

Mitigation Monitoring and Reporting Program

**American River Watershed Common Features, Water
Resources Development Act of 2016 Project, Sacramento
Weir Widening**

SCH# 2020070575

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Abbreviations and Acronyms

APE	Area of Potential Effects
ARCF	American River Watershed Common Features
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CCR	Code of California Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
CRHR	California Register of Historic Resources
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
EIS	Environmental Impact Statement
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GHG	Greenhouse gas
GRR	General Reevaluation Report
HMMP	Habitat Mitigation, Monitoring Plan
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MMRP	Mitigation, Monitoring, and Reporting Program
NAHC	Native American Heritage Center
NO _x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NMFS	National Marine Fisheries Service
PA	Programmatic Agreement
PM	Particulate matter
PM ₁₀	Particulate matter 10 microns or less in diameter
PPV	Peak particle velocity
PRC	Public Resources Code
REC	Recognized Environmental Condition
RWQCB	Regional Water Quality Control Board
SEIS	Supplemental Environmental Impact Statement
SMAQMD	Sacramento Metropolitan Air Quality Management District
SPCCP	Spill Prevention Control and Countermeasures Plan
SRA	Shaded riverine aquatic
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
YSAQMD	Yolo Solano Air Quality Management District

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Mitigation Monitoring and Reporting Program

Section 21081.6(a)(1) of the California Public Resources Code (PRC) and Section 15097 of the State California Environmental Quality Act (CEQA) Guidelines require a public agency to adopt a reporting and monitoring program on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental impacts on the physical environment.

This Mitigation Monitoring and Reporting Program (MMRP) will be used by the Central Valley Flood Protection Board (CVFPB) to ensure successful implementation of the mitigation measures identified in the Final Supplemental Environmental Impact Statement /Environmental Impact Report (EIS/EIR) for the American River Watershed Common Features, Water Resources Development Act of 2016 Project (ARCF 2016 Project), Sacramento Weir Widening (Sacramento Weir Widening Project). There are no additional mitigation measures that apply to the Sacramento Weir Widening Project from the ARCF 2016 Project General Reevaluation Report (GRR) Final EIS/EIR.

The MMRP is presented in tabular format. The table columns contain the following information:

Mitigation Number: Lists the mitigation measures by number, as designated in the Final Supplemental EIS/EIR.

Mitigation Measure: Provides the text of the mitigation measures, each of which has been adopted and incorporated into the Project.

Implementation Timing: Lists the time frame in which the mitigation measure is expected to take place. The following abbreviations are used in the table:

D: To be implemented or included as part of Sacramento Weir Widening Project design. Includes pre-project permitting and agency coordination

P: To be implemented prior to construction being initiated prior (pre-construction), but not part of Sacramento Weir Widening Project design or permitting

C: To be implemented during Sacramento Weir Widening Project construction

M: To be implemented as ongoing maintenance after construction is complete

Implementation Responsibility: Identifies the entity responsible for implementing the mitigation measure.

Responsible for Monitoring/Reporting Action: Identifies the entity responsible for monitoring implementation of the actions described in the mitigation measures. Verification will be carried out during the Sacramento Weir Widening Project and an MMRP completion report will be submitted to CVFPB staff upon implementation of all mitigation measures.

Table 1. Mitigation Monitoring and Reporting Program for the Sacramento Weir Widening

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
GEO-1	<p>Acquire Appropriate Regulatory Permits and Prepare and Implement a Storm Water Pollution Prevention Plan, Spill Prevention Control and Countermeasure Plan.</p> <p>If the project is implemented, prior to the start of earthmoving activities, USACE shall obtain coverage under the California State Water Resources Control Board (SWRCB) NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparing and submitting a project-specific Storm Water Pollution Prevention Plan (SWPPP) at the time the Notice of Intent to discharge is filed. The SWPPP shall identify and specify the following:</p> <ul style="list-style-type: none"> • The use of an effective combination of robust erosion and sediment control Best Management Practices (BMPs) and construction techniques in the project area at the time of construction that shall reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of mercury from project-related construction sites. These may include but would not be limited to temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences; • The implementation of approved local plans, non-stormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities; • The materials that are likely to be used during construction that could enter stormwater drainage and non-stormwater discharges, include fuels, lubricants, and other types of materials used for equipment operation; • The means of waste disposal; • Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills; • Personnel training requirements and procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and • The appropriate personnel responsible for supervisory duties related to SWPPP implementation. • Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction/demolition activities and shall be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below. • Conduct earthwork during low-flow periods. • To the extent possible, stage construction equipment and materials on the landside of the levee in areas that have already been disturbed. • Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.</p> <ul style="list-style-type: none"> • Stockpile soil landside of the levee, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion. • Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters. • Install plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, could be installed as needed to stabilize disturbed areas until vegetation becomes established. • Conduct water quality tests specifically for increases in turbidity and sedimentation caused by construction activities. • Prepare a Spill Prevention Control and Countermeasures Plan (SPCCP). An SPCCP is intended to prevent any discharge of oil into the river and other aquatic habitats. The contractor would develop and implement an SPCCP to minimize the potential for adverse effects from spills of hazardous, toxic, or petroleum substances during construction activities. The SPCCP would be completed before any construction activities begin. Implementation of this measure would comply with Federal and state water quality regulations. The SPCCP would describe spill sources and spill pathways in addition to the actions that would be taken in the event of a spill (e.g., an oil spill from engine refueling would be immediately cleaned up with oil absorbents). The SPCCP would outline descriptions of containment facilities and practices, such as doubled-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures, and spill response kits. It would also describe how and when employees are trained in proper handling procedure and spill prevention and response procedures. • A copy of the approved SWPPP shall be maintained and available at all times on the construction site. 			
GEO-2	<p>Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan, as required.</p> <p>To minimize the potential for destruction of or damage to potentially unique, scientifically important paleontological resources during earth-moving activities, USACE will implement the measures described below if the project is implemented:</p> <ul style="list-style-type: none"> • Before the start of construction activities at the project site, construction personnel involved with earth-moving activities (including the site superintendent) will be informed of the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction activities, and proper notification procedures should fossils be encountered. This worker 	P, C	USACE	CVFPB

