Butte Slough Outfall Gates Repair Project
Mitigation Monitoring and Reporting Program

Prepared for:

California Department of Water Resources, Division of Flood Management, Flood Maintenance and Operations Branch

SCH# 2024061069

February 2025

Prepared by:

GEI Consultants
Consulting Engineers and Scientists

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Abbreviations and Acronyms

Acronym	Abbreviation
APE	Area of Potential Effects
BMP	Best Management Practice
BSOG	Butte Slough Outfall Gates facility
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
DWR	California Department of Water Resources
FMO	Flood Maintenance and Operations Branch
FRAQMD	Feather River Air Quality Management District
GHG	Greenhouse gas
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
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
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

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Mitigation Monitoring and Reporting Program

PROJECT DESCRIPTION

The California Department of Water Resources (DWR) Division of Flood Management Flood Maintenance and Operations Branch (FMO) proposes to implement several maintenance repairs to the Butte Slough Outfall Gates (BSOG) facility. As a key component of the Sacramento River Flood Control Project, the BSOG facility has regulated flood and agricultural water since 1935. This important function has become increasingly threatened by the degradation of the gates and surrounding infrastructure. In response, the project proposes include the following maintenance repairs necessary to restore the safe operability and function of the BSOG facility and maintain flood and agricultural water runoff equilibrium:

- install supplemental outlet headwall support.
- replace the existing outlet/inlet catwalk support.
- repair the inlet slide gates.
- install a new facility control building.
- install water flow/condition monitoring equipment.

The BSOG project site is located on Butte Slough adjacent to its confluence with the Sacramento River. The project site is located approximately 5 miles downstream from the town of Colusa in both Sutter and Colusa counties and is accessed by Marty Road on the Sutter County side and Butte Slough Road on the Colusa County side. The proposed project would take approximately 18 months to construct.

FINDINGS

An Initial Study/proposed Mitigated Negative Declaration (IS/proposed MND) has been prepared under the California Environmental Quality Act (CEQA). The IS assessed the project's potential effects on the physical environment and the significance of those effects. Based on the IS and considering comments received on the IS/proposed MND, