1. APPENDIX K
CLEAN WATER ACT SECTION 404(b)(1) WATER QUALITY EVALUATION
AMERICAN RIVER COMMON FEATURES SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/ SUBSEQUENT ENVIRONMENTAL IMPACT REPORT XIV SACRAMENTO, CALIFORNIA

This document constitutes the Statement of Findings, and review and compliance determination according to the Section 404(b)(1) Guidelines for the proposed project described in the American River Common Features Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) issued by the U.S. Army Corps of Engineers (USACE), Sacramento District. This analysis has been prepared in accordance with the Section 404(b)(1) Guidelines, 40 CFR Part 230 and the USACE Planning Guidance Notebook, Engineer Regulation (ER) 1105-2-100.

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List of Acronyms

Acronym	Description
ARCF	American River Common Features
ARMS	American River Mitigation Site
BMPs	Best Management Practices
BO	Biological Opinion
CDEC	California Data Exchange Center
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFS	cubic feet per second
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Control Board
CWA	Clean Water Act of 1972
DWR	State of California Department of Water Resources
ER	Engineering Regulation
ESA	Endangered Species Act
ETL	Engineering Technical Letter
FEIS	Final Environmental Impact Statement
FEIR	Final Environmental Impact Report
GRR	General Reevaluation Report
HTRW	Hazardous, Toxic and Radioactive Waste
IWM	Instream Woody Material
LAR	Lower American River
LEDPA	Least Environmentally Damaging Proposed Alternative
MCDC	Magpie Creek Diversion Canal
MCP	Magpie Creek Project
NEPA	National Environmental Policy Act
NEMDC	Natomas East Main Drainage Canal
NM FS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric turbidity units
OHWM	Ordinary High Water Mark
O&M	Operations and Maintenance
pH	potential Hydrogen
SAFCA	Sacramento Area Flood Control Agency
SEIR	Subsequent Environmental Impact Report
SEIS	Supplemental Environmental Impact Statement

Acronym	Description
SREC3	Sacramento River Erosion Contract 3
SREL	Sacramento River East Levee
SRMS	Sacramento River Mitigation Site
SWPPP	Stormwater pollution Prevention Plan
UPRR	Union Pacific Railroad
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	Waters of the U.S.

I. Introduction

a. Background

The Sacramento Metropolitan area is one of the most at risk areas for flooding in the United States (U.S.). The American River Common Features (ARCF) 2016 Program is a cooperative effort by U.S. Army Corps of Engineers (USACE); the Central Valley Flood Protection Board (CVFPB), the non-Federal sponsor, represented by the State of California Department of Water Resources (DWR); and the Sacramento Area Flood Control Agency (SAFCA), the local sponsor. The purpose of ARCF 2016 Program is to improve the existing infrastructure to reduce flood risk along the American and Sacramento Rivers. USACE completed the ARCF General Reevaluation Report (GRR) Final Environmental Impact Assessment/Environmental Impact Report (EIS/EIR) in 2016. USACE completed the Draft Supplemental EIS/Subsequent EIR (SEIS/SEIR) in 2023 to evaluate design refinements since the 2016 GRR FEIS/EIR including: American River Erosion Contract 3B, 4A, and 4B, Sacramento River Erosion Contract 3 (SREC3), Magpie Creek Project (MCP), American River Mitigation Site (ARMS), Sacramento River Mitigation Site (SRMS), and the Piezometer Network.

The ARCF SEIS/SEIR identifies seepage, stability and erosion concerns associated with the existing flood risk management system protecting the city of Sacramento and surrounding areas. There have been authorized improvements to Folsom Dam that allow higher emergency releases, up to 160,000 cubic feet per second (cfs). There is a high probability that increased flows from a 160,000 cfs emergency release from Folsom Dam would stress the network of levees protecting the City of Sacramento along the American River and Sacramento River to the point that levees could fail. The consequences of such a levee failure would be catastrophic, since the area inundated by flood waters is highly urbanized and the flooding could be up to 20 feet deep, in some areas.

The ARCF GRR Final EIS/EIR and its Clean Water Act (CWA Section) 404(b)(1) alternatives analysis previously analyzed several alternatives, including a No Action/No Project Alternative and two action alternatives. Alternative 1 includes levee improvements only and Alternative 2, the recommended plan, includes levee improvements and widening the Sacramento Weir and Bypass.

b. Amendment to the 2015 ARCF CWA 404(b)(1) Alternatives Analysis

This amended analysis evaluates the consistencies and differences of the Final EIS/EIR Proposed Action with the 2015 ARCF GRR's 404(b)(1). The source materials are:

- USACE (2015) *Draft Section 404(b)(1) Water Quality Evaluation American River Common Features General Reevaluation Report*. Appendix E in USACE (2016). This Clean Water Act Section 404(b)(1) evaluation first describes the alternatives considered, including the No Action and the Proposed Action. The differences between the

alternatives are associated with the type of erosion protection, whether it be through construction of a launchable rock filled trench, bank protection, or a combination of the two. The alternatives description section also provides information on why certain alternatives were not selected, based on impacts to Waters of the U.S. and practicability factors. Lastly, the Proposed Action is compared to the determinations and findings of the 2015 404(b)(1) to demonstrate how the Proposed Action is consistent with those findings and is the Least Environmentally Damaging Practicable Alternative (LEDPA).

- USACE. 2016. *American River Watershed General Reevaluation Report, Final Environmental Impact Statement / Environmental Impact Report.* May. Sacramento, California. State Clearing House Number 2005072046.

    - USACE. 2023. American River Common Features, 2016 Flood Risk Management Project, Sacramento, California. Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report XIV. State Clearing House Number 2005072046.

c. Summary

The ARCF GRR Final EIS/FEIR, and the associated CWA Section 404(b)(1) consistency determination, previously analyzed several alternatives, including a No Action/No Project Alternative and two action alternatives. Some of the actions described in the ARCF GRR Final EIS/EIR have been accomplished. This consistency determination analyzes design refinements still to be constructed as a part of the authorized 2016 ARCF Proposed Action, including engineering design modifications, footprint expansions, and compensatory habitat mitigation approaches. The design refinements include actions within eight project components: American River Erosion Contracts 3B, 4A, and 4B; (ARMS) at the Urrutia Property; SREC3; MCP; SRMS at Grand Island; and a piezometer network. American River Erosion Contract C4B and the piezometer network would not have impacts on waters of the U.S. (WOTUS); therefore, they will not be evaluated herein.

The differences between the 2015 ARCF GRR's 404(b)(1) evaluation and the 2024 SEIS Proposed Action impacts to WOTUS primarily consists of an increase in the acreage of fill, a new method of erosion protection – launchable rock toe, filling of a newly designated wetland, and the addition of two compensatory habitat mitigation sites.

d. Conclusion

The impacts resulting from the design refinements to the authorized 2016 ARCF Proposed Action increase the discharge of fill material into WOTUS and discharge into previously unspecified wetlands; therefore, these actions are not consistent with the previous consistency determination and additional evaluation is provided herein.

The LEDPA was determined according to the following findings:

A. The discharge represents the least environmentally damaging, practicable alternative.

B. The discharge does not cause or contribute to violation of any applicable state water quality standard, does not violate any applicable toxic effluent standard.

C. The discharge does not cause or contribute to significant degradation of the waters of the US (WOTUS).

D. All appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

II. Proposed Action and Alternatives

a. Location

The Project includes several distinct locations where its components would be constructed: American River Erosion Contract 3B North and South, American River Erosion Contract 4A, ARMS, SREC3, SRMS, and the MCP. These locations shown in Figure 1 and described in more detail in Section f.(3) 'Description of the Proposed Discharge Site.'

American River Erosion Contract 3B North and South are between river miles 7.8 and 10.3 on the lower American River. American River Erosion Contract 4A is on the right bank downstream from these locations near RM 2.0 under the State Route 160 Bridge and the Union Pacific Railroad (UPRR) Bridge. The ARMS is located on the American River at RM 1.3 between Discovery Park and Camp Pollock. The SRMS is an approximately 200-acre site located at the confluence of the Sacramento River, Steamboat Slough, and Cache Slough, near Sacramento RM 15. Sacramento River Erosion Contract 3 begins approximately 7 miles downstream from the confluence of the American and Sacramento Rivers adjacent to the Pocket-Greenhaven neighborhood. The MCP is located within Sacramento County between the North Highlands and Rio Linda communities, north of Interstate 80 (I-80), and is bisected by Raley Boulevard.

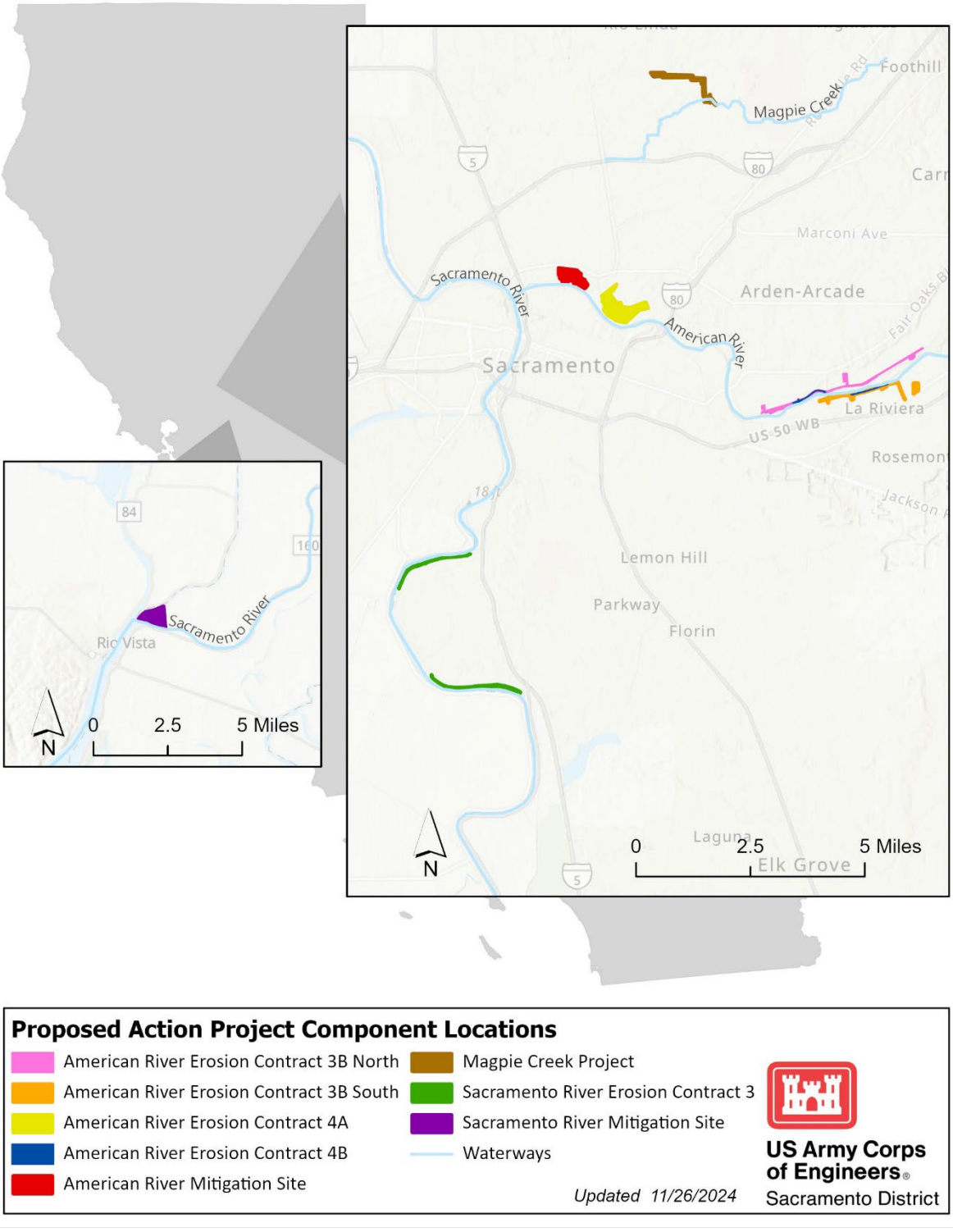

Figure 1. Location Map.

b. Proposed Project

The Proposed Action only includes the components that are modifications or design refinements of the ARCF GRR Final EIS/EIR Proposed Action: American River Erosion Contract 3B North and South, American River Erosion Contract 4A, ARMS, SRMS, SREC3, and MCP. This section describes each component in more detail. This action is considered a practicable alternative and will be retained and evaluated in determining the LEDPA.

(1) American River Erosion Contract 3B South

Site 4-1 levee improvement work would be conducted on the left bank of the Lower American River between RM 9.1 to RM 10.5. As with Sites 3-1 and 4-2, bank protection would be constructed on the levee and riverbank and consist of soil-filled revetment. Launchable trenches would be buried to allow site revegetation. The description of launchable rock toe under Site 3-1 generally applies to Site 4-1 as well. The two sites were designed slightly differently to minimize impacts to the Fair Oaks geologic formation. There would also be tie backs higher up on the bench, outside the launchable trench, as a form of erosion protection. These tie backs are built up of revetment placed in a triangular shape, to address flanking concerns. The top of the tiebacks are approximately 21 feet across, and the tip of the triangular shape is 7 feet below existing grade of the levee overbank. They are built so that during high flows, erosion would be minimized in between different types of erosion protection treatment. In addition, there are locations at Site 4-1 where there is a launchable toe at the riverbank toe (referred to as bank toe in SEIS/SEIR Figure 3.5.2-9), unlike the typical launchable toe at American River Erosion Contract 3B where the launchable toe is at the edge of the planting bench (as shown on SEIS/SEIR Figure 3.5.2-13). This erosion protection feature is covered in soil to allow vegetation to grow on top of it. Additionally, at Site 4-1 there is a location where the toe is there to stabilize the planting bench.

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

(2) American River Erosion Contract 3B North

This section describes the flood risk reduction improvements proposed for American River Erosion Contract 3B North, which has been divided into two sites: 3-1 and 4-2. Construction at these sites would include approximately 1.8 miles of launchable rock toe, launchable trench, and bank protection.

Site 3-1

Site 3-1 flood risk reduction improvements would be conducted on the right bank of the Lower American River between RM 7.8 and RM 8.8. The erosion protection method proposed at Site

3-1 is a combination of bank protection (both on the levee and riverbank) and launchable rock toe protection with planting benches. Bank protection consists of a layer of soil-filled revetment. For Site 3-1, bank protection includes both soil-filled levee embankment and riverbank revetment. The revetment with either be buried or soil filled, a soil lift placed above the soil filled revetment, coir surface fabric and then replanted. Bank protection would be located both on the levee slope in some areas within the project site and just upslope of the launchable toe and planting bench. Some excavation may be required for the bank protection and launchable rock toe with planting bench to get to design grade. Additional excavation would be needed to construct temporary ramps to access the site.

The layout of launchable rock toe at Site 3-1 generally includes a peaked stone pile within the river that is supporting a planting bench between the stone pile and the existing bank. The launchable rock would be covered with a layer of choke stone fill (smaller rock that would fill in the gaps between the larger pieces of revetment) to both minimize potential for predatory fish to hide in rock voids, and to reduce the artificial appearance of the launchable rock. The launchable rock toe is designed to “launch” into areas where erosion of the channel bottom occurs and progresses during a flood event below the toe of the rock. This launched layer of riprap is designed so that it would cover the eroded surface of the new channel bottom and inhibit further progression of the eroded slope. Once fully launched, a layer of riprap (with a minimum thickness between 18 and 49 inches) would extend from the channel toe to the maximum depth of scour predicted in the river channel. Planting bench tiebacks would be placed periodically throughout the planting benches to limit the extent of erosion and subsequent damage to a planting bench during a flood event. Along the lower bench, instream woody material (IWM) structures consisting of whole trees with intact root wads would be installed to increase the roughness of the bench and to provide fine-textured woody material along the river margin for juvenile salmonid rearing habitat.

Additionally permanent operation and maintenance ramps will be installed to ensure that the erosion protection features can be monitored in the future.

Site 4-2

Located above the OHWM, Site 4-2 is not within or near a WOTUS. Site 4-2 consists of levee improvements on the right bank of the Lower American River between RM 9.7 and RM 10.3. Approximately 2,900 linear feet of bank protection and launchable trench would be used as the erosion protection method at Site 4-2. Bank protection would be located on the levee slope. The launchable trench would be buried to provide soil above the revetment to allow grasses to reestablish. The revetment with either be buried or soil filled, a soil lift placed above the soil filled revetment, coir surface fabric and then replanted with grasses.

The Site 4-2 work location is under existing infrastructure (a dirt maintenance levee toe road and the Jedediah Smith Memorial Recreational Trail) and areas within the vegetation-free zone with only grassy vegetation. The description of onsite mitigation, excavation, ramps, tree removal, and use of excavated materials described under Site 3-1 apply to Site 4-2 as well.

(3) American River Erosion Contract 4A

American River Erosion Contract 4A includes construction of an armored berm approximately 100 feet wide on the water side of the levee near RM 2.0. This feature would be constructed on the right bank of the American River immediately upstream of Jedediah Smith Memorial Trail's undercrossing of the California SR-160 bridge. This berm would disrupt the bike trail. Additionally, this alternative requires relocation of a 12" water line. If work is conducted while there is still water within the wetland, additional temporary impact to the wetland would occur as dewatering would be needed. A water bladder dam or sandbag dam would be used to dewater the wetland within the project area.

Erosion Protection

American River Contract 4A levee work would be conducted on the right bank of the Lower American River near RM 2.0 and upstream of the SR-160 bridges (SEIS/SEIR Figure 3.5.3-1). To reduce the risk that high-velocity flood waters could scour the levee around the SR160 bridge piers and destabilize the levee, a berm is proposed upstream of the bridge to deflect high-velocity flood waters away from the levee slope. Due to the physical constraints at this location, the berm footprint would impact a portion of an existing wetland and would extend up the levee. The berm would also block the current alignment of the Jedediah Smith Memorial Trail. The berm would be armored to prevent erosion (SEIS/SEIR Figure 3.5.3-5).

Bike Trail Reroute

The proposed berm would block the current path of the Jedediah Smith Memorial Trail. To allow continued used of the Jedediah Smith Memorial Trail in this area, a bike trail reroute will need to be constructed (SEIS/SEIR Figure 3.5.3-1 and SEIS/SEIR Figure 3.5.3-4 in the map listed as Alternative 3c). Constructing this route would require tree and vegetation clearing, regrading, paving, and adding fill into a WOTUS.

(4) American River Mitigation Site

The current preferred location for the ARMS is at the approximately 120-acre site purchased for mitigation between RM 1.0 and RM 1.6 in the American River Parkway, previously known as the Urrutia Property. AMRS is being designed to consider historical site conditions and adapt existing conditions to restore, enhance, and maximize habitat for salmonids. The design will restore up to 66 acres of salmonid habitat and will function as a backwater channel that fills through a single inlet from the main river channel located at the southeast limits of the site (SEIS/SEIR Figure 3.5.5-1). Habitat benches will be incorporated into the backwater channels to provide shallow water salmonid habitat at various water surface elevations. The lowest flow channels are being designed to be inundated year-round, and the entire basin would hold water during high water events. The benches will be continuous with gradual slopes and a positive gradient toward the main river channel to reduce stranding risks as water recedes.

Site grading design will be based on creation of backwater floodplain habitats, removal of non-native vegetation and seed bank, incorporation of IWM, and improved connectivity to the main river channel. Excavation would be required to provide connection to the main river channel.

The import of material and grading to fill the man-made pond in the floodplain is necessary to cover existing debris and improve rearing habitat for salmonids by reducing inundation depths and establishing elevations that provide an opportunity for wetland and riparian vegetation to establish and naturally recruit. The visual goal is for the habitat mitigation to blend in seamlessly with the surrounding riparian forest. Breaching of the existing bank line would result in removal of existing materials to create a connection to the inland of the project site. Once the site is connected to the river, the site would convert the existing pond to emergent wetlands and create additional acres of WOTUS.

(5) Sacramento River Mitigation Site

Analysis of the SRMS is presented at a program level because only conceptual designs are available for environmental analyses. Habitat mitigation improvements at SRMS would include breaching the existing perimeter berms, grading to create channels, stabilizing bank protection, and vegetation planting. Breaching the berms would allow surface water to flow through constructed channels for tidal wetland habitat. Channels would be designed for tidal circulation to improve food production in the wetland. This would convert the freshwater seasonal wetlands of the site's interior into tidally influenced shallow riverine habitat and emergent wetlands. The design would incorporate IWM where appropriate. Revegetation would include a palette of native trees, shrubs, grasses, and aquatic vegetation. Aquatic vegetation should include native submerged and emergent wetland plants. The shallow water and aquatic spawning habitat would provide sheltered slow-moving water, food and cover for Delta Smelt, juvenile Salmon and Steelhead. Appropriate aquatic habitat conditions could encourage invertebrate plankton populations to flourish within the constructed wetland to support the food web for Delta Smelt. The wetland design will incorporate habitat features that reduce the presence of predators and do not create fish traps during low water circumstances. The riparian vegetation would provide resting, foraging, roosting, and nesting habitat for numerous avian species, as well as the local terrestrial fauna. The visual goal for the habitat mitigation is for the site to blend in seamlessly with the surrounding riparian forest, although many years would be required for the vegetation to fully mature. The only fill material anticipated at SRMS is expected to occur within seasonal wetlands located on the land side of the levees, this fill is necessary to prevent creating fish traps and to provide appropriate tidal wetland elevations. Breaching of the levee would result in removal of existing materials to create a connection to the inland of the project site. Once the site is connected to the river, the site would create additional acres of WOTUS.

(6) Sacramento River Erosion Contract 3

Sacramento River Erosion Contract 3 includes three sites (7, 8 and 9) totaling 2.8 miles between river miles 47.3 and 53.1 in Sacramento's Pocket neighborhood. Sump 70, which is owned by the City of Sacramento, would be protected in place. The planned erosion protection method for all sites includes placement of rock revetment on the left (east) riverbank to prevent erosion and possible failure of the levee that protects the adjacent Pocket neighborhood. Quarry stone revetment would be placed on-grade along the riverbank between the riverbed and the summer water surface elevation to protect against scour and erosion during high river flows. The design would incorporate a launchable rock toe, consisting of a thicker layer of quarry stone

along the riverbed. The launchable rock toe is designed to deploy and fill any eroded areas during high flows, protecting further erosion from occurring. To protect against boat wake erosion during the peak recreation season, quarry stone would be placed on the shoreline above the summer water surface elevation to slightly above the boat wake zone. This stone would feature soil fill to cover the voids in the rock and would be hydroseeded with native grasses and forbs. IWM would be placed along the shore to provide shaded riverine aquatic (SRA) habitat. The IWM will be placed at least 50-feet from the private boat docks. Rock tiebacks would be installed perpendicular to the river's flow to provide additional erosion protection for the upper banks. Tiebacks would be spaced intermittently, as needed, and eliminate the need for continuous rock protection up to the top of the levee. SEIS/SEIR Figure 3.5.4-1 and SEIS/SEIR Figure 3.5.4-2 show the approximate number and location of tiebacks. The launchable rock toe and tiebacks are design refinements that were not previously analyzed in the ARCF GRR Final EIS/EIR.

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

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

In this document the American and Sacramento River erosion protection measures are cumulatively referred to by the shorthand "erosion protection."

(7) Magpie Creek Project

Magpie Creek improvements include a levee extension, widening and realignment of a portion of the MCDC, culverts beneath the Sacramento Northern Bike Trail, and flowage easements to allow water retention on an approximately 80-acre area upstream of Raley Boulevard. A levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank of the MCDC to tie into existing high ground. Raley Boulevard would be realigned eastward and cross up and over the extended levee. The roadway grading would remain elevated as it crosses the MCDC to accommodate installation of three up to 7-foot- high by 10-foot-wide culverts (SEIS/SEIR Figure 3.5.1-2). The roadway alignment change would avoid permanently blocking the entrances of businesses during construction of the levee and culvert and would help maintain the mandatory safe stopping distance for vehicles traveling at the posted speed limit. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acre of this wetland.

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

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

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

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

Changes to the Operations and Maintenance (O&M) manual would be required to address the changes in the facility, as the current condition of the MCDC is under-performing the necessary waterflow for a 1 in 200 annual exceedance probability (AEP) highwater event. The current maintenance agreement does not require the removal of woody vegetation; a new O&M manual would include routine vegetation removal to maintain the required channel capacity. In addition to maintenance roads along both top banks of MCDC from Vinci Avenue to Dry Creek Road (2,700 feet), the project includes the construction of a maintenance road along the landside toe of the levee from Raley Boulevard to Vinci Avenue (2,100 feet), see SEIS/SEIR Figure 3.5.1-1.

