resources within a State- or County-designated scenic highway and the project would not result in a cumulatively considerable effect.

Construction crews, equipment, and haul trucks would be visible to residents adjacent to local streets and to residences adjacent to the work site. In addition, construction would be visible to recreationists in the Sacramento River and potentially along portions of the Sacramento River Parkway bicycle and pedestrian trail. However, construction would be temporary, occur away from other projects, and as construction would proceed along the levee in a linear fashion therefore, the views of construction crews, equipment, and haul trucks would be of short duration. At the completion of construction activities, the levees, staging areas, barges, and borrow sites for both the Proposed Action and the related levee projects would be restored to or substantially similar to pre-construction conditions. There would be no significant cumulative degradative effect or adverse changes related to the short- or long-term visual character of vicinity scenic vistas.

4.2.8 Noise

The Delta Shores Development project is located in the immediate vicinity of the Proposed Action and was considered for purposes of this Project's cumulative noise and vibration analysis. A cumulative effect might occur if construction activities associated with any of the related project(s), such as the West Sacramento GRR and other ARCF projects, were to occur within 500 feet of the Proposed Action's construction activities, or if the construction activities of other projects were to overlap with the construction activities of the Proposed Action. At its closest point, the portion of the Delta Shores project area that is still under construction would be approximately 5 miles southeast of the project site. Therefore, the Delta Shores project is located too far away to combine with the Proposed Action's construction noise or vibration effects. Furthermore, although related projects could require construction that exceeds the respective local City or County noise ordinances, the Proposed Action would limit noise-generating activities to the hours when the City of Sacramento exempts construction noise. Therefore, the Proposed Action is not expected to result in a cumulatively considerable contribution to local, State, or Federal noise ordinance standards caused by construction equipment or increased traffic noise.

4.2.9 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 Sacramento River Bank Protection Project, Lower Elkhorn Basin Levee Setback Project, West Sacramento GRR, I Street Bridge Replacement Project, Folsom Dam Raise, and future ARCF 16 proposed projects; and the removal of high-hazard vegetation by levee maintaining agencies in the Sacramento area and surrounding region. Such projects would generally continue to contribute to the loss or degradation of sensitive habitats and forestland. Most potential adverse effects of the Proposed Action and the related projects

would be associated with construction disturbances of habitats, but permanent loss of habitat would also result from some of the individual levee improvement projects and the development projects. Implementation of Mitigation Measures described in Section 3.2.9, "Vegetation and Wildlife," would reduce or avoid the effects of the Proposed Action on sensitive habitats in accordance with the requirements of the Federal ESA and CESA and other regulatory programs, such as CWA Sections 401 and 404. The other projects would have similar requirements to avoid, minimize, and mitigate for impacts on vegetation and wildlife therefore, reducing impacts. Although the Proposed Action's temporary impacts would be significant, the Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to the permanent loss or degradation of sensitive habitats or loss of forestland.

4.2.10 Water Quality

This project is the only ARCF project on the Sacramento River that includes bank protection placement below the OHWM. Some projects, such as the West Sacramento GRR and the SRBPP, include levee raises, flood walls, and bank protection. The West Sacramento GRR and Lower Elkhorn Basin Levee Setback Project, include construction of new setback levees. Related projects, including the Sacramento River East Levee Contracts 1 and 2, Lower American River Contract 1, SRBPP, and the West Sacramento GRR, could be under construction during the same timeframe as the Proposed Action. If construction occurs during the same timeframe, water quality could be diminished primarily due to increased turbidity from soil released during construction activities. Water quality could be affected in or adjacent to the Proposed Project area and upstream and downstream of the work area. Construction activities such as clearing and grubbing, grading, and rock placement, have the potential to temporarily degrade water quality through the direct release of soil and construction materials into water bodies or the indirect release of contaminants into water bodies through runoff. Short-term impacts as a result of the Proposed Action would be mitigated to less than significant with the implementation of mitigation measures described in Section 3.2.10, "Water Quality." All projects would be required to comply with the NPDES Construction General Permit requirements of the RWQCB, Clean Water Act, and overall water quality would be required to meet the Basin Plan objectives. The Proposed Action would require compliance with the Clean Water Act, Sections 401 and 404 before work starts below the OHWM. The Proposed Action would not result in a cumulatively considerable incremental contribution to significant cumulative effects related to water quality.

4.2.11 Geological Resources

Construction activities associated with most of the related projects would involve extensive grading and earthmoving activities, thereby exposing soil to erosion from wind in summer and from rainfall during storm events. If uncontrolled, suspended sediment from stormwater runoff could enter adjacent water bodies and result in increased turbidity. However, the Proposed Action along with each related project expected to disturb 1 acre of land or more are required by law to comply with NPDES discharge permits from the Central Valley RWQCB, which require preparation of a SWPPP and implementation of erosion control BMPs. Therefore, there would be no significant cumulative effect related to construction-related erosion and the project would

not result in a cumulatively considerable incremental contribution to a significant cumulative effect.

If not addressed, 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 Area. However, the Proposed Action and the related levee projects would implement erosion control measures that would reduce the risk of levee failure. Therefore, the Proposed Action and the related projects would not cumulatively increase the risk of levee failure resulting in an overall cumulatively beneficial project.

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

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

5.0 COMPLIANCE WITH LAWS AND REGULATIONS

5.1 Federal Laws and Regulations

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

Full Compliance. The emissions of ARCF 2016 projects being built in 2021, including the proposed action, would be within general conformity limits, therefore the Proposed Action would be in full compliance with the Clean Air Act.

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

Partial Compliance. The Clean Water Act is the primary federal law governing water pollution. The proposed action would place fill materials or construction within surface waters, local waterways, or any other Waters of the U.S., therefore, the project would obtain permit to be in full compliance with Section 401 of the Clean Water Act. A 404(b)(1) evaluation was completed and included in Appendix C. Prior to construction, the contractor would be required to obtain a NPDES permit for potential effects to storm water discharge, including preparation of a SWPPP. With the implementation of these permits, the Proposed Action would be in full compliance with the Clean Water Act.

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

Partial Compliance. Biological Opinions from USFWS and NMFS were received in 2015 as well as 2 subsequent re-initiations from USFWS (2017 and 2019). In the 2016 and 2019 BO, the Service's biological opinion stated that the proposed ARCF project, is not likely to jeopardize the continued existence of VELB, delta smelt, giant garter snake, and Yellow-billed Cuckoo. NMFS stated that the proposed action is not likely to jeopardize the continued existence of Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, CCV steelhead and sDPS green sturgeon or destroy or adversely modify their designated critical habitat in their biological opinion (2016).

Consultations have been reinitiated and are currently pending from USFWS and NMFS. If any additional avoidance, minimization, and mitigation measures are recommended, they would be implemented to the extent possible.

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

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

final Coordination Act Report to USACE that provided mitigation recommendations (USFWS File # 08ESMF00-20 13-CPA-0020). USACE considered all of the recommendations and responded to them in the final ARCF GRR EIS/EIR. Recommendations from the Coordination Act Report are proposed for implementation to reduce impacts to fish and wildlife associated with tree removal for the construction of the proposed action. The proposed action would therefore be in full compliance with this Act. Consultation has been reinitiated and is currently pending from USFWS.

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

Full Compliance. The Migratory Bird Treaty Act (MBTA) protects migrating birds from harm due to Federal projects. Surveys for migratory nesting birds were conducted in 2018 through 2020. In 2020, a Swainson's hawk nest was observed adjacent to the project area. Mitigation Measures and recommendations from USFWS would be followed to the extent possible during tree removal and construction. Surveys would be conducted again in 2021 prior to any construction. If nesting migratory birds are found to be occupying the project area, USACE, CVFPB, and SAFCA would coordinate with the USFWS to determine necessary avoidance and minimization measures to reduce these effects. The Proposed Action would therefore be in full compliance with this Act.

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

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

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

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

5.1.8 Executive Order 13112: Invasive Species

Full Compliance. EO 13112, signed February 3, 1999, directs all Federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The order established the National Invasive Species Council, which is composed

of Federal agencies and departments, and the supporting Invasive Species Advisory Committee, which is composed of state, local, and private entities. The Council's national invasive species management plan recommends objectives and measures to implement this EO and to prevent the introduction and spread of invasive species (National Invasive Species Council, 2008). EO 13112 requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them. This discussion is included in Section 3.6, Vegetation and Wildlife, including proposed measures to prevent the spread of invasive species during construction of the proposed alternative. As a result, the ARCF GRR is in compliance with this EO.

5.1.9 Magnusun-Stevens Fishery Conservation and Management Act (16. U.S.C. 1801, et seq.)

Partial Compliance. The Magnuson-Stevens Act requires that all Federal agencies consult with NMFS regarding actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat. Essential fish habitat is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Sacramento River is designated as essential fish habitat (EFH) for salmon (winter, fall/late fall, and spring-run), steelhead, green sturgeon DPS, and delta smelt. The ARCF projects and its potential effects to EFH are being coordinated with the NFMS under the Magnuson-Stevens Act, and the Corps received EFH conservation recommendations from NMFS on September 9, 2015. On September 24, 2015, the Corps transmitted a letter to NMFS responding to the recommendations from NMFS. As a result, the ARCF GRR project is in full compliance with the Magnuson-Stevens Act. Consultation has been reinitiated and is currently pending with NMFS and the project will be in full compliance once consultation is completed.