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	<p>training may either be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources or prepared and presented separately by a qualified paleontologist.</p> <ul style="list-style-type: none"> If paleontological resources are discovered during earth-moving activities, the construction crew will notify USACE will immediately cease work in the vicinity of the find. USACE will retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology Guidelines (1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by USACE to be necessary and feasible will be implemented before construction activities can resume at the site where the paleontological resources were discovered. 			
AG-1	<p>Purchase Conservation Easement is to Offset Conversion of Prime Farmland.</p> <p>USACE will require purchase or establishment of property interests in agricultural land (i.e., conservation easements) requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to offset conversion of prime farmland to construct project facilities. These easements may include but are not limited to establishing agricultural conservation easements, paying in-lieu fees toward agricultural conservation easements, supporting agricultural land trusts, and participating in habitat conservation plans or natural community conservation plans that include conservation of agricultural lands. Conservation easements will be purchased at a 1:1 ratio.</p> <p>Where feasible, the agricultural conservation easements should be acquired in the county in which the conversion would take place, Yolo County. If there is not a sufficient supply of similar prime farmland where the conversions would occur, the agricultural conservation easements may be obtained in a different county. Where conservation easements are established by USACE, they may be held by land trusts, local governments, or other appropriate agencies that are responsible for ensuring that these lands will be maintained in agricultural use.</p> <p>Where easements are considered for other resources such as terrestrial biological resources, purchase of easements will be coordinated where possible so that agricultural resources are also addressed.</p>	D	USACE	CVFPB
HWQ-1	<p>Obtain Appropriate Discharge and Dewatering Permit and Implement Provisions for Dewatering.</p> <p>Before discharging any dewatered effluent to surface water, USACE shall obtain a Low Threat Discharge and Dewatering NPDES permit or an Individual Permit from the Central Valley RWQCB, if the dewatering is not covered under the Regional Water Quality Control Board (RWQCB's) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The dewatering permit includes extensive water quality monitoring to adhere to the strict effluent and receiving water quality criteria outlined in the permit. As part of the permit, the permittee shall design and implement measures, as necessary, to meet the discharge limits identified in the relevant permit. For example, if dewatering is needed during cutoff wall construction, the dewatering permit</p>	D, P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>would require treatment or proper disposal of contaminated water prior to discharge. These measures shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable.</p> <p>Implemented measures could include temporary retention of dewatering effluent until particulate matter has settled, use of infiltration areas, and other BMPs. Final selection of water quality control measures would be subject to approval by the Central Valley RWQCB. USACE shall verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. USACE, or an authorized agent, shall perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. USACE shall notify its contractors immediately if there is a non-compliance issue and shall require compliance.</p>			
VEG-1	<p>Compensate for Riparian and Woodland Habitat Removal.</p> <p>If the project is implemented, USACE will compensate for riparian and woodland habitat removal. Replacement habitat shall be created at a 2:1 ratio, in accordance with the American River Common Features (ARCF) General Reevaluation Report (GRR) Habitat Mitigation, Monitoring, and Adaptive Management Plan, which includes conceptual mitigation proposals, performance standards, and adaptive management tasks.</p>	P, C, M	USACE	CVFPB
WATERS-1	<p>Compensate for Fill of state and Federally Protected Waters.</p> <p>If the project is implemented, USACE will compensate for fill of state and Federally protected waters to ensure the project causes no net loss of functions and values, in compliance with the Clean Water Act. Water quality certification pursuant to Section 401 of the Clean Water Act (CWA) shall be obtained from the Central Valley RWQCB before starting project activities. Any measures determined necessary during the permitting processes shall be implemented, such that there is no net loss of functions and values of jurisdictional waters.</p> <p>Mitigation may be accomplished through habitat replacement, enhancement of degraded habitat, off-site mitigation at an established mitigation bank, contribution of in-lieu fees, or other method acceptable to the regulatory agencies, such that there is no net loss of waters of the United States. If compensation is provided through permittee-responsible mitigation, a mitigation plan shall be developed to detail appropriate compensation measures determined through consultation with USACE and Central Valley RWQCB, methods for implementation, success criteria, monitoring and reporting protocols, and contingency measures to be implemented if the initial mitigation fails.</p>	D, P, M	USACE	CVFPB
FISH-1	<p>In-water Work Window.</p> <p>If the project is implemented, in-water construction will be restricted to a work window of August 1 through November 30 or as otherwise specified by National Marine Fisheries Service (NMFS) in the revised Biological Opinion. The work window may be adjusted on a site-specific basis with concurrence by NMFS, taking into account periods of low fish abundance and in-water construction outside the principal spawning and migration season. The typical construction season generally corresponds to the dry season, but construction may occur outside the limits of the dry season, only as allowed by applicable permit conditions.</p>	C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
FISH-2	<p>Shaded Riverine Aquatic and Aquatic Habitat.</p> <p>If the project is implemented, resource agencies will be consulted during the Section 7 process to identify suitable habitat mitigation for Shaded Riverine Aquatic (SRA) and aquatic habitat. If habitat replacement is defined as the desired mitigation during the Section 7 process, habitat would be replaced at a minimum 1:1 ratio, either onsite, offsite, or at a mitigation bank, as deemed appropriate. Habitat mitigation could consist of other actions to improve conditions for affected fish species as agreed to by USACE and NMFS during Section 7 consultation.</p> <p>For critical habitat impacted by construction, the measures set forth in the Final EIS/EIR (pp. 193-194) remain appropriate and would be implemented</p> <ul style="list-style-type: none"> • Compensation timing refers to the time between the initiation of construction at a particular site and the attainment of the habitat benefits to protected species from designated compensation sites. In general, compensation time is the time required for on-site plantings to provide significant amounts of shade or structural complexity. Significant long-term benefits have often been considered by resource agencies, such as NMFS, as appropriate to offset small short-term losses in habitat for listed species in the past, as long as the overall action contributes to recovery of the listed species. The authority to compensate prior to or concurrent with project construction is given under WRDA 1986 (33 United States Code [USC] §§ 2201–2330). • For identified designated critical habitat, where feasible, all efforts will be made to compensate for impacts where they have occurred or in close proximity. Impacts to designated critical habitat, SRA habitat, and in stream components combined and the compensation value of replacement habitat will be based on a methodology approved by the resource agencies, including NMFS. <p>Compensation sites would be monitored, and vegetation would be replaced as necessary based on performance standards in the Habitat Mitigation and Monitoring Plan (HMMP), as detailed in Appendix I of the ARCF GRR Final EIS/EIR or based on other performance standards agreed to by USACE and NFMS. The Sacramento Weir Widening project would impact up to 6.2 acres of SRA and critical aquatic habitat in the Sacramento River which is designated as critical habitat for green sturgeon and winter-run Chinook salmon.</p> <p>The ARCF GRR Final EIS/EIR includes mitigation measures related to a Habitat Mitigation and Monitoring Plan (HMMP). Those HMMP-related actions which have not already been completed by USACE (including the purchase of critical habitat mitigation credits for green sturgeon) have been removed and replaced by Mitigation Measure FISH-2 for the Sacramento Weir widening, which calls for actions to be taken in accordance with the results of the Section 7 consultation between USACE and NMFS.</p>	D, P, C, M	USACE	CVFPB
FISH-3	<p>Fish Rescue Plan</p> <p>USACE and CVFPB will consult with NMFS, U.S. Fish and Wildlife Services (USFWS), and California Department of Fish and Wildlife (CDFW) during the project permitting process to develop and approve a fish rescue plan for construction and operation of the project. At a minimum, the plan will identify monitoring scenarios, action triggers, capture/handling methodologies, relocation</p>	D, P, C	USACE	CVFPB

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	procedures, and reporting. Methods for capture may include but are not limited to electrofishing and seining. The plan shall specify when a trained biologist will be onsite, and in the event of any project-related special-status fish stranding events, the biologist will stop work and immediately contact resource agencies.			
PLANT-1	<p>Implement Measures to Minimize Impacts on Special-status Plants.</p> <p>If the project is implemented, USACE will implement the following measures to minimize potential effects on woolly rose-mallow, Suisun marsh aster, and Sanford's arrowhead:</p> <ul style="list-style-type: none"> • Preconstruction surveys would be conducted by a qualified botanist in suitable habitat to determine the presence of any special-status plants. Surveys would be conducted at an appropriate time of year during which the species are likely to be detected, which would likely be during the blooming period. • If special-status plant species are found during preconstruction surveys, the habitat would be marked or fenced as an avoidance area during construction. A buffer of 25 feet would be established. If a buffer of 25 feet is not possible, the next maximum possible distance would be fenced off as a buffer. • If special-status plant species cannot be avoided during construction, USACE and CVFPB would coordinate with CDFW to determine additional appropriate mitigation measures, and identify implementation methods, success criteria, monitoring and reporting protocols, and contingency measures, if necessary. Such measures may include salvaging and transplanting individual plants, collecting the seeds of affected plants, and collecting and translocating seed- and rhizome-containing mud. If compensatory mitigation is required, it may include preserving in perpetuity other known populations of these species in the project vicinity. 	P, C	USACE	CVFPB
VELB-1	<p>Implement Current U.S. Fish and Wildlife Service Avoidance, Minimization, and Compensation Measures for Valley Elderberry Longhorn Beetle.</p> <ul style="list-style-type: none"> • If the project is implemented, USACE will implement the following measures in accordance with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017), to reduce effects on valley elderberry longhorn beetle: • Fencing. All areas to be avoided during construction activities shall be fenced and/or flagged as close to construction limits as feasible. • Avoidance area. To the extent feasible, activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) shall be avoided within 20 feet from the drip-line of the shrub. • Worker education. A qualified biologist shall provide training for all contractors, work crews, and any onsite personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging elderberry shrubs, and the possible penalties for noncompliance. • Construction monitoring. A qualified biologist shall monitor the work area at appropriate intervals to assure that all avoidance and minimization measures are implemented. 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<ul style="list-style-type: none"> • Timing. To the extent feasible, activities within 165 feet of an elderberry shrub shall be conducted outside of the valley elderberry longhorn beetle flight season (March–July). • Trimming. To the extent feasible, elderberry shrub trimming shall occur between November and February and avoid the removal of any branches or stems greater than or equal to 1 inch in diameter. • Chemical Usage. Herbicides shall not be used within the drip-line, and insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method. • Mowing. Mechanical weed removal within the drip-line of elderberry shrubs shall be limited to the season when adults are not active (August–February) and shall avoid damaging the shrub. • Transplanting. To the extent feasible, elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first 2 weeks in February) and after they have lost their leaves. Exit-hole surveys will be completed immediately before transplanting. A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures. <p>Mitigation identified in the ARCF GRR Final EIS/EIR has been updated in Mitigation Measure VELB-1 for consistency with the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (2017).</p>			
GG-1	<p>Implement Measures to Avoid, Minimize and Compensate Impacts on Giant Garter Snake.</p> <p>If the project is implemented, USACE will implement the following measures to minimize effects on giant garter snakes and habitat that occurs within 200 feet of any construction activity. These measures are based on USFWS guidelines for restoration and standard avoidance measures included as appendices in USFWS (1997).</p> <ul style="list-style-type: none"> • Unless approved otherwise by USFWS, construction will be initiated only during the giant garter snakes’ active period (May 1–October 1, when they are able to move away from disturbance). • Construction personnel will participate in USFWS-approved worker environmental awareness program. • Giant garter snake survey would be conducted 24 hours prior to construction in potential habitat. Should there be any interruption in work for greater than two weeks, a biologist would survey the project area again no later than 24 hours prior to the restart of work. • Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. • Movement of heavy equipment to and from the construction site will be restricted to established roadways. Stockpiling of construction materials will be restricted to designated staging areas, which will be located more than 200 feet away from giant garter snake aquatic habitat. • Giant garter snake habitat within 200 feet of construction activities will be designated as an environmentally sensitive area and delineated with signs or appropriate fencing. This area will be avoided by all construction personnel. 	P, C, M	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<ul style="list-style-type: none"> • Habitat temporarily affected for more than three or more seasons will be restored and twice as much habitat will be created. • Habitat permanently affected in the Sacramento Bypass will be compensated for through the purchase of credits at an USFWS-approved conservation bank prior to permanent disturbance of giant garter snake habitat. Due to the spatial and temporal loss of habitat, and the lack of permanent on-site replacement, the ecological value associated with doing all mitigation at an off-site location was reduced to an overall 70% habitat value. This reduction is offset by the increase of mitigation credits at ratios specified by USFWS in the ARCF GRR Biological Opinion. • One year of monitoring will be conducted for habitat that is temporarily affected. 			
BIRD-1	<p>Implement Measures to Protect Nesting Migratory Birds.</p> <p>If the project is implemented, USACE will undertake the following measures to minimize potential effects on active nests of Swainson’s hawk, white-tailed kite, northern harrier, Modesto song sparrow, and other migratory birds:</p> <ul style="list-style-type: none"> • Before on-site project activities begin, all construction personnel shall participate in a worker environmental awareness program. A qualified biologist shall inform all construction personnel about the life history of Swainson’s hawk and the importance of nest sites. • A breeding season survey shall be conducted for active Swainson’s hawk nests within 0.5 mile of construction activities, including grading. A survey shall also be conducted for active nests of white-tailed kite and purple martin within 500 feet of construction activities and active nests of other migratory birds within 100 feet of construction activities. Swainson’s hawk surveys shall be completed during at least two of the following survey periods: January 1 to March 20, March 20 to April 5, April 5 to April 20, and June 10 to July 30 with no fewer than three surveys completed in at least two survey periods, and with at least one survey occurring immediately prior to project initiation (Swainson’s Hawk Technical Advisory Committee 2000). Other bird nest surveys could be conducted concurrent with Swainson’s hawk surveys, with at least one survey to be conducted no more than 48 hours from the initiation of project activities. If the biologist determines that the area surveyed does not contain any active nests, construction activities, including removal or pruning of trees and shrubs, could commence without any further mitigation. • A breeding season survey shall be conducted for any active nests of birds protected under the Migratory Bird Treaty Act (MBTA), which essentially includes all native birds. If active nests are found, a protective buffer shall be established and implemented until the nest is no longer active. The size of the buffer shall be determined based on the species, nest stage, type, and intensity of project disturbance in the nest vicinity; presence of visual buffers; and other variables that may affect susceptibility of the nest to disturbance. A qualified biologist shall monitor the nest during project activities to confirm effectiveness of the buffer and adjust the buffer as needed to ensure project activities do not adversely affect behavior of adults or young. 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<ul style="list-style-type: none"> Tree and shrub removal and other clearing, grading, and construction activities that remove vegetation shall not be conducted during the nesting season (generally February 15–August 31, depending on the species and environmental conditions for any given year), to the extent feasible. 			
BAT-1	<p>Implement Measures to Protect Maternity Roosts of Special-status Bats.</p> <p>If the project is implemented, CVFPB will implement the following measures to minimize potential for loss of special-status bat maternity roosts:</p> <p>Wherever feasible, the USACE would conduct construction activities outside of the pupping season for bats (generally April 1 to August 31).</p> <ul style="list-style-type: none"> If removal of trees must occur during the bat pupping season, within 30 days of tree removal activities, all trees to be removed will be surveyed by a qualified biologist for the presence of features that may function as special status bat maternity roosting habitat. Trees that do not contain potential special status maternity roosting habitat may be removed. For trees that contain suitable special status bat maternity roosting habitat, surveys for active maternity roosts shall be conducted by a qualified biologist in trees designated for removal. The surveys shall be conducted from dusk until dark. If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from tree removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. No project activity shall commence within the buffer areas until the end of the pupping season (September 1) or until a qualified biologist confirms the maternity roost is no longer active. If construction activities must occur within the buffer, a qualified biologist would monitor activities either continuously or periodically during the work, as determined by the qualified biologist. The qualified biologist would be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated adverse effects on special status bats. If construction activities are stopped, CDFW would be consulted to determine appropriate measures to implement to avoid adverse effects. For trees containing cavities, cracks, crevices, or deep bark fissures that are planned for removal or trimming (irrespective of time of year), such trees must be trimmed and/or removed in a two-phase removal system conducted over two consecutive days. The first day (in the afternoon), limbs and branches would be removed, using chainsaws only. Removal activities must avoid limbs with cavities, cracks, crevices, or deep bark fissures, and remove only branches and limbs without those features. On the second day, the entire tree would be removed. A qualified biologist would monitor removal of these trees. 	P, C	USACE	CVFPB
CR-1	<p>Prepare a Historic Properties Treatment Plan and Continue Consultation in Accordance with the Programmatic Agreement and the Historic Properties Management Plan.</p> <p>In accordance with the requirements of the ARCF PA and the procedures described in Section 8.2 of the ARCF Historic Properties Management Plan (HPMP), a Historic Properties Treatment Plan</p>	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>(HPTP) shall be prepared to address treatment of adverse effects to the Sacramento Weir and Bypass Historic Property. The ARCF HPMP specifies the content, procedures and consultation requirements for the HPTP.</p> <p>CVFPB shall contact the Native American contacts, including those already identified by the Native American Heritage Commission (NAHC), in an effort to identify cultural resources important to Native Americans, including Tribal Cultural Resources as defined in California Public Resources Code 21074, that may be present in the project area. If Tribal Cultural Resources are identified in the APE, then the requirements of Mitigation Measure CR-5 shall be implemented by the CVFPB</p>			
CR-2	<p>Prepare an Archaeological Discovery Plan and Archaeological Monitoring Plan.</p> <p>In accordance with the procedures described in Section 9.2 of the ARCF HPMP, a discovery plan shall be prepared and included in the construction contractor's specifications. The discovery plan shall specify what actions are required to be taken by the contractor in the event of an archaeological discovery and describe what actions USACE may take in the event of a discovery.</p> <p>In accordance with the procedures described in Section 9.3.9 of the ARCF HPMP, an archaeological monitoring plan shall be developed. This plan shall identify the locations of known Historic Properties as well as sensitive areas designated for archaeological monitoring and shall include methods and procedures for monitoring and the procedures to be followed in the event of a discovery of archaeological materials.</p>	P, C	USACE	CVFPB
CR-3	<p>Conduct Cultural Resources Awareness Training.</p> <p>In accordance with the procedures described in Section 9.1 of the ARCF HPMP, USACE shall require the contractor to provide a cultural resources and tribal cultural resources sensitivity and awareness training program for all personnel involved in project construction, including field consultants and construction workers. The training shall be developed in coordination with an archaeologist meeting Secretary of the Interior Professional Qualifications Standards for Archaeology, as well as culturally affiliated Native American tribes. USACE may invite Native American representatives from interested culturally affiliated Native American tribes to participate. The training shall be conducted before any project-related construction activities begin in the APE and shall include relevant information regarding sensitive cultural resources and Tribal Cultural Resources, including applicable regulations, protocols for avoidance, and consequences of violating Federal and state laws and regulations.</p> <p>The training shall also describe appropriate avoidance and impact minimization measures for cultural resources and Tribal Cultural Resources that could be located in the Area of Potential Effect (APE) and shall outline what to do and who to contact if any potential cultural resources or Tribal Cultural Resources are encountered. The training shall emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and shall discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.</p>	P	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
CR-4	<p>Implement Procedures for Discovery of Cultural Material.</p> <p>If cultural materials (e.g., unusual amounts of shell, animal bone, bottle glass, ceramics, building remains,) are discovered during project-related construction activities or if any of these types of resources are identified prior to construction, USACE in consultation with CVFPB and other interested parties, shall develop appropriate protection and avoidance measures where feasible (where avoidance is possible through re-design, revised construction methods, or other means which do not cause construction of the project to become impractical). These procedures shall be developed in accordance with the ARCF PA and ARCF HPMP, which specifies procedures for post-review discoveries. Additional measures, such as development of Historic Property Treatment Plans prepared in accordance with the PA and HPMP, may be necessary if avoidance or protection is not possible.</p>	C	USACE	CVFPB
CR-5	<p>In the Event that Tribal Cultural Resources are Discovered Prior to or During Construction, Implement Procedures to Evaluate Tribal Cultural Resources and Implement Avoidance and Minimization Measures to Avoid Significant Adverse Effects.</p> <p>California Native American Tribes that are traditionally and culturally affiliated with the geographic area in which the project is located may have expertise concerning their Tribal Cultural Resources (California PRC Section 21080.3.1). Consistent with the California Natural Resources Agency Tribal Consultation Policy, CVFPB will consult with culturally affiliated Tribes concerning the identification and evaluation of Tribal Cultural Resources and the treatment of any Tribal Cultural Resources that may be impacted, if these types of resources are discovered prior to or during construction. Consultation with culturally affiliated Tribes shall focus on identifying measures to avoid or minimize impacts on any such resources discovered during construction. If Tribal Cultural Resources are identified in the APE prior to or during construction, the following performance standards shall be met before proceeding with construction and associated activities that may result in damage to or destruction of Tribal Cultural Resources:</p> <ul style="list-style-type: none"> • Each identified Tribal Cultural Resource will be evaluated for California Register of Historical Resources (CRHR) eligibility through application of established eligibility criteria (CCR 15064.636), in consultation with interested Native American Tribes. • If a Tribal Cultural Resource is determined to be eligible for listing in the CRHR, USACE, in consultation with CVFPB, will avoid damaging the Tribal Cultural Resource in accordance with California PRC Section 21084.3, if feasible. If CVFPB determines that the project may cause a substantial adverse change to a Tribal Cultural Resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation steps capable of avoiding or substantially lessening potential significant impacts to a Tribal Cultural Resource or alternatives that would avoid significant impacts to a Tribal Cultural Resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact specifically address inadvertent discovery of human remains: <ul style="list-style-type: none"> i. Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, 	D, P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.</p> <p>ii. Treat the resource with culturally appropriate dignity, taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:</p> <ul style="list-style-type: none"> a. Protect the cultural character and integrity of the resource. b. Protect the traditional use of the resource. c. Protect the confidentiality of the resource. d. Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places. e. Protect the resource. 			