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

c. Purpose and Need

The Sacramento Metropolitan area is one of the most at risk areas for flooding in the U.S. The ARCF GRR is a cooperative effort by USACE, CVFPB – the non-Federal sponsor, and the SAFCA – the local sponsor. Improvements have increased the capability to release emergencies flows from Folsom Dam up to 160,000 cfs. There is a need to reduce the overall flood risk associated with the 160,000 cfs releases along the American and Sacramento Rivers by addressing the failure risks due to seepage and erosion. Further study by USACE and its Project Partners, since the initial 2016 GRR FEIS/EIR, resulted in refinements to the initial flood risk reduction designs in the ARCF 2016 Project. The consequences of a levee failure would be catastrophic to life safety, since the area inundated by flood waters is highly urbanized and the flooding could be up to 20 feet deep in some areas.

(1) Authority

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

d. Alternatives [40 CFR 230.10]

(1) No Action

The No-Action Alternative is the buildout of the authorized project as it was described in the ARCF GRR Final EIS/EIR (USACE and CVFPB, 2016). Since 2016, substantial portions of the authorized project have been constructed, as described in supplemental documents including the same documents listed in section 2.1.1 of the 2025 SEIS/SEIR.

The No Action Alternative for this water quality evaluation therefore includes all the components of the authorized ARCF GRR Final EIS/EIR Proposed Action (Alternative 2) that have been constructed as well as the remaining authorized components of the Proposed Action in the ARCF GRR Final EIS/EIR that have not yet been constructed. Table 3.4-1 of the 2024 SEIS/SEIR presents the remaining components of the authorized ARCF 2016 Project that will be constructed as part of the No Action Alternative.

The No Action Alternative would have no impacts on WOTUS beyond those described in the 2015 Section 404(b)(1) Water Quality Evaluation. Additional research and design have shown that the alternative does not meet the originally authorized project purpose because it does not adequately address the flood risk in the study area, and is, therefore, not considered to be the LEDPA.

(2) Other Project Alternatives

There were six alternatives considered and rejected from detailed analysis under the National Environmental Policy Act (NEPA) in the development and screening process (see Chapter 3. Description of Project Alternatives in the Final SEIS/SEIR). These were rejected due to not meeting environmental or flood risk reduction needs. The erosion vulnerabilities on the American and Sacramento Rivers are site specific and confined by adjacent urban development, thus there is little flexibility in the location for erosion improvements. The project alternatives considered for NEPA are summarized below.

a. Alternatives for American River Erosion Contract 3B North and South

There are no other alternatives analyzed in detail for American River Erosion Contract 3B North and South that would meet project environmental and flood risk needs. This includes consideration of erosion protection options without revetment such as levee setbacks and bioengineering. Refer to section 1.7.4 “Erosion Protection Design Alternatives” in Appendix G of the 2025 SEIS/SEIR for more details on alternatives considered in design but determined to be infeasible.

b. Alternatives for American River Erosion Contract 4A

Alternative 3. Alternatives include a landside berm to avoid bike trail reroute, a permanent bike trail reroute closer to the river, a permanent bike reroute that goes under the railroad, and a bike trail reroute around the railroad.

c. Alternatives for ARMS

d. Alternative 4a and 4b. There are two California Environmental Quality Act (CEQA) - only alternatives that would retain a portion of the existing man-made pond, reducing the need for fill material to create riparian topography and reducing the transportation, air quality, and greenhouse gas (GHG) emissions impacts. These were not selected because it would not fully restore the site to floodplain habitat and would not meet ARCF habitat mitigation acreage requirements.Alternatives for SRMS

Alternative 5a, 5b, and 5c. Alternatives to not construct SRMS include purchasing mitigation bank credits and funding a project called Sunset Pumps, which includes the removal of a rock weir that is blocking a migratory corridor for green sturgeon, chinook salmon, and steelhead; and pursuing an alternative mitigation site located at Watermark Farms on the Sacramento River in Yolo County, from approximately River Mile 50.5 to River Mile 51.25. These were not selected because constructing a large-scale tidal marsh or shallow water aquatic habitat mitigation site is preferred over purchasing mitigation bank credits in the current NMFS BO (WCRO-2020-03082, dated May 12, 2021) and the Watermark Farms site would need to be purchased from a private owner while SRMS is already owned by USACE.

e. General Description of Dredged or Fill Material

(1) General Characteristics of Material

Erosion protection measures on the American and Sacramento Rivers would involve the discharge of fill material into WOTUS. Fill materials for erosion protection would consist of large stone riprap, ranging from 3 to 36 inches (average 6 to 20 inches), to armor the waterside slope, or to construct a launchable rock toe, planting bench, and tiebacks. Choke stone will be used on top of the larger stone riprap at the launchable toe and on slopes below the summer water level to fill voids between the rock and reduce loss of planting soil. On the upper slope revetment will be soil-filled and planting bench soil fill material will be comprised of a range of silts, sands, and gravels to support plant growth. Soil filled revetment will be topped with topsoil to encourage higher success rates for plant survival. Native fill, topsoil, gravel, and geotextile would also be needed for the armored berm. The proposed soil, sand or silt for the erosion protection measures would come from clean, imported fill material. Native fill, topsoil, gravel, and geotextile would also be needed.

The MCP would involve the discharge of fill material into WOTUS to extend, widen, and realign the levee. Fill materials for levee raises would be silty and clayey soils with a minimum content of 20% fine particles, a Liquid Limit less than 45, and a plasticity index between 7 and 15. No organic material or debris may be present in the soil. The proposed soil would be clean and would be imported from either a tested and approved borrow site, or from a commercial source.

At ARMS, the majority of soil encountered during site investigations was generally sand or silty sands. Results from one potential borrow site option for ARMS showed clay materials.

At SRMS, we are not anticipating any import of fill material. The conversion of seasonal wetlands in the site's interior into tidally influenced shallow riverine habitat and emergent wetlands would be accomplished primarily through the regrading of existing on-site material and beneficial reuse within the design footprint. The project site consists mostly of sandy silt deposits underlain by medium plastic clays (CL) and silt (ML) with less than 10 percent organic content. The surficial material consists of sandy deposits. This initial layer of sandy material extends to an approximate depth of 5 feet below ground surface. Below the initial sandy layer lies an approximately 10-foot thick, soft clay loam layer. Underlaying the clay layer is silt that extends for another 10 feet deep and gets progressively sandier with depth. Boring logs indicate groundwater around 15 to 25 feet below ground surface.

(2) Quantity of Material

The quantity of material placed in WOTUS for each contract is listed in Table 1.

Table 1. Quantity of Material Placed in WOTUS

Contract	Quantity (cy)	Water Type
American River Erosion Contract 3B	55,000	American River
American River Erosion Contract 4A	1,801	American River
American River Mitigation Site	950,000	Man-made Pond
Sacramento River Mitigation Site	0	Seasonal Wetlands
Sacramento River Erosion Contract 3	280,200	Sacramento River
Magpie Creek Project	15,000	Forested Wetland

(3) Source of Material

Riprap and soil for bank protection would be imported from a licensed, permitted facility that meets all Federal and State standards and requirements. The material would be transported to the site via barge on the Sacramento River and via land side access for all other contracts.

f. Description of the Proposed Discharge Site

(4) Location

The Proposed Action includes the American River Erosion Contract 3B North and South, American River Erosion Contract 4A, ARMS, SRMS, and MCP. The locations of each component of the Proposed action are described in more detail below.

American River Erosion Contract 3B North and South are made up of three different sites.

- Site 3-1 includes 1.1 miles of erosion protection, is located on the right (north) bank of the Lower American River between Howe Avenue and Watt Avenue, and from river mile (RM) 7.8 to RM 8.8. The launchable toes and riverbank protection is for the most part located below the OHWM (see figure 3.5.2-4 in the 2025 SEIS/SEIR) and consequently would be the locations of permanent discharge for Site 3-1. This makes up about 6.3 acres of permanent impact within the WOTUS.

- Site 4-1 includes 1.5 miles of erosion protection, is located on the left bank of the Lower American River upstream of Watt Avenue and extends from RM 9.1 to RM 10.5. Site 4-1 has a mixture of features above and below the OHWM (Figure 3.5.2-9 in the in the 2025 SEIS/SEIR), only the features below the OHWM would be considered discharge to a WOTUS. Generally, majority of the launchable trench, riverbank bank protection and levee bank protection are above the OHWM. There are some locations where the launchable trench and riverbank protection is below the OHWM. Launchable toe and planting bench features are below the OHWM.

- Site 4-2 is completely above the OHWM (Figure 3.5.2-6 in the in the 2025 SEIS/SEIR) and outside of any WOTUS so there will be no discharge associated with Site 4-2.

American River Erosion Contract 4A includes a 100-foot berm, is on the right bank of the Lower American River, downstream from the American River Erosion Contract 3B sites, near RM 2.0, under the State Route (SR) 160 Bridge and the Union Pacific Railroad (UPRR) Bridge. The edge of a forested wetland considered a WOTUS needs to be filled in in order to construct the berm and part of the bike trail reroute. An estimated 1.02 acres of forested wetland would be filled with the berm and part of the bike trail reroute.

The American River Mitigation Site is located at RM 1.3 on the Lower American River. The 120-acre site is on the water side of the Federal levee and is subject to tidal influence. It was historically owned and operated as a sand and gravel mine and the discharge would primarily take place in the approximately 50-acre pond left over from the mining operation. The pond would not be converted to uplands, it would be partially filled and regraded to provide a backwater channel to the American River.

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

Sacramento River Erosion Contract 3 begins approximately 7 miles downstream from the confluence of the American and Sacramento Rivers along the east levee, in a part of the Sacramento River that receives tidal influence. Contract 3 totals 2.8 miles of erosion protection work below the OHWM between RM 47.3 and 53.1

MCP improvements include a levee extension, widening and realignment of a portion of the MCDC, culverts beneath the Sacramento Northern Bike Trail, and flowage easements to allow water retention on an approximately 80-acre area upstream of Raley Boulevard. A levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank of the MCDC to tie into existing high ground. Raley Boulevard would be realigned eastward and cross up and over the extended levee. The roadway grading would remain elevated as it crossed the MCDC to accommodate installation of three up to 7-foot- high by 10-foot-wide culverts. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of this wetland.

(5) Size

Approximately 12 acres of fill would be placed at American River Contract 3B and 1 acre at American River Contract 4A, 27 acres at SREC3, 54 acres in the man-made pond at ARMS, 21 acres in the seasonal wetland at SRMS, and 4 in the MCDC at MCP. At American River Contract 4A the berm and bike path would fill 1.02 acres of a 11.5-acre wetland.

(6) Type of Site

To construct the erosion protection measures, riprap and soil fill would be placed along four miles of the American and three miles of the Sacramento River along the waterside slope of the levee, below the OHWM. American River Erosion Contract 4A would place fill in a forested wetland. To construct ARMS, a man-made pond would be filled and converted to shallow water habitat. The existing river bank line would be breached to reconnect ARMS to the American River. To construct SRMS, fill would be removed from the Sacramento River and Steamboat Slough, below the OHWM to create the connections. Fill would be placed and the ground elevation altered due to elevation work within a seasonal wetland to facilitate the tidally influenced flow channels. To construct the levee realignment and MCDC widening, soil will be placed along two miles of the MCDC.

***(7)** Type of Habitat*

The Sacramento River is a highly manipulated waterway that is constrained by man-made levees on both sides. The river provides habitat for many species; however, it is not a pristine, unaltered environment. The habitat types along the footprint of the bank protection measures include valley foothill riparian habitat and open water habitat. The lower American River is also highly altered, though remnant floodplains do exist that provide habitat. These habitat types are described below.

Valley Foothill Riparian Habitat. The overstory of the riparian habitat consists of mature, well-established trees: Fremont cottonwood, valley oak, Goodding's willow, and box elder. Though less common in this area, Oregon ash (*Fraxinus latifolia*), western sycamore, and white alder (*Alnus rhombifolia*) are also observed. The shrub layer consists of smaller trees and shrubs; representative species observed were poison oak (*Toxicodendron diversilobum*), sandbar willow, and Himalayan blackberry. Elderberry shrubs, the host plant of the valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), which is Federally listed as threatened, were observed in the riparian habitat along the American and Sacramento Rivers. Riparian habitat is classified as a sensitive habitat by California Department of Fish and Wildlife (CDFW).