5.2 State and Local Laws and Regulations

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

Full Compliance. Section 3.2.1 of this document discusses the effects of the proposed Project on local and regional air quality. The California Air Resources Board (CARB) is responsible for the development, implementation, and enforcement of California's motor vehicle pollution control program, GHG statewide emissions and goals, and the development and enforcement of GHG emission reduction rules. Section 202(a) of the California Clean Air Act (CCAA) requires projects to determine whether emission sources and emission levels significantly affect air quality based on Federal standards established by the USEPA and State standards set by CARB. SMAQMD has local jurisdiction over the project area and BAAQMD has local jurisdiction over portions of the route which would be traveled by barges transporting material to the Project site. The analysis in Section 3.2.3 shows that although expected short-term Project-related emissions would exceed local thresholds of the, implementing mitigation measures including payment of fees would reduce these impacts to a less-than-significant level and ensure Project compliance with the requirements of the CCAA. Additionally, SMAQMD recommends that a lead CEQA agency consider a GHG emissions threshold of 1,100 metric tons/year. Although the Proposed Action would cause GHG emissions from the use of

construction-related equipment, emissions are not expected to exceed the local GHG emissions thresholds. To the maximum extent feasible, additional BMPs would be incorporated to reduce GHG emissions during construction.

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

Partial Compliance. The Central Valley Flood Protection Board (CVFPB), as the non-federal sponsor and CEQA lead agency, would undertake activities to ensure compliance with the requirements of this Act. CEQA requires the full disclosure of anticipated environmental effects, potential mitigation, and environmental compliance of the Project. Certification of this Final SEA/EIR by the CVFPB would provide full compliance with the requirements of CEQA.

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

Full Compliance. This Act requires non-federal agencies to consider the potential adverse effects to State-listed species. As discussed in Section 3.2.1 of this document, activities associated with the Proposed Action are not anticipated to adversely impact any State-listed species. Surveys for migratory and listed nesting birds were conducted in 2018 through 2020. In 2020, a Swainson's hawk nest was observed adjacent to the project area. Surveys would be conducted again in 2021 prior to any construction. If nesting Swainson's hawks are found to be occupying the project area or buffer zone, USACE, CVFPB, and SAFCA would coordinate with the CDFW to determine necessary avoidance and minimization measures to reduce these effects. The Proposed Action would therefore be in full compliance with this Act.

5.2.4 California Fish and Game Code §3503

Partial Compliance. Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nests of eggs of any bird. Section 3503.3 expands upon this statement to prohibit destroying any raptors. As discussed in Section 3.2.10 of this document, with implementation of mitigation measures activities associated with the proposed project are not anticipated to adversely impact nesting birds, raptors, or their eggs.

5.2.5 Porter-Cologne Water Quality Control Act of 1970

Partial Compliance. This Act requires that each of the State's nine Regional Water Quality Control Boards (RWQCBs) prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the State's boundaries (Porter-Cologne Water Quality Control Act, § 13050 (e), as amended January 2019). With implementation of the mitigation measures as described in Section 3.2.10 of this document, including obtaining a 401 Water Quality Certification from the RWQCB prior to construction, the Proposed Action would not have a significantly effect on WOUS or waters of the State.

5.2.6 City of Sacramento Tree Ordinances

Full Compliance. Ordinance No. 2016-0026 of the Sacramento City Code addresses the protection of trees within the City boundaries, including general protection of all trees on City property and specific protection of certain trees located on private property deemed Private Protected Trees. A tree permit is not required for a public agency that performs any flood protection work on public property or within a public easement that may cause injury to or the removal of a city tree or private protected tree (Ordinance No. 2016-0026, Section 4. Chapter 12.56.080. August 4, 2016). This exemption would apply to the Proposed Action.

5.2.7 Delta Plan

Partial Compliance. The Delta Plan includes regulations supporting coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Delta Plan is administered by the Delta Stewardship Council. CVFPB has determined that the Proposed Action is a "covered action" under the Delta Plan because it 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 produce a Certification of Consistency with the Delta Plan in accordance with section 85225 of the California Water Code.

6.0 COORDINATION AND REVIEW OF THE DRAFT SEA/EIR

This Draft SEA/EIR is being publicly circulated for 45 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the Draft SEA/EIR will be posted on the USACE and CVFPB websites, made available for viewing at local public libraries, or provided by mail upon request. Release of the Draft SEA/EIR will also be posted in the public notice section of the Sacramento Bee. This project would be coordinated with all appropriate Federal, State, and local governmental agencies including NMFS, USFWS, RWQCB, CDFW, SHPO, DWR, and SAFCA prior to finalizing this document.

7.0 FINDINGS

This SEA/EIR evaluated the environmental effects of the Proposed Action under NEPA. Potential adverse effects to the following resources were evaluated in detail: air quality, climate change, cultural resources, recreation, traffic, aesthetics, noise, vegetation and wildlife, and water quality.

The analysis provided in this SEA/EIR together with field visits and coordination with other agencies, indicates the proposed project would have no new individually significant short-term or long-term adverse effects on environmental resource areas that were not already disclosed in the 2016 ARCF GRR EIS/EIR.

As described in 40 CFR 1508.13, a FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Based on this evaluation and the CFR definition, the proposed project analyzed within this SEA/EIR would qualify for a FONSI.

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10.0 APPENDICES

Appendix A Biological Resources Data

Appendix B Air Quality Modeling Results

Appendix C Clean Water Act, Section 404(b)(1) Evaluation