CR-6	<p>Implement Procedures for Discovery of Human Remains.</p> <p>To minimize adverse effects from encountering human remains during construction, USACE and CVFPB shall implement the following measures:</p> <ul style="list-style-type: none"> • In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, CVFPB shall consult with USACE, and USACE shall immediately halt potentially damaging excavation in the area of the burial and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). After the coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains. • Upon the discovery of Native American human remains, USACE, in coordination with CVFPB, shall require that all construction work must stop within 100 feet of the discovery until consultation with the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and make recommendations to the landowner after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California PRC Section 5097.98(b)(2) suggests that the concerned parties may mutually agree to extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that CVFPB shall employ: <ul style="list-style-type: none"> i. Record the site with the NAHC or the appropriate Information Center. ii. Record a document with the county in which the property is located. 	C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>iii. If agreed to by the MLD and the landowner, CVFPB or CVFPB's authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance. If the NAHC is unable to identify an MLD, or if the MLD fails to make a recommendation within 48 hours after being granted access to the site, CVFPB or CVFPB's authorized representative may reinter the remains in a location not subject to further disturbance. If CVFPB rejects the recommendation of the MLD and mediation by the NAHC fails to provide measures acceptable to CVFPB, CVFPB shall implement mitigation to protect the burial remains. Construction work in the vicinity of the burials shall not resume until the mitigation is completed.</p>			
TR-1	<p>Prepare and Implement a Traffic Control and Road Maintenance Plan.</p> <p>Before the start of project-related construction activities, USACE shall require the contractor to prepare and implement a Traffic Control and Road Maintenance Plan. This plan will describe the methods of traffic control to be used during construction. All on-street construction traffic will be required to comply with the local jurisdiction's standard construction specifications. The items listed below shall be included in the plan and as terms of the construction contracts:</p> <ul style="list-style-type: none"> • Follow the standard construction specifications of affected jurisdictions with regard to use and repair of the roads and incorporate those conditions into the construction contract. • Provide adequate parking for construction trucks, equipment, and construction workers within the designated staging areas throughout the construction period. If inadequate space for parking is available at a given work site, the construction contractor shall provide an off-site staging area and, as needed, coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site. • Proposed lane closures shall be coordinated with the appropriate jurisdiction and be minimized to the extent possible during the morning and evening peak traffic periods. Construction specifications shall limit lane closures during commuting hours where feasible, and lane closures will be kept as short as possible. If a road must be closed, detour routes and/or temporary roads shall be made to accommodate traffic flows. Signs shall be provided to direct traffic through detours. • Post signs providing advance notice of upcoming construction activities at least 1 week in advance, so that motorists are able to avoid traveling through affected areas during these times. • Provide bicycle detours to allow for continued use by bicycle commuters. Maintain safe pedestrian and bicyclist access around the construction areas at all times. Construction areas shall be secured as required by the applicable jurisdiction to prevent pedestrians and bicyclists from entering the work site, and all stationary equipment should be located as far away as possible from areas where bicyclists and pedestrians are present. • Notify (by means such as physical signage, internet postings, letters, or telephone calls) and consult with emergency service providers to inform them of construction activities, maintain 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>emergency access, and facilitate the passage of emergency vehicles during construction activities. Emergency vehicle access shall be made available at all times.</p> <ul style="list-style-type: none"> The construction contractor shall document pre- and post- construction conditions on roadways used during construction. This information will be used to assess damage to roadways used during construction. The contractor shall repair all potholes, fractures, or other damages attributed to the project's construction activities. Comply with Caltrans requirements by submitting this Traffic Control and Road Maintenance Plan to Caltrans for review to cover points of access from the state highway system (I 5 and I-80) for haul trucks and other construction equipment. 			
TR-2	<p>Adjust Rail Traffic.</p> <p>USACE and CVFPB shall implement the following measure to reduce effects on rail transportation in the project area:</p> <ul style="list-style-type: none"> Trains using the Yolo Shortline Railroad would be detoured to a different rail line when required. If an alternative rail line is not available, railroad services would be continued by transporting goods on public roads using cargo trucks during the extent of closures required by the project. 	P, C	USACE and CVFPB	CVFPB
AIR-1	<p>Implement the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices.</p> <p>If the project is implemented, USACE shall require its contractors to comply with the basic construction emission control practices listed in the Final EIS/EIR (see Section 3.11.6 of the Final EIR/EIS, p. 251) and presented below for all construction-related activities:</p> <ul style="list-style-type: none"> Water all exposed surfaces two times daily or more, as needed. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. Cover, or suitably wet soils and other materials on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that travel along freeways or major roadways. Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. Limit vehicle speed on unpaved roads to 15 miles per hour (mph). Complete pavement of all roadways, driveways, sidewalks, parking lots to be paved as soon as possible. In addition, lay building pads as soon as possible after grading unless seeding or soil binders are used. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (required by CCR, Title 13, Sections 2449[d][3] and 2485). Provide clear signage that posts this requirement for workers at the entrances to the site. Maintain all construction equipment in proper working condition according to manufacturer's specifications. Have the equipment checked by a certified mechanic and determined to be running in proper condition before it is operated. 	C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
AIR-2	<p>Implement the Sacramento Metropolitan Air Quality Management District's Enhanced Fugitive PM Dust Control Practices.</p> <p>Because the construction activities would involve substantial material movement activities and would be located in proximity of residential receptors, USACE shall require its construction contractors to implement the Enhanced Fugitive (particulate matter) PM Dust Control Practices listed in the Final EIS/EIR (at page 251) below to help reduce potential fugitive PM dust emissions if the project is implemented.</p> <p>Soil Disturbance Areas</p> <ul style="list-style-type: none"> • Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site. • Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph. • Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. • Plant vegetative ground cover (fast germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established. • Unpaved Roads (Entrained Road Dust) • Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the site. • Treat site accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads. • Post a publicly visible sign with the telephone number and person to contact at USACE regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of Yolo Solano Air Quality Management District (YSAQMD) also will be visible to ensure compliance. 	C	USACE	CVFPB