Due to the urban development adjacent to the levees in the project area, wildlife is limited primarily to small mammals and various avian species, especially those species that are adapted to human disturbance. Additionally, several Federally listed species are reliant on

riparian corridors, including VELB and the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

Open Water. The American River and Sacramento River are located within the study area and would both be impacted by placement of fill into WOTUS Both of these rivers are navigable waterways that are jurisdictional under CWA Section 404..

Wetland: Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979). There is a forested wetland located at American River Erosion Contract 4A, and seasonal wetlands and vernal pools located at MCP. Forested wetlands are seasonally wet areas with primary vegetation of woody trees. Vernal pools are a special status habitat that is a type of seasonal wetland. Within the study area, wetlands also include features such as drainage ditches and farm canals, and open water habitat such as rivers and creeks. Wetlands and vernal pools are considered sensitive habitats under CEQA.

Representative species observed in seasonal wetlands include Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), Italian ryegrass, water pepper (*Persicaria hydropiperpoides*), and alkali mallow (*Malvella leprosa*). Wetlands provide habitat for crustaceans such as fairy shrimp (*Anostraca*) and seasonal water sources for ducks, and geese. Unlike the ducks, the fairy shrimp spend their entire life cycle relying on the seasonal waters, unable to relocate if the local environment becomes disturbed or eliminated. Many migratory waterfowl use seasonal wetlands as a place to find food and rest before continuing their migrations.

Wetlands in the study area are jurisdictional WOTUS that are subject to regulation. Prior to construction, wetland delineations would be conducted at locations of potentially jurisdictional wetlands within the project sites to confirm the presence of these sensitive habitats.

a. Timing and Duration of Discharge

The construction schedule for the ARCF project (Table 2) was estimated based on a 4-month construction window, per year, due to seasonal and environmental constraints. Construction would occur during the summer months, between July 1 and October 31 due to special status species work windows and the flood season.

Table 2. Project Schedule

Contract	Construction Start	Total Construction Duration	In-Water Work Duration
Sacramento River Erosion Contract 3	June 2026	2 seasons	2 Seasons June-Oct 2026 June-Oct 2027
American River Mitigation Site	April 2026	4 seasons	4 seasons July 1 – Oct 31 2026 July 1 – Oct 31 2027 July 1 – Oct 31 2028 July 1 – Oct 31 2029
Sacramento River Mitigation Site	April 2026	2 seasons	2 seasons July 1 – Oct 31 2026 July 1 – Oct 31 2027
American River Erosion Contract 3B	April 2026	2 Season	2 Seasons June-Oct 2026 June-Oct 2027
American River Erosion Contract 4A	May 2027	1 Season	1 Season May-Dec 2027 for wetland work
Magpie Creek Project	May 2028	2 seasons	1 season

g. Description of Disposal Method

Bank Protection (Soil-filled Revetment)

The site will be prepared by removal of select trees, small vegetation, and, on the Sacramento River, any old bank protection materials. Rock above the wetted channel will be moved from the barge to the bank with an excavator on the Sacramento River and dumped by truck on the American River, once on land it will be placed by a bulldozer or an excavator. Rock below the wetted channel will be placed by an excavator that is parked either on the barge or on the riverbank. This stone would feature soil fill to cover the voids in the rock and would be hydroseeded with grasses and forbs or the soil-filled revetment would also be covered with six-12- inches of topsoil to encourage establishment of vegetation. IWM would be placed along the shore to provide shaded riverine aquatic habitat.

Launchable Rock Trench

This measure includes construction of a launchable rock filled trench, designed to deploy once erosion has removed the bank material beneath it. All launchable rock trenches would be constructed outside of the natural river channel. As a result, launchable rock trenches are generally above the OHWM and fill materials would not be placed into waters of the U.S. At Site 4-1 for American River Erosion Contract 3B there is a launchable trench just on the edge of the OHWM that has locations where launchable Rock Trench goes below the OHWM.

The vegetation would be removed from the footprint of the trench and the levee slope prior to excavation of the trench. The trench configuration varies to meet local site needs, see figures 3.5.2-22, 3.5.2-23, 3.5.2-24, and 3.5.2-27 in the 2024 SEIS/SEIR for examples of the configurations. All soil removed during trench excavation would be stockpiled for reuse or disposal.

After excavation, the trench would be filled with riprap that would be imported from an offsite location. Generally, for American River Erosion Contract 3B, launchable trench is being placed under roads and bike trails. The roads and bike trails will be replaced once work is completed. After rock placement, in situations where the area will be replanted for onsite mitigation, the trench would be covered with a minimum of 1 foot of the stockpiled soil to increase success of plantings over the trench. Rock placed on the slope would be covered with the stockpiled soil. All disturbed areas would be reseeded with native grasses and woody vegetation where appropriate. Some vegetation could be permitted over the trench if planted outside the specified vegetation free zone required by Engineering Technical Letter (ET)L 1110-2-583. This vegetation would likely be limited to native grasses, shrubs, and trees with shallow root systems to ensure that they do not limit the functionality of the trench during a flood event.

Launchable Rock Toe

Launchable rock toe generally includes a peaked stone pile within the river that would support a planting bench between the stone pile and the existing bank (SEIS Figure 3.5.2-15). The launchable rock would be covered with a layer of choke stone fill (smaller rock that would fill in the gaps between the larger pieces of revetment) to both minimize potential for predatory fish to hide in rock voids, and to reduce the artificial appearance of the launchable rock. On the American River where feasible, a planting bench will be added between the stone pile and the existing bank. The launchable rock toe is designed to “launch” into areas where erosion of the channel bottom occurs and progresses during a flood event below the toe of the rock, covering the eroded surface of the new channel bottom and inhibiting further progression of the eroded slope. Once fully launched, a layer of riprap (with a minimum thickness between 25 and 32 inches) would extend from the channel toe to the maximum depth of scour predicted in the river channel.

Tie backs

There are two types of tie backs associated with designs: those higher up on the riverbank bench and those within planting benches. Tie backs installed higher up on the bench outside the launchable trench as a form of erosion protection. These tie backs are built up of revetment placed in a triangular shape. The top of the tiebacks are approximately 21-feet across, and the tip of the triangular shape is 7-feet below existing grade of the levee overbank. The tie backs are built so that during high flows, erosion would be minimized in between different types of erosion protection treatment.

Planting bench tiebacks would be placed periodically throughout the planting benches to limit the extent of erosion and subsequent damage to a planting bench during a flood event. Along the lower bench, IWM structures consisting of whole trees with intact root wads would be installed to increase the roughness of the bench and to provide fine-textured woody material along the river margin for juvenile salmonid rearing habitat.

American River Erosion Contract 4A Berm

American River Erosion Contract 4A would include construction of an armored berm approximately 100 feet wide on the water side of the levee near RM 2.0. Due to the physical constraints at this location, the berm footprint would impact a portion of an existing wetland and would extend up the levee. Additionally, filling the wetland will help support the bike trail reroute.

American River Mitigation Site

The existing man-made pond would be drained and graded, and pond bottom sediments would be capped. The site would be connected to the river by removing the existing bank, creating multi-elevational flow channels, and smoothing out elevations in between. Additional grading would be necessary to modify elevations across the site elsewhere, stabilize banks, and create access pathways. Bank protection measures may be required to protect the channels from eroding and being damaged during high-flow events. The design would incorporate IWM. Equipment could include bulldozers, skid loaders, backhoes, and other similar earth work equipment.

Sacramento River Mitigation Site

Channels would be constructed within the existing open space and dredge placement site prior to breaching the berms in one or more locations to allow surface water to flow through constructed channels for tidal wetland habitat. Additional grading would be necessary to modify elevations across the site elsewhere, stabilize banks, and create access pathways. Bank protection measures may be required to protect the channels from eroding and being damaged during high-flow events. The design would incorporate IWM. Equipment could include bulldozers, skid loaders, backhoes, and other similar earth work equipment.

Magpie Creek Project

A levee extension would be constructed crossing Raley Boulevard and extend approximately 1,000 feet to the east along the top bank of the MCDC to tie into existing high ground. Raley

Boulevard would be realigned eastward and cross up and over the extended levee. There is a 2.4-acre wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of this wetland.

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

Three 5-foot-high by 5-foot-wide culverts would be constructed where Robla Creek passes under the Sacramento Northern Bike Trial. These culverts would relieve pressure on the bike trail bridge during high flow events.

III. Factual Determinations

a. Physical Substrate Determinations (Sections 230.11 (a) and 230.20)

(1) Comparison of Existing Substrate and Fill

The project area generally consists of deep soils derived from alluvial sources, which range from low to high permeability rates and low to high shrink-swell potential. Soils immediately adjacent to the Sacramento River are dominated by deep, nearly level, well-drained loamy and sandy soils. The natural drainage is good, and the soils have low to moderate subsoil permeability. The river terraces consist of very deep, well drained alluvial soils. The porous nature of the soils underneath the existing levee system is an important consideration for the design of levee improvements within the ARCF 2016 Project study area. The major source of sediments deposited in the study area is from the erosion of the Sierra Nevada Mountain range and foothills to the east of the Sacramento Valley. Naturally occurring asbestos (NOA) is known to occur in the foothill metamorphic belt. Therefore, NOA may be present; however, the likelihood of project area soils containing significant concentrations of NOA is low due to the long distance from the source rock.

American and Sacramento River Erosion Protection
Erosion protection on the American and Sacramento Rivers would create permanent changes of substrate. As discussed in Section II(b) above, fill material for bank protection construction would consist of large stone riprap ranging from 3 to 36 inches (average 6 to 20 inches), to armor the waterside slope. For SREC3 the maximum stone diameter would be about 21 inches with the average being 11 inches in diameter. For American River Erosion Contract 3B the average stone size will be between 6 to 20 inches. The riprap would be soil filled when above the summer water level and would be topped with a fine soil, sand or silt fill over the top to allow for planting on the berms.

American River Erosion Contract 4A Berm
The revetment, soil, and topsoil for the armored berm would create permanent changes of substrate. The material would be clean, imported fill material or reused from material onsite. The berm will be made up of soil filled quarry stone and the size range of stone within the berm at American River Erosion Contract 4A is approximately 3 inches to20 inches.

ARMS
The mitigation project would result in significant permanent changes to the substrate through grading and fill of the man-made pond and reconnection to the American River.

SRMS
Exploratory drilling was performed in March 2024 by Geo-Ex Subsurface under the supervision of USACE Sacramento District personnel. A total of 4 borings were drilled to a maximum depth of 25 feet below ground surface. Based on the field findings and laboratory test results, the

project site consists mostly of sandy silt deposits underlain by medium plastic clays (CL) and silt (ML) with less than 10 percent organic content. The surficial material consists of sandy deposits. This initial layer of sandy material extends to an approximate depth of 5-feet below ground surface. Below the initial sandy layer lies an approximately 10-foot thick, soft clay loam layer. Underlaying the clay layer is silt that extends for another 10 feet deep and gets progressively sandier with depth. Boring logs indicate groundwater around 15 to 25 feet below ground surface.
It is expected that there is no import of soil material. Engineering design works with the existing topography to minimize cut and fill in the creation of fishery and riparian mitigation features.

MCP
The widening of MCDC and realignment of the levee would not result in permanent changes to the substrate of the canal. However, 0.30 acres of adjacent seasonal wetland would be permanently filled to widen the levee.

(2) Changes to Disposal Area Elevation

American and Sacramento River Erosion Protection

Due to the placement of rock bank protection along the riverbanks, there would be an increase in elevation of approximately 3-4 feet in the locations where fill is placed in the WOTUS. Some areas would require regrading or extra revetment to meet correct slopes and in those areas elevations with rock bank protection could see up to 17 feet elevation gain. Because some areas will need more site preparation than others, this elevation change will vary by site. The launchable rock toe, rock tie backs, and planting benches would typically increase elevations in the channel. The elevation increase varies by location, some locations would only increase 3-4 feet but many locations would increase by up to 10-17 feet. The project is required and designed to not impact the flow, circulation and capacity of the flood system.

American River Erosion Contract 4A Berm

The construction of American River Erosion Contract 4A will fill 1.02 acres of a 11.5-acre wetland. The berm would increase elevation from a maximum of 25 feet at its intersection with the levee and then tapering down. The remaining fill would raise elevation approximately 10-feet to support the levee, patrol road, bike trail reroutes and water line relocation.

ARMS

The existing man-made pond would be drained, filled with clean fill materials, and re-connected to the American River by removing the existing bank, creating multi-elevational flow channels, and smoothing out elevations in between. The existing elevations in the bottom of the pit range between minus 10 to 0, and we are proposing to grade the mitigation channels with bottom ranging between 3 to 4.5 or so, the top of bank of the mitigation channels are around elevation

8.2, and the area above that is graded pretty flag and ranging up to around elevation 10 or 12 generally. The existing slopes of the mining pit vary between 5:1 to 2:1, and the proposed grading at the slope tie in locations will be primarily 5:1 or flatter with a few locations at 3:1 max where the grading is tight.

SRMS

The regrading of the site would convert the seasonal wetlands of the site's interior into tidally influenced shallow riverine habitat and emergent wetlands. This will create a varied topography. The current site elevations range from 4 feet at the lowest to 30 feet at the top of the berms. Once construction is complete, the site elevations will range from –2 feet, to 14 feet within the northern cell and the majority of the berms will retain their existing height, maxing out at 30 feet.

MCP

The MCDC would be widened and realigned up to maximum 25-foot bottom width. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently fill approximately 0.30 acres of a wetland.

(3) Migration of Fill

The erosion protection is designed to avoid significant migration of newly placed fill using geotextiles and the establishment of on-site vegetation. However, during the life span of the bank protection, there would be natural erosion and migration of fill, but at a slower rate than without bank protection. The erosion repairs within the project area are likely to somewhat reduce the sediment supply for riverine reaches directly downstream because the riprap would hold the bank or levee in place. However, from a system sediment perspective, the bank material that would be protected in the project reaches is not a major source of sediment compared to the upstream reaches of the Sacramento, Feather, and, especially, the Yuba River systems.

Migration of fill is not expected at MCP beyond the natural erosion and migration of fill occurring at the site across the 50-year lifespan of the project.

At ARMS and SRMS, limited migration of fill is expected from natural erosion and sedimentation processes following the reconnection to the river and establishment of freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats. The low flow channels at SRMS may shift around or meander through natural processes. This type of fluctuation is consistent with natural, tidally influenced, low flow channels.

(4) Duration and Extent of Substrate Change

There would be a permanent change of substrate on the riverbanks from alluvial soils to stone riprap and riparian planting benches, in most locations. However, the rock berms would be covered with a silty or sandy layer of soil to allow for the planting of vegetation along the riverbanks and to reduce the visual impacts of having a rock slope. This silty or sandy layer of

soil would be of a similar substrate type to the existing condition, at SREC3 this would be an improvement over the existing concrete and older hard bank protection. For launchable trench features and tiebacks, substrate would change from soil to soil filled revetment. The launchable rock toe measure would result in a change in substrate from undrained hydric soils to buried stone riprap with a silty or sandy layer of soil on the surface to allow for revegetation of the site. The launchable toe themselves would result in a change of substrate from undrained soils and cobbles on the river bottom to choke stone filled revetment at the launchable toes themselves. When planting benches are installed with the launchable toes on the American River, the planting benches would typically be at a higher level and change the substrate from undrained soils and cobbles on the river bottom to hydric soils. A typical bank protection site has an approximate life span of 50-years.

The substrate of the fill for the berm at American River Erosion Contract 4A would change from hydric undrained soils to soil filled revetment topped with upland soils and in some cases topped with a gravel road and paved bike trail.

The majority of the soil encountered during investigations at ARMS was sand and siltand results from one potential borrow site option for ARMS are available and shown to be clay materials. The majority of the surface substrate withing the project area will be modified due to the grading and import of fill materials. The SRMS project is not anticipating any import of fill, so there would be no change of materials.

MCDC would be widened, shaped, and compacted, but the substrate would remain unchanged.

(5) Changes to Environmental Quality and Value

The Proposed Action would result in potential impacts to water quality, including increased turbidity during bank protection construction, runoff of exposed soils, and cement, or fuel spills during construction. Emissions from construction equipment, haul trucks, and barges also pose a potential impact to environmental quality and value during the duration of construction activities. BMPs would be implemented during construction to reduce these impacts to less than significant. There would be a permanent change in substrate in the footprint of the erosion protection areas; however, these sites would be designed to be as consistent as feasible with natural riverbanks through the placement of silt over the rock layer and the planting of on-site shrubby vegetation and native grasses. To the extent feasible, large trees on the lower waterside slope would be left in place to maintain SRA habitat for special-status fish species and planting benches installed to allow new vegetation to establish. Generally, trees have to be removed when launchable toe, tie backs, launchable trench and bank protection must be installed, however.

After construction of the flood risk management features is completed, the direct effects to habitat for special status species would be compensated in accordance with the Biological Opinions. Mitigation plantings would be monitored during the plant establishment period for

success. Successful habitat mitigation would compensate for significant effects to vegetation, wildlife, special status species, and aesthetic resources.

(6) Actions to Minimize Impacts

The following mitigation measures would be used during construction of the Proposed Action to reduce impacts to environmental quality:

- The whole project area was originally evaluated for its erosion risk, then it was divided into areas that did not need remediation, areas that needed a minimal repairs and areas required more significant repairs. The sites that did not need work are not being impacted. The sites with minimal repairs have been designed with less impacts and smaller footprints. The sites that need more intense repairs have gone through intense design evaluations to allow for the smallest, most efficient footprint but continue to provide maximum flood risk reduction.
- Prior to construction, USACE or its contractor would be required to acquire all applicable permits for construction.
- Prior to construction, a Stormwater Pollution Protection Plan (SWPPP), Spill Prevention Control and Countermeasures Plan, and a bentonite slurry spill contingency plan would be prepared, and best management practices (BMPs) would be proposed to reduce potential erosion and runoff during rain events.
- 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.
- After construction of the flood risk management features is completed, the direct effects to habitat for special status species would be compensated in accordance with the Endangered Species Act Biological Opinions. Mitigation plantings would be monitored during the plant establishment period for success. Successful habitat mitigation would compensate for significant effects to vegetation, wildlife, special status species, and aesthetic resources.
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b. Water Circulation, Fluctuation, and Salinity Determinations

The levee improvements from the Proposed Action to water circulation, fluctuation, and salinity would be mostly similar as what was described in the GRR 404(b)(1) and are summarized below. The ARMS and SRMS will result in minor, permanent alterations to water circulation. The Project Area is in the Sacramento Hydrologic Basin Planning Area and Lower American Hydrologic Subarea, as designated by the Central Valley Regional Water Quality Control Board (RWQCB). Water quality standards for this basin are contained in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan) per Section 303 of the Clean Water Act.

(1) Alternation of Current Patterns and Water Circulation

The Proposed Action's erosion protection measures are fix-in-place levee improvements that would have no effect on current patterns of water circulation.

The construction of SRMS will breach the existing levees, ARMS will breach the existing bank line, and both will install freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats, which will result in local, minor, permanent alterations to water circulation. Both sites will be reconnecting floodplain to the American and Sacramento Rivers, extending the flow area and circulation of WOTUS into areas that are currently unreachable under normal flows.

The widening of the MCDC, at MCP, will increase flow, but not alter current patterns and water circulation.

(2) Interference with Water Level Fluctuation

Because the Sacramento River and American River systems are regulated by upstream dams which allow a specific amount of water to be released into systems, the Proposed Action and the No Action, and No Project alternative would not change water level fluctuation patterns.

Potential implications of the simulated long-term changes in bed profiles can be increased stress along the toe of the project levees or overbank berms in the degradational reaches, which may result in increased scour along unrevetted channel sections. In the aggradational reaches, an increase in bed elevations may result in higher flood stages and reduced flood conveyance.

(3) Salinity Gradients Alteration

Salinity gradients would not be affected, as salinity normally only increases in the river system during low flow events when there is a higher-than-average tidal influx from the Delta. With-project conditions in the system would remain consistent with existing conditions during normal and low flow periods. Flows would be increased during high water events, however the flood flows during these events would be pushing any salinity intrusion back down into the Bay-Delta system and would not result in any salinity increases in the riverine system. A projected benefit of SRMS includes the reconnection of historically tidally influenced land to brackish, open water habitat.

(4) Effects on Water Quality

The Basin Plan states that where ambient turbidity is between 5 and 50 nephelometric turbidity units (NTUs), projects would not increase turbidity on the Sacramento River by more than 20 percent above the ambient conditions. Furthermore, if the ambient diurnal variation in turbidity fluctuates in and out of the 5 and 50 NTUs threshold, the Basin Plan states that averaging periods can be applied to data to determine compliance. For example, during the summer months, the Sacramento River turbidity could be less than 50 NTUs, and during the winter

months, the turbidity could be more than 50 NTUs because of the higher flow rate causing more river scouring. Thus, the monthly average was calculated using hourly California Data Exchange Center (CDEC) data and is presented in Table 3 below. Specific construction activities that are part of the potential alternatives would need to comply with the above-stated thresholds for turbidity.

Water quality impacts that could result from project construction activities and project operations were evaluated based on the construction practices and materials that would be used, the location and duration of the activities, and the potential for degradation of water quality or beneficial uses of project area waterways.

The placement of riprap along the riverbanks would temporarily generate increased turbidity in the immediate vicinity of the construction area. Additionally, placement of riprap in the water could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. Turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Best management practices would be implemented to reduce the effect of runoff into the stormwater system to less than significant. BMPs include such things as coir mats or hay bales to prevent runoff, rock groins to retain sediment, sandbags to prevent erosion, and drain screens to prevent sediment from traveling outside the construction area footprint and into the storm drains system.

As rock riprap is placed in the open water, significant indirect effects would result as the sediment and turbidity plume would drift further downstream and later affect the water quality in those areas further downstream of the project area. By implementing the BMPs contained within the SWPPP, impacts would be reduced to less than significant.

(a) Water Chemistry

The potential of hydrogen (pH) is a unit for measuring the concentration of hydrogen ion activity in water and is reported on a scale from 0 to 14. If a solution measures less than 7, it is considered acidic. If a solution measures more than 7, it is considered basic, or alkaline. If a solution measures 7, it is considered neutral. Many biological functions occur only within a narrow range of pH values. The Basin Plan objective for pH is between 6.5 and 8.5. Furthermore, discharges cannot result in changes of pH that exceed 0.5. The monthly average pH of the Sacramento River from 2003 to 2009 remained stable throughout the year (Table 3-4). Construction materials such as concrete or other chemicals could affect the pH of the Sacramento River if a discharge were to occur. The proposed materials and construction activities have the potential to affect water chemistry during the duration of construction. Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor would be required to obtain a permit from the Central Valley RWQCB detailing a plan

to control any spills that could occur during construction. The plan would describe the construction activities to be conducted, BMPs that would be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted.

(b) Salinity

The proposed materials and construction activities are not expected to affect salinity.

(c) Clarity

Placement of fill materials would temporarily reduce clarity due to an increase in total suspended solids within the project area. Clarity is not expected to be substantially affected outside the immediate project area. The reduction of clarity caused by construction activities would be short in duration and would return to pre-construction levels upon project completion.

(d) Color

The proposed project is expected to affect color only during fill activities. Placement of fill materials would temporarily induce a color change due to an increase in turbidity. These effects would be consistent with those discussed above for clarity. The change in color caused by construction activities would be short in duration and would return to pre-construction levels upon project completion.

(e) Odor

The proposed project would not result in any major sources of odor, and the project would not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility). Odors associated with diesel exhaust emissions from the use of onsite construction equipment may be noticeable from time to time by adjacent receptors. However, the odors would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. Furthermore, as required by California Air Resources Board (CARB) regulation 13 California Code of Regulations (CCR) 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. Therefore, this direct effect would be less than significant. In addition, implementation of mitigation measures, which are required under other air quality effects, would further reduce exhaust emissions, and provide advanced notification of construction activity.

(f) Taste

The proposed materials and construction activities are not expected to affect taste.

(g) Dissolved Gas Levels

The reduction in SRA habitat will allow more sunlight to warm the water and result in a temporary increase in water temperature at the project sites, which could reduce the

concentration of dissolved gases. This impact would likely not be measurable due to the small reduction of shade across the larger river system that is also being affected by moving and mixing water.

(h) Temperature

Water temperatures can be affected by a number of factors, including air temperatures, elevation, flow and velocity, and presence of riparian vegetation. For the American River, the major factor that impacts water temperature are the operations of Folsom Dam. The releases from Folsom are heavily studied and modeled in several recent Central Valley Project/State Water Project Biological Assessments from the Bureau of Reclamation, as well as the respective Biological Opinions from NMFS (2009, 2019, pending 2024/2025). While the removal of bank vegetation in several areas may seem extensive, the removal is a temporary occurrence that will be vegetated upon completion. Adjacent habitat upstream and downstream will provide interim cover for fish during the construction timeframe. Temporary removal of the amount of vegetation on the proposed sections of the Lower American River and Sacramento River are not expected to cause a measurable increase to water temperatures due to the small shaded area relative to the surface area of the river and the fact that the volume and temperature of water drive the temperature of the water, overwhelming other influences.