AIR-3	<p>Require Lower Exhaust Emissions for Construction Equipment.</p> <p>If the project is implemented, USACE shall require its contractors to use a fleet-wide average of 90 percent Tier 4 emissions vehicles for off-road construction equipment, and on-road haul trucks must be equipped with 2010 or newer engines. In order to demonstrate compliance with this requirement:</p> <ul style="list-style-type: none"> • The construction contractor shall submit to USACE and YSAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. • The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. The construction contractor shall provide the anticipated construction timeline including start date, and name and phone number of the project manager, and on-site foreman. This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. The Sacramento Metropolitan Air Quality Management District (SMAQMD) Construction Mitigation Tool can be used to submit this information. The inventory shall be updated and submitted monthly throughout the duration of 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.</p> <ul style="list-style-type: none"> The construction contractor shall provide a plan for approval by USACE and YSAQMD demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet average of 90 percent Tier 4 emissions vehicles. This plan shall be submitted in conjunction with the equipment inventory. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. SMAQMD's Construction Mitigation Tool can be used to identify an equipment fleet that achieves this reduction. Use the Construction Mitigation Tool to track PM equal to or less than 10 micrometers in diameter (PM10) emissions and mileage traveled by on-road trucks, reporting results to USACE on a monthly basis. 			
AIR-4	<p>Pay Mitigation Fees to Reduce and Offset NOx Emissions.</p> <p>If the project is implemented, USACE shall implement measures to reduce oxides of nitrogen (NOx) construction-related emissions. Pursuant to air district thresholds of significance, if the projected construction-related emissions exceed the NOx threshold of significance based on the equipment inventory, USACE and CVFPB shall contribute to SMAQMD's, Bay Area Air Quality Management District (BAAQMD's), or YSAQMD's off-site mitigation fee program sufficiently to offset the amount by which the project's NOx emissions exceed the threshold. If emissions for the ARCF 2016 Project in any given year would exceed the de minimis threshold of 25 tons per year, USACE and CVFPB would enter into an agreement with SMAQMD and/or YSAQMD to purchase offsets for all NOx emissions in any year that projected emissions would exceed the threshold. The determination of the estimated mitigation fees shall be conducted in coordination with SMAQMD and/or YSAQMD before any ground disturbance occurs for any phase of project construction. (Estimated fees for the Sacramento Weir Widening project are \$163,485 in 2021, \$189,000 in 2022, and \$251,605 in 2023.) All mitigation fees shall be paid prior to the start of construction activity in each year to allow air districts to obtain emissions reductions for the project. If there are changes to construction activities (e.g., equipment lists, increased equipment usage or schedules), USACE and CVFPB shall work with SMAQMD, BAAQMD, and YSAQMD to ensure emission calculations and fees are adjusted appropriately.</p>	P	USACE	CVFPB
AIR-5	<p>Implement Marine Engine Standards.</p> <p>If the project is implemented, USACE shall encourage the use of U.S. Environmental Protection Agency (EPA) adopted Tier 3 and Tier 4 standards for newly built marine engines in 2008 under the barge delivery scenario. The Tier 3 standards reflect the application of technologies to reduce engine PM and NOX emission rates. Tier 4 standards reflect application of high-efficiency catalytic after-treatment technology enabled by the availability of ultra-low sulfur diesel.</p>	C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	USACE will use Tier 2 and 3 marine engines standards where available to reduce marine exhaust emissions. Due to uncertainty as to the availability of Tier 4 marine engines within the required project timeline, this mitigation measure does not require the use of Tier 4 marine engines. However, should they become available during the appropriate construction periods, the use of these engines would further lower project emissions.			
GHG-1	<p>Implement GHG Reduction Measures.</p> <p>If the project is constructed, measures that will be implemented to further reduce the project's contribution from generation of greenhouse gas (GHGs) are specified in the Final EIS/EIR at pp. 265-266 and include the following:</p> <ul style="list-style-type: none"> • Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes. • Recycle at least 75% of construction waste and demolition debris. • Purchase at least 20% of the building materials and imported soil from sources within 100 miles of the project site. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the CCR]). • Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. • Use equipment with new technologies (repowered engines, electric drive trains). • Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines). • Use an ARB-approved low carbon fuel for construction equipment. NOx emissions from the use of low carbon fuel must be reviewed and any increases mitigated. • Purchase GHG offset for program-wide GHG emissions (direct emissions plus indirect emissions from on-road haul trucks plus commute vehicles) exceeding SMAQMD significance thresholds applicable at the time of construction. Carbon offset credits shall be purchased from programs that have been approved by YSAQMD. 	P, C	USACE	CVFPB
NOI-1	<p>Implement Measures to Reduce Construction Noise and Vibration Effects.</p> <p>If the project is implemented, USACE shall require that construction contractors implement measures at each work site to avoid and minimize construction noise and vibration effects on sensitive receptors. Prior to the start of construction, a noise control plan will be prepared to identify feasible measures to reduce construction noise, when necessary. The measures in the plan will apply to construction activities within 500 feet of a sensitive receptor, including, but not limited to, residences. These measures may include, but are not limited to, the following:</p>	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<ul style="list-style-type: none"> • Provide written notice to residents within 1,000 feet of the construction zone, advising them of the estimated construction schedule. This written notice would be provided within 1 week to 1 month of the start of construction at that location and updated with any substantial changes to the schedule. • Display notices with information including, but not limited to, contractor contact telephone number(s) and proposed construction dates and times. Notices shall be displayed in a conspicuous manner, such as on construction site fences. • Schedule the loudest and most intrusive construction activities during daytime hours (7:00 a.m. to 7:00 p.m.), when feasible. • Require that construction equipment include factory-installed muffling devices and that all equipment be operated and maintained in good working order to minimize noise generation. • Locate stationary noise-generating equipment as far as practicable from sensitive receptors. • Limit unnecessary engine idling (i.e., more than 5 minutes) as required by state air quality regulations. • Employ equipment that is specifically designed for low noise emission levels, when feasible. • Employ equipment that is powered by electric or natural gas engines, as opposed to those powered by gasoline fuel or diesel, when feasible. • If the construction zone is within 500 feet of a sensitive receptor, place temporary barriers between stationary noise equipment and noise sensitive receptors to block noise transmission, when feasible, or take advantage of existing barrier features, such as existing terrain or structures, when feasible. • If the construction zone is within 500 feet of a sensitive receptor, prohibit use of backup alarms and provide an alternate warning system, such as a flagman or radar-based alarm that is compliant with Federal and state worker safety regulations. • Locate construction staging areas as far as practicable from sensitive receptors. • Design haul routes to avoid sensitive receptors, to the extent practical. • To the extent feasible and practicable, employ vibration-reducing construction practices such that vibration from construction complies with applicable noise-level rules and regulations that apply to the work, including the vibration standards established for construction vibration-sources by the applicable agencies, depending on the jurisdictional location of the affected receptor(s). Project construction specifications shall require the contractor to limit vibrations to less than 0.2-inch per second peak particle velocity (PPV), and less than 72 VdB within 50 feet at any building. If construction would occur within 50 feet of any occupied building, the contractor will prepare a vibration control plan prior to construction. The plan will include measures to limit vibration, including but not limited to the following: <ul style="list-style-type: none"> • Avoid vibratory rollers and packers near sensitive areas. • Route heavily loaded trucks away from residential streets, when possible. If no reasonable alternatives are available, select streets with the fewest homes. 			