At ARMS, there will be long term benefits to water temperature. The man-made pond, which currently is not shaded by trees, will be replaced with a functional freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats that are connected to the American River. At SRMS, there will be no change to water temperatures, the newly connected floodplain will be planted with emergent and riparian vegetation to shade the water channels.

There will be minimal affect to temperature at MCP. MCP is primarily fed by wastewater and surface runoff that will not be impacted by the Proposed Action. In addition, tree removal is limited and is unlikely to affect temperature as they shade a negligible amount of the MCDC.

(i) Nutrients

The proposed project's construction activities have the potential to affect nutrient levels during construction and in the long term. Release of suspended sediments during construction could potentially cause thresholds for nutrients to be exceeded. However, the construction contractor would implement a SWPPP including BMPs that would prevent release of excess nutrients during construction. Long-term nutrient levels would not be substantially altered by the proposed mitigation project. Its design includes planting benches and restored riparian areas along a created shallow water channel in which trees and shrubs would be planted, and at maturity would provide nutrient inputs comparable to the existing SRA corridor. In addition, nutrients from the upstream watershed would remain in the system.

Post construction, once the two mitigation sites have had a chance to establish, they would provide beneficial nutrients to and remove pollutants from the river systems by filtering water

through the emergent wetland plants and increasing the functions and services available in the localized area.

(j) Eutrophication

The project is not expected to contribute excess nutrients into the stream or promote excessive plant growth due to BMPs and the high content of rock in disposal material.

c. Suspended Particulate/Turbidity Determinations

(1) Alteration of Suspended Particulate Type and Concentration

The placement of riprap along the riverbank, dewatering at American River Erosion Contract 4A, breaching the levee for SRMS and bank line for ARMS, and realigning MCDC would temporarily generate increased turbidity in the immediate vicinity of the construction area. This could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. Turbidity effects from construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. BMPs would be implemented to reduce the effect of runoff into the stormwater system to less than significant. BMPs include such things as coir mats or hay bales to prevent runoff, rock groins to retain sediment, sandbags to prevent erosion, and drain screens to prevent sediment from traveling outside the construction area footprint and into the storm drain system.

Coordination with Central Valley (CV) RWQCB through the Clean Water Act Section 401 water quality certification process would also ensure that appropriate measures would be implemented to minimize the effects of stormwater runoff on turbidity. The SWPPP would describe the BMPs that would be implemented to contain spills and prevent discharges of stormwater into waterways. BMPs could include but are not limited to straw waddles, geotextile and coir mats, tire wash stations at ingress/egress points to prevent tracking soil offsite onto roadways and entering the municipal stormwater collection system, and sand filter bags at stormwater collection inverts. Potential turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Following construction, BMPs would continue to be monitored and implemented while vegetation matures enough to stabilize surface soil at all of the Proposed Action's construction sites. Further, the installed bank protection would include plantings of native riparian vegetation that could slow flows down and reduce turbidity during flood flows.

(2) Particulate Plumes Associated with Discharge

Placement of riprap, breaching the levee for SRMS and bank line for ARMS, and realigning MCDC could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as

acceptable by the Basin Plan. Significant indirect effects would result as the sediment and turbidity plume would drift further downstream and later affect the water quality in those areas found further downstream of the project area. By implementing avoidance and minimization measures, discussed in Section 3.5.6 of the ARCF GRR Final EIS/EIR and Section 4.4.4 of the 2025 SEIS/SEIR, impacts could be reduced to less than significant.

(3) Changes to Environmental Quality and Value

There could be significant affects to water quality due to increased turbidity during construction, as discussed above. On the Sacramento River, the use of barges to install the riprap could cause additional turbidity as the barge moves into the site and anchors. On the American River, placement of material directly into the water by equipment could cause additional turbidity as vehicles drive and place material into the water. With the implementation of the BMPs that will be established in the SWPPP, these effects would be temporary and reduced to less than significant during construction. Once construction is complete there could be reduced turbidity in the direct vicinity of the site because there would be no exposed soil to erode and deposit into the river. Further, the bank protection sites would include the installation of riparian vegetation which could slow the flows down and reduce turbidity during high flows.

Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor would be required to obtain a permit from the CVRWQCB detailing a plan to control any spills that could occur during construction. The plan would describe the construction activities to be conducted, BMPs that would be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted.

(4) Actions to Minimize Impacts

Since 2015 the project team has further evaluated the construction sites to reduce the project footprints where possible. Vegetation is being replanted where possible to provide natural bank protection. Trees will be hand selected for removal, rather than clear cutting the levee. Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the NPDES general stormwater permit for construction activity. The contractor would be required to obtain a permit from the CVRWQCB detailing a plan to control any spills that would occur during construction. The plan would describe the construction activities to be conducted, BMPs that would be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted. Work below the OHWM would only be permitted during low periods, July 1 to November 30th.

d. Contaminant Determinations

Construction activities would involve the use of potentially hazardous material, such as fuels, oils and lubricants, and cleaners, which are commonly used in construction projects. Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation. Testing of borrow sites would occur prior to the use of material and sites which have contaminated soils would not be used for this project. Any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations. Compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities. The risk of significant hazards associated with the transport, use, and disposal of these materials is low.

A Phase I ESA (Environmental Site Assessment) was conducted in 2012 for the project locations considered in the ARCF GRR Final EIS/EIR and included areas within a 1-mile buffer of these locations. Within this buffer a search of Federal, state, and local environmental databases and historic aerial, topographic, and fire maps were reviewed. A site visit of the study area was also conducted to identify recognizable environmental conditions (RECs). The 2012 Phase I ESA identified seven sites with the potential to affect the ARCF footprint in the GRR Final EIS/EIR; however, none of those sites impact the areas considered under the Proposed Action in this SEIS/SEIR. Due to the addition of new areas considered under the Proposed Action, updated Phase I ESAs were conducted at the American River sites and Magpie Creek. Several Phase II investigations, which include laboratory analyses of soil and water samples, were conducted at Magpie Creek (see Appendix B 3.8 Hazards and Hazardous Materials for more details). Below is a list of sites, dates, and findings of the new ESAs:

- American River 3B: A Phase I ESA was conducted in 2020 and did not find any new hazardous materials sites. Contaminated groundwater is unlikely due to overall groundwater gradients and presence of a levee cutoff wall.

- American River 4A: A Phase I ESA was conducted in 2023 and found a record of a drinking water well within ¼ mile of the site with PFAS (per- and polyfuoroalkyl substances) contamination.

- Magpie Creek: A Phase I ESA was conducted in 2015 on the undeveloped parcels to the east and west of Raley Blvd to be acquired by SAFCA for floodplain conservation. Due to the former agricultural use and the proximity of McClellan Airforce Base, the report recognized the potential for soil and groundwater contamination. A limited Phase II investigation followed in 2017. A Phase I ESA was conducted at Magpie Creek between Raley Blvd and Vinci Avenue in 2020. A Phase II investigation was conducted in this same area in 2021. The results are discussed in greater detail in the following section.

To minimize the impacts associated with contaminants, the Proposed Action would incorporate the following measures described in the GRR EIS/EIR:

- Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation.

- Testing of borrow sites would occur prior to the use of material and sites which have contaminated soils would not be used for this project.

- Any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations.

- The risk of significant hazards associated with the transport, use, and disposal of these materials is low, and compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities.

- Project areas would be tested 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.

- The contractor would be required to prepare a SWPPP and a Spill Prevention Control and Countermeasures Plan (SPCCP), which detail the contractor's plans, including BMPs, to prevent discharges from the construction site into drainage systems, lakes, or rivers.

e. Aquatic Ecosystem and Organism Determinations

(5) Effects on Plankton

Plankton are drifting organisms that inhabit the pelagic zone of oceans, seas, or bodies of fresh water. Project construction activities would be temporary and short-term. The only short-term effect would be a less abundant supply of plankton for the Delta smelt, and other fish and aquatic organisms. With implementation of mitigation measures and BMPs, this project would not introduce materials that would disrupt the nutrient supply for plankton, and as a result effects to plankton would be temporary and less than significant. A projected benefit of ARMS and SRMS include the reconnection of historically tidally influenced land to open water habitats. Connectivity will provide hydrodynamic and ecological processes necessary for the establishment of marsh habitats and riparian interactions. An expected outcome from restoration would include the establishment of ecosystem processes which benefit zooplankton growth and abundance. Most native, and in some cases non-native zooplankton, are important prey for pelagic and anadromous native fish species across a range of life histories.

(6) Effects on Benthos

Benthic organisms would be permanently disturbed as a result of constructing erosion protection and realigning the MCDC. However, the rock placed below the water surface will naturally accumulate soil material and plant species. The bank above the low water elevation will be covered in soil to start the redisposition process. The vegetation planted above will provide organic material and food sources for fisheries. The native benthic organisms are expected to recolonize the area in time. In addition, vernal pool species such as the vernal pool fairy shrimp and the vernal pool tadpole shrimp are known to occur in wetlands near the MCP and are assumed to occur in seasonal wetlands within the project area. Impacts to vernal pool shrimp will be mitigated per the USFWS Biological Opinion.

A projected benefit of the ARMS and SRMS includes the reconnection of historically tidally influenced land to open water habitats, thus restoring the historic benthic environment to these sites.

(7) Effects on Fish

Multiple fish species actively inhabit the project area. Threatened and endangered species include four runs of Chinook salmon, steelhead trout, delta smelt, longfin smelt, and green sturgeon. These species are expected to use habitat in parts of the study area. Most of these species are listed as Threatened or Endangered (T&E).

Within the Sacramento River is designated critical habitat for winter-run Chinook salmon from Keswick Dam in Shasta County to River Mile 0 at Chipps Island in the Sacramento-San Joaquin Delta. Critical habitat for spring-run Chinook salmon includes all river channels and sloughs within the ARCF study area on the Sacramento River, and on the American River from the confluence to the Watt Avenue bridge (NMFS 2006b). Critical habitat for Central Valley steelhead includes the stream channels and the lateral extent as defined by the ordinary high water mark or bank-full elevation in the designated stream reaches of the Sacramento and American River, NEMDC and Dry/Robla Creek portions (MCP) of the ARCF project area. Critical habitat for delta smelt consists of all water and all submerged lands below ordinary high water, and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker bays); the length of Goodyear, Suisun, Cutoff, First Mallard (Spring Branch), and Montezuma sloughs; and the contiguous waters in the Delta (USFWS 1994). Critical habitat for delta smelt is designated in the following California counties: Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo (USFWS 2003). Designated critical habitat for the southern distinct population segment (DPS) of green sturgeon includes the Sacramento River downstream of Keswick Dam, the lower portion of the LAR from the confluence to Highway 160, the Feather River downstream of Oroville Dam, and the Yuba River downstream of Daguerre Dam; portions of Sutter and Yolo Bypasses; the legal Delta, excluding Five Mile Slough, Seven Mile Slough, Snodgrass Slough, Tom Paine Slough, and Trapper Slough; and San Francisco, San Pablo, and Suisun bays. Mitigation measures for green sturgeon are currently being fulfilled per agreements with the regulatory resource agencies.

Rock placement on the Sacramento and American Rivers would most likely temporarily disturb the native resident fish by increasing vibration, water turbulence, and turbidity, causing them to move away from the area of placement. In some pelagic native juvenile species utilizing the near shore habitat for cover, moving away from that cover could put them at a risk of predation. However, direct effects to T&E fish species are less than significant in the long-term, with the implementation of mitigation. Proposed mitigation for salmonid species includes the creation of planting berms to provide shade and IWM elements of SRA habitat. The natural bank element of SRA would be lost with the placement of rock along the levee slope. Over time sediment would settle into the rock voids and provide similar substrate characteristics as a natural bank. The direct effects would also not result in a substantial reduction in population abundance, movement, and distribution for salmonid species.

SREC3 would result in permanent impacts to 27 acres of Delta smelt shallow water habitat, and spawning habitat. Construction-related effects include disruption of spawning activities, disturbance or mortality of eggs and newly hatched larvae, and alteration of spawning and incubation habitat. With the implementation of compensation for the impacts to Delta smelt shallow water habitat and spawning habitat, these effects would be reduced to less than significant.

SREC3 would result in permanent impacts to 27 acres of salmonid habitat through the loss of existing shallow water vegetation along the riverbanks. Lower American River Erosion Contract 3B would result in permanent impact to 24 acres of salmonid habitat due to loss of existing shallow water vegetation along the riverbanks. These areas provide food and shelter for both adults and juvenile salmon as they migrate seasonally up and down the river. At SREC3, salmon and green sturgeon use the same habitat in the project area. Construction would result in direct effects to green sturgeon through the loss of benthic feeding habitat due to the change in substrate at the bank protection sites. If larvae or juveniles are present during construction, in-water activities could result in localized displacement and possible injury or mortality to individuals that do not readily move away from the channel or nearshore areas. Project actions associated with bank protection measures may increase sediment, silt, and pollutants, which could adversely affect rearing habitat or reduce food production, such as aquatic invertebrates, for larval and juvenile green sturgeon. Compensation would be implemented in the form of on and off-site mitigation, as well as the purchase of mitigation bank credits.
Compensation for these impacts consists of newly constructed habitat at ARMS and SRMS. The construction of ARMS will create approximately 55 acres of new freshwater emergent/seasonal wetland habitat, riparian woodland, and riverine habitats that will benefit all aquatic organisms. The construction of ARMS will benefit Chinook salmon and steelhead by breaching the existing riverbank and allowing surface water to flow through constructed channels. Channels would be designed to remain inundated year-round with the riparian habitat inundated during higher flow to create salmon habitat. Construction of SRMS will create approximately 19 acres of tidally influenced emergent wetland with riparian vegetation to benefit Chinook salmon, steelhead, and delta smelt.

(8) Effects on Aquatic Food Web

Effects on the aquatic food web, or the plankton, benthic, and fish communities, would be temporary and less than significant. Indirect effects were not considered significant to resident native fish species because it was determined that existing conditions would not be worsened by project construction and would not result in a substantial reduction in population abundance, movement, and distribution. The aquatic food web will be enhanced at ARMS and SRMS through the construction of new freshwater emergent/seasonal wetland habitat, riparian woodland, riverine habitats, and connectivity to tidally influenced open water.

(9) Effects on Special Aquatic Sites

(a) Sanctuaries and Refuges

No sanctuaries and refuges are within the project area.

(10) Wetlands

Due to the physical constraints at American River Contract 4a, the berm footprint would impact 1.02 acres of an existing 11.5 acre wetland and would extend up the levee. A bladder dam or a sandbag dam may be used if the wetland has water in it at the time of construction.

There is a 2.4-acre seasonal wetland east of Raley Boulevard that would be affected by the construction of the MCP. The realignment of Magpie Creek and maintenance road construction on the right bank would permanently impact approximately 0.30 acres of this wetland. Reasonable effort would be taken in the detailed design of the project to avoid disturbance to existing wetlands and implementation of environmentally sustainable designs. Any destruction, loss, or degradation of wetlands would be compensated through creation of new wetland habitat.

(c) Mud Flats

No mud flats are within the project area.

(d) Vegetated Shallows

No vegetated shallows are within the project area.

(e) Coral Reefs

No coral reefs are within the project area.

(f) Riffle and Pool Complexes

No riffle pool and complexes are within the project area.

(11) Threatened and Endangered Species

Implementation of the Proposed Action would result in direct effects to salmonids, green sturgeon, Delta smelt, longfin smelt, and valley elderberry longhorn beetle. Impacts to special status fish species were addressed above in Section e(3) Fish.

Adverse effects could occur to Western yellow-billed cuckoo due to the removal of riparian vegetation during construction. Western yellow-billed cuckoo is not currently known to nest in the project area, but the area is considered stopover habitat and they could be present during their migration period. As a result, USACE proposes to compensate for the removal of riparian vegetation onsite to the maximum extent possible. If onsite mitigation is not possible, offsite mitigation would occur along the main stem of the American and Sacramento Rivers, or credits would be purchased at a mitigation bank.

Because avoidance, minimization, and compensation measures would be implemented in accordance with the requirements of the Endangered Species Act (ESA) and other relevant regulatory requirements, and the project would protect habitat in place and create habitat, potential adverse effects on special-status species and on sensitive habitats would be reduced to a less than significant level.

(12) Other Wildlife

The project site is used by a variety of species associated with annual grassland, mixed oak woodland, upland and riparian scrubs, riparian woodland, non-native woodland, and riverine habitats. Effects on fish species using riverine habitat at the project site are discussed in the preceding section regarding effects on the fish. Grading and other ground-disturbing activities, noise from construction activities, and removal of vegetation could disrupt movement and foraging, or displace, injure, or kill wildlife. These effects would be temporary and many affected species would be expected to return to areas affected by construction after on-site plantings mature and natural recruitment occurs, estimated at within 8 to 10 years. In fact, the planting benches on the American River will double riparian habitat when compared to pre-project conditions.

Additionally, there would be extensive similar, unaffected, areas of riparian, oak woodland, and grassland habitat in the vicinity of the project site and along the Lower American River that could be used by these species. Therefore, for most species of terrestrial wildlife, the Proposed Action would not result in a permanent reduction in population abundance, movement, and distribution. However, in addition to the species Federally listed as T&E that were discussed previously, a number of special-status species occur in the project site. These species are less abundant, have more limited distributions, and are more vulnerable to population-level effects than common wildlife species. These special-status species include western pond turtle, American badger, pallid bat and western red bat, and several raptors and other birds that may nest at or in the vicinity of the project site (Swainson’s hawk, Cooper’s hawk, white-tailed kite, burrowing owl, great egret, great blue heron, and purple martin).

To minimize potential effects on these special-status species, the applicable avoidance and minimization measures from the ARCF GRR Final EIS/EIR and 2025 SEIS/SEIR have been incorporated into the Proposed Action, with revisions to reflect the revised Project Area and current mitigation requirements. These measures include worker environmental awareness training; pre-construction surveys for western pond turtles, bat maternity roosts, American badger dens, and nesting birds; and establishment of avoidance buffers as necessary. Implementing these measures would protect maternity roosts of special-status bats, and avoid or minimize effects on western pond turtle, American badger, and nesting birds.

Furthermore, on-site replacement of riparian habitat and restoration of riparian habitat off site as compensatory mitigation would provide replacement habitat at a 2:1 ratio, which in the long-term would improve habitat conditions for riparian-associated species.

(13) Actions to Minimize Impacts

The proposed project is not likely to result in take of these species for either Alternative as long as the applicable conservation and mitigation measures, as detailed in Section 3.8.6 of the ARCF GRR Final EIS/EIR and Section 4.5.3 of the 2025 SEIS/SEIR are adhered to. Among other measures listed in the SEIS/SEIR, the conclusion of non-jeopardy is based on USACE' commitments to: (1) avoid direct impacts by maintaining buffers around sensitive habitat and/or conducting construction activities outside of sensitive timeframes (e.g. during the salmonid work window or outside of the fledging period of special-status birds); (2) implement a SWPPP and associated BMPs; including the designation of staging areas for stockpiling of construction materials, portable equipment, vehicles, and supplies and (3) appoint on-site biologists to provide worker environmental awareness training to contractors and to monitor, report, and remove and transport special-status species if necessary or suspend construction activities until special-status species leave the project on their own. Concurrent implementation of these conservation measures would adequately avoid, minimize, and mitigate adverse effects on the special-status fish, wildlife and plant species discussed in this document.

f. Proposed Disposal Site Determinations

(14) Mixing Zone Size Determination

Not applicable.

(15) Determination of Compliance with Applicable Water Quality Standards

Water quality could be affected within the actual construction area and upstream and downstream of the work area. Construction activities such as rock placement, clearing and grubbing, and slope flattening, 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.

The ARCF study is located within the jurisdiction of the CVRWQCB, within the greater Sacramento Valley watershed. The preparation and adoption of water quality control plans, or Basin Plans, and statewide plans, is the responsibility of the SWRCB. State law requires that Basin Plans conform to the policies set forth in the California Water Code beginning with Section 13000 and any State policy for water quality control. These plans are required by the California Water Code (Section 13240) and supported by the Federal CWA. Section 303 of the CWA requires states to adopt water quality standards which "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected and water quality objectives to protect those uses. Adherence to Basin Plan water quality objectives protects continued beneficial uses of water bodies. Because beneficial uses, together with their corresponding water quality objectives, can be defined per Federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the State and Federal requirements for water quality control (40 CFR 131.20). The potential effects of the proposed project on water quality have been evaluated and are discussed in Section 4.4.4 “Water Quality” and Appendix B Section 3.4 “Water Quality” of the 2025 SEIS/SEIR. Compliance with the California Water Code will be accomplished by obtaining certifications from the CVRWQCB prior to construction.

(16) Potential Effects on Human Use Characteristics

a) Municipal and Private Water Supplies

The Sacramento River waterways historically were used as places to dispose of contaminants. In recent decades, treatment for municipal wastewater, industrial wastewater, and management of urban stormwater runoff have increased and improved greatly. Industries and municipalities now provide at least secondary treatment of wastewater. The American River originates in the high Sierra Nevada just west of Lake Tahoe, in the Tahoe and El Dorado National Forests. Its three main forks – the South, Middle, and North – flow through the Sierra foothills and converge east of Sacramento. The waters of the American River provide recreation, municipal power, and irrigation for the northern California area. The fill material would not violate Environmental Protection Agency or State water quality standards or violate the primary drinking water standards of the Safe Drinking Water Act (42 USC 300f-300j). Project design, compliance with State water quality thresholds and standard construction and erosion practices would preclude the introduction of substances into surrounding waters. The groundwater table is separated from the slurry wall by a non-permeable layer of soil, therefore there would be minimal risk to groundwater supply. Materials removed for disposal off-site would be disposed of in an appropriate landfill or other upland area.

b) Recreation and Commercial Fisheries

Under the Proposed Action, there would not be long term/long distance closure of recreation facilities including the bike trails, walking trails, parks, and boat launches. There will be short-term closures of parks, trails, and boat launches. Notification and coordination with agencies

managing the recreational areas would be arranged. Flaggers, signage, detours, and fencing would be present to notify and control recreation access and traffic around construction sites.

The Proposed Action would cause direct effects to fish habitat from the removal of vegetation from the levee slopes. Direct effects from the placement of rock at a bank protection site would cause an increase in turbidity. A Vegetation Design Deviation would allow waterside vegetation, which would include native grasses, shrubs, and trees, to remain on the lower one-third of the waterside slope along the Sacramento River. The American River's riverbank is wide enough below the OHWM that the vegetation can be retained when feasible or planted along the river's edge without needing a Vegetation Design Deviation. Bank protection sites, planting benches, and launchable rock toes would be revegetated with native grasses, shrubs and trees following construction. ARMS and SRMS would provide compensatory mitigation for permanent fish habitat impacts. Once establishment is reached, the ARMS site could be accessed and used for recreational purposes as part of the American River Parkway. SRMS will not be advertised for public recreational use, but there will not be fencing or security to prevent access. BMPs would be implemented to address turbidity.

c) Water-related recreation

Recreational boating is one of the primary uses of the American River. Boat access is located at Discovery Park on both the Sacramento and American River side of the park. Formal boat launches within the Parkway are located at Howe Avenue, Watt Avenue, and Gristmill Park. The river can become very shallow between Sunrise and Howe Avenue when releases from Folsom Dam are reduced, making motorized boating impracticable. Rafting on this stretch of the river is very common during summer months with the highest use on the weekends and holidays. Watt Avenue's Boat Launch will be closed during construction, causing a short-term significant impact on the American River. The Watt Avenue Boat Launch will be returned to its existing condition once work is complete, so there would be no long-term effects.

Construction will occur during the summer months when the river recreation activities are at the peak. There would be short-term term significant effects along the Sacramento River reach of the project, however, there would be no long-term effects because the area would be returned to the pre-construction conditions once completed. The timing of construction cannot be mitigated as it is unsafe to perform construction activities in the floodway during the flood season.

d) Aesthetics

The Proposed Action would result in vegetation loss and construction activities would disrupt the existing visual conditions in the American River Parkway and along the Sacramento River. Native trees would be planted after construction is completed on planting berms and on top of launchable rock trenches. For the American River Erosion Contract 3B, vegetation would also be planted along bank protection. Even with replanting there would still be a temporal loss of

vegetation as it will take 8-10 years for vegetation to mature. Disturbed areas would be reseeded with native grasses.

e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

Following is a description of the parks and their activities (see Figures 2.2-1 through 2.2-5 of Appendix B of the 2025 SEIS/SEIR):

American River Parkway. American River Erosion Contract 3B, American River Erosion Contract 4A, American River Erosion Contract 4B, and the ARMS are all within the American River Parkway. The Lower American River is designated as a recreational river both under the Federal Wild and Scenic Rivers Act (Heritage Conservation & Recreation Service 1980) and the State Wild and Scenic Rivers Act (Public Resources Code Section 5093.545h) for its outstandingly remarkable (Federal) and extraordinary (State) anadromous fishery resource and recreational values. The American River Parkway Plan supplies guidance on how to manage land use in the American River Parkway. Other recreational activities within the American River Parkway include walking, cycling, running, hiking, bird watching, wildlife viewing, and horse riding. Recreational events, such as Ride the Parkway, Run the Parkway, Great American Triathlon, and the American River Half Marathon, occur within the American River Parkway.