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
REC-1	<p>Implement Bicycle and Pedestrian Detours, Provide Construction Period Information on Facility Closures, and Coordinate with Yolo County and California Department of Fish and Wildlife to Repair Damaged Facilities.</p> <p>If the project is implemented, USACE and CVFPB shall implement the following measures to reduce temporary, short-term construction effects on recreational facilities in the project area:</p> <p>Provide marked detours for areas, informal trails, and on-street bicycle routes that are temporarily closed during construction. Detours should be developed in consultation with Yolo County at least 10 days before the start of construction activities, as applicable. Post signs that clearly indicate closure routes at major entry points for bicycle trails, post information signs to notify motorists to share the road with bicyclists where necessary and provide a contact number to call for questions or concerns.</p> <p>Post signs at major entry points for parks and recreation facilities. Information signs will notify the public of alternate parks and recreation sites and provide a contact number to call for questions or concerns.</p> <p>Upon completion of levee improvements, coordinate with Yolo County and CDFW to restore access and repair any construction-related damage to pre-project conditions.</p>	P, C	USACE	CVFPB
REC-2	<p>Implement Water Safety Measures for Barges.</p> <p>If the project is constructed, USACE and CVFPB shall implement the following measure to reduce temporary, short-term construction effects on recreational boating in the project area:</p> <ul style="list-style-type: none"> If rock or other materials are transported by barge on the Sacramento River, appropriate water safety measures would be used to reduce impacts to recreational boaters. 	C	USACE	CVFPB
VIS-1	<p>Coordinate Nighttime Lighting with Sacramento International Airport Operations and Restrict Night Lighting within and Near Airport Runway Approaches and Near CHP Academy Airport.</p> <p>If the project is implemented, USACE will implement the following measures for construction in proximity to airports to reduce airport safety hazards associated with project-related nighttime lighting.</p> <ul style="list-style-type: none"> All project-related nighttime lighting that would be located within Sacramento International Airport's runway approach zones, as well as all nighttime lighting that would be located within 2 miles of the CHP Academy Airport, will be shielded and directed downward to reduce interference with nighttime airport operations and aircraft flight paths. Sacramento County Airport System (SCAS) and the California Highway Patrol (CHP) Academy Airport will be notified at least 10 days prior the start of nighttime lighting operations within the Sacramento International Airport runway approach zones or within 2 miles of the CHP Academy Airport. USACE and CVFPB will coordinate with SCAS and the CHP Academy Airport during final project design to ensure that all appropriate safety precautions are incorporated into the construction plans. Prior to the start of nighttime construction activities that would be located within Sacramento International Airport runway approach zones, as well as all nighttime lighting that would be 	P, C	USACE	CVFPB