Camp Pollock. The Sacramento Valley Conservancy manages Camp Pollock, which is approximately 11 acres. Camp Pollock is located on the right bank of the American River within the American River Parkway just downstream of the State Route 160 Bridges. The Sacramento Valley Conservancy allows kayaking, canoeing, paddle boarding, fishing, weddings, youth educational camping, and events with over 200 people at Camp Pollock. In addition, there is a native plant nursery at Camp Pollock.

Discovery Park. Located just north of downtown Sacramento at the confluence of the American River and the Sacramento River, this 302-acre park is a popular site for rafters and waders. Discovery Park is the trailhead for the 32-mile long Jedediah Smith Memorial Trail. The park also features a boat launch. Discovery Park was designed to flood and take pressure off American River levees during high water events. For safety reasons, the park closes when water flows into the public areas and remains closed until the water subsides.

Dry Creek Parkway. Sacramento County manages the Dry Creek Parkway, and the recreational facility is 1,300 acres. The Dry Creek Parkway is a 6-mile corridor that contains recreational resources such as a golf course, horse trails, picnic facilities, soccer fields, and hiking trails. Only the most southern section between Rio Linda Boulevard and Rose Street is within the Project Site.

Garcia Bend Park. Located between Pocket Road and the Sacramento River, this 19-acre community park is a popular place for recreation providing soccer fields, lighted tennis

courts, play areas, picnic areas, restrooms, and a public boat ramp providing access to the Sacramento River.

Gristmill Park. Located off Mira Del Rio Drive and Folsom Boulevard in Rancho Cordova, Gristmill Park is a popular place for fishing, bird watching, and nature watching/photography. The area also has some nice walking paths popular with the locals that wind through oak woodlands along the southern bank of the river in either direction from the parking area. In addition to the usual assortment of birds in these woodlands such as woodpeckers, Northern flickers, and red-shouldered hawks, it is not unusual to spot deer and coyote here as well. Due to the calmness of the river at this location, it is a popular launch spot for kayaking and canoeing.

Guy West Bridge. The Guy West Bridge is a pedestrian-only suspension bridge crossing the historic Lower American River. It is modeled after the famed Golden Gate Bridge in San Francisco, but spans only 600 feet compared to the Golden Gate's 6,450 feet. The bridge was constructed to tie the California State University campus to a business and residential community on the north side of the American River.

Larchmont Community Park. Larchmont Community Park is approximately 12 acres and is managed by the Cordova Recreation and Park District. This park is adjacent to the American River levee near the College Green East neighborhood and has large soccer fields, multi-use fields, tennis courts, a playground, and picnicking areas.

Miller Park. Adjacent to the Sacramento Marina, off Harborview Drive from Front Street, this 57-acre city park is right on the Sacramento River. The park includes picnic areas, boat trailer parking, and a boat ramp and dock. There is also a store called Rat's Snack Shop.

The Riverfront Promenade. A new addition to Sacramento's riverfront, a couple blocks were opened in 2001. It is located just downstream of Old Sacramento and is still in the early stages of development. When complete, the promenade will be a mile long walking and cycling path that connects Old Sacramento to Miller Park.

University Park. University Park is approximately 3.4 acres and is managed by the City of Sacramento. This park is just east of Howe Avenue. University Park is under powerlines, but has open grassy fields, benches, and a small playground. In addition, there is a dog park in the southern portion of University Park.

Walter S. Ueda Parkway. The City of Sacramento manages the Walter S. Ueda Parkway, and the recreational area is 491.84 acres. The area contains a 12.5-mile walking path. Only the most northeastern section between Rio Linda Boulevard and Rose Street is within the Project Site.

Waterton and Save the American River Association. Just off of U.S. 50 at Watt Avenue, Waterton Access is a small site providing access along the river. The area is inhabited by deer and jackrabbits, so it is ideal for nature watching. The nearby Save the American River Association Access offers similar opportunity.

Watt Avenue. Just off Watt Avenue is an American River access point popular as a take-out spot for rafters, canoeists, and kayakers. Fishing is also popular here because of the range of shallow and deep water.

Zacharias Park. Located in the Pocket neighborhood, off Clipper Way. This 6-acre park is right on the Sacramento River. The park amenities include river access, soccer fields and a picnic area.

Construction of the Proposed Project will have short-term significant impacts to recreation. Portions of the road on top of the levee would be closed to pedestrian access during the construction period. Additionally, construction of erosion protection on the American River would temporarily disturb several miles of bike trails as well as access to public parks and boat launches within or adjacent to the Parkway. Once construction is complete the recreation facilities would be returned to the pre-construction conditions and long-term effects would be less than significant. These closures and disturbances would also result in direct and adverse effects to recreation, an outstandingly remarkable value under the Wild and Scenic Rivers Act.

To ensure public safety, flaggers, warning signs, and signs restricting access would be posted before and during construction, as necessary. In the event that bike trails would be disrupted; detours would be provided. Detour routes would be clearly marked, and fences would be erected to prevent access to the project area. In areas where recreational traffic intersects with construction vehicles, traffic control will be utilized to maintain public safety. Detours would be short duration, only while work is being completed in the immediate vicinity.

These mitigation measures will reduce the effects on recreation; however, impacts would still be significant because of the duration of construction and the inability to provide similar quality recreation during construction. Any recreation facilities affected by the project would be replaced in-kind within the existing area and no long-term impacts are anticipated.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

Effects of the proposed action include reductions in nearshore aquatic and riparian habitats that are used by aquatic and terrestrial species. USACE actions which could create a cumulative effect on WOTUS in the Sacramento area include the other features of ARCF 2016 Program such as Seepage, Stability and Overtopping work on the Sacramento River East Levee (SREL), and construction of the new Sacramento Weir and Bypass. Other projects occurring in the same area include: Dredging at Miller Park, Sacramento Riverbank Protection Project (SRBPP), North

Sacramento Streams Project, West Sacramento Project, and the Sacramento River Parkway. The I Street Bridge replacement is anticipated to begin construction in the next 5 years and the Broadway Bridge is expected to begin construction in the next 15 years.

Ongoing non-Federal activities that affect listed salmonids and VELB, and their habitat, will likely continue in the short-term, at intensities similar to those of recent years. However, some activities associated with the State's proposed Central Valley Flood Protection Plan or State or local efforts to implement the Engineering Pamphlet (EP) 1110-2-18 could result in increased effects on listed species. Potential cumulative effects on fish also may include any continuing or future non-Federal diversions of water that may entrain adult or larval fish or that may incrementally decrease outflows or water quality, thus changing habitat for these species.

Water quality could be affected at the project footprint as well as upstream and downstream of the work area. Construction activities associated with the Proposed Action, West Sacramento Projects and Dredging have the potential to temporarily degrade water quality. All projects occurring simultaneously would be required to coordinate with the RWQCB and comply with their 401 permits.

h. Determination of Secondary Effects on the Aquatic Ecosystem

The placement of rock would not only reduce the risk of erosion but would also anchor remaining trees in place and reduce the potential for trees falling over during a high flow event. The understory, which provides habitat for small rodents, ground nesting birds and waterfowl, and various reptiles, would be temporarily removed in order to provide a clean surface to place the rock. In areas with a planting bench or soil placed over revetment would allow for vegetation to establish on the Lower American River. Because the riparian corridor will be replanted when feasible, the sites would still provide value to fish and wildlife species, and compensatory mitigation would be implemented for trees that were removed, impacts are consider less than significant over the long term.

Risk exists for the unintentional placement of dredge and/or fill material to be placed outside of the proposed project area. Unintentional placement could result in additional adverse impacts to water quality, erosion and accretion patterns, aquatic and other wildlife habitat, recreation, aesthetics, and air quality. In order to reduce the risk of such impacts, contract specifications would require the contractor to mark the project boundaries, and that the contractor install erosion control (i.e., silt fencing, silt curtains) where possible within any standing waters.

IV. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation

No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site

There is no other location that this work can be done to provide the same level of protection. The adjacent community backs up to the levee, therefore no space is available to construct a setback levee in Sacramento metropolitan area. On the Sacramento River, onsite alternative methods such as rock trenches are not feasible because there is no remaining floodplain between the riverbank and the levee itself. They would also result in the removal of additional vegetation. There are no other practicable alternatives that provide the same level of life and safety protection and sufficiently reduce the risk of levee failure. Sections 1.7.4 “Erosion Protection Alternatives” and 2.5.2 “Contract 3B” of Appendix G of the 2025 SEIS/SEIR provide details on alternative selection for American River Contract 3B design and why the alternatives were considered not feasible. Alternative 3c has been selected for American River Erosion Contract 4A, as alternatives 3a, 3b, 3d and the Proposed Action have been determined to not be feasible due to design constraints.

The proposed ARMS at the Urrutia property is the LEDPA because it would restore and enhance onsite habitat functions and values to as close to pre-mining habitat conditions as possible. The goal is to improve conditions for 35 special-status species that may rely upon these habitats for all or part of their life cycle, while still achieving the compensatory mitigation needs for salmonids, yellow-billed cuckoo (YBCU), and VELB on the LAR. The proposed design surface elevations are set to achieve winter and spring water surface elevations (WSEs) that would mimic pond-like conditions, while still providing shallow water habitat for salmonids and other species that rely upon diverse riparian and floodplain habitats, thus supporting the greatest cross-section of species. Additionally, movement of wildlife should be enhanced post-construction by the increased structural complexity and vegetative cover over existing conditions. Lastly, the proposed project was developed in consideration of the Parkway Plan policies, along with the terms and conditions of other relevant governing permits and authorizations and the project expands upon the 2008 City of Sacramento project conceptualized for the site.

The proposed SRMS would reconnect the historic tidal island to the river and it would restore and enhance onsite habitat functions and values. This was the only available real estate large enough to provide sufficient mitigation acreage on the main stem of the Sacramento River, which was the preference from USFWS and NMFS in the Endangered Species Act consultation.

c. Compliance with Applicable State Water Quality Standards

The proposed project would implement BMPs to ensure that it does not violate State water quality standards identified in the Central Valley Basin Plan (CVRWQCB 2019). USACE received a 401 Programmatic Order in 2020 for ARCF, effective date is 13 July 2021 and expiration date is 12 July 2026, WDID 5A34CR00819. Each individual contract is submitting a

Notice of Intent under the programmatic and is obligated to follow all BMP's, avoidance, and minimization measures within the order.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act

The discharges of fill materials will not cause or contribute to, after consideration of disposal site dilution and dispersion, violation of any applicable State water quality standards for waters. The discharge operations will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act of 1973

The placement of fill materials in the project area(s) will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973. Formal consultation was completed with the regulatory agencies:

- U.S. Fish & Wildlife Service (USFWS; 08ESMF00-2014-F-0518-R003) Dated March 2021
- National Marine Fisheries Service (NMFS; WCRO-2020-03082) Dated May 2021
- Reinitiation of-consultation is currently ongoing with NMFS and USFWS with new BOs scheduled to be received in spring 2025.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not applicable.

g. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

Appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem include:

- Placing fill material only where it is needed for the proposed project and confining it to the smallest practicable area.
- Conducting work in the dry to the maximum extent possible, during the low flow season.
- Complying with in-water work BMPs. Requiring the project to have no hydraulic impact to eliminate impacts to flow and circulation.

On the basis of the guidelines, the proposed project is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effect on the aquatic ecosystem.

V. Summary and Conclusion

A. The discharge represents the least environmentally damaging, practicable alternative (LEDPA).

B. The discharge does not cause or contribute to violation of any applicable state water quality standard and does not violate any applicable toxic effluent standard.

C. The discharge does not cause or contribute to significant degradation of the waters of the US (WOTUS).

D. All appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.