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>located within 2 miles of the CHP Academy Airport, USACE's construction contractor will hold a safety meeting for all nighttime construction personnel, informing construction personnel of the need to ensure all lighting is shielded and directed downward at all times, along with other safety measures that may be required by SCAS or the CHP Academy Airport. The safety briefing will include emergency contact information for SCAS and the CHP Academy Airport. If nighttime lighting activities are necessary throughout the course of the construction season (i.e., April–October), at least two safety meetings will be held by the construction contractor, at evenly spaced intervals over the course of the construction season.</p>			
<p>VIS-2</p>	<p>Provide Shielding from Nighttime Construction Activities or Offer to Temporarily Relocate Affected Residents.</p> <p>To reduce nighttime light and glare effects on residents and motorists, USACE will ensure that the following measures are implemented if the project is constructed.</p> <p>All nighttime lighting will be shielded and directed downward.</p> <ul style="list-style-type: none"> • If nighttime construction would occur within 300 feet of residences, solid screened temporary construction fencing at least 6 feet high will be provided along the boundary of the construction site where nighttime lighting would occur, between the construction site and the residence. A minimum of 200 linear feet of shielded construction fencing will be provided. The shielded fencing will be proximate to the location of the lighting (e.g., if lighting is required on top of the levee, then the fencing will also be placed on top of the levee). • In lieu of screened construction fencing, USACE and CVFPB may offer to temporarily relocate affected residents to a local hotel during the period when nighttime lighting would occur. Reimbursement of hotel accommodations will be limited to reasonable expenses and will be limited to the duration of nighttime lighting activities within 300 feet of the residence. 	<p>C</p>	<p>USACE</p>	<p>CVFPB</p>
<p>UTL-1</p>	<p>Verify Utility Locations, Coordinate with Affected Utility Owners/Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.</p> <p>If the project is implemented, USACE shall implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction:</p> <ul style="list-style-type: none"> • Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated. • Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners. • Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the project area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines shall be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earthmoving activities. • Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan shall identify chain-of-command rules for 	<p>P, C</p>	<p>USACE</p>	<p>CVFPB</p>

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
	<p>notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan will include worker education training in response to such situations.</p> <ul style="list-style-type: none"> • Stage utility relocations during project construction to minimize interruptions in service. • Communicate construction activities with first responders to avoid response delays due to construction detours. 			
HAZ-1	<p>Conduct Phase II Investigations as Needed.</p> <p>If the project is implemented, USACE will require that project areas be tested for contaminants prior to construction. Any hazardous materials found would be disposed of in accordance with all Federal, state, and local regulations at an approved disposal site. Where construction activities would occur in close proximity to sites identified as Recognized Environmental Conditions (RECs) in the Phase I Environmental Site Assessment (ESA) (HDR 2019), a Phase II site investigation should also be conducted.</p>	P	USACE	CVFPB

Notes:

- D: To be implemented or included as part of project design, including pre-project permitting and agency coordination.
- P: To be implemented prior to construction being initiated(pre-construction), but not part of project design or permitting.
- C: To be implemented during project construction.
- M: To be implemented as ongoing maintenance after construction is complete.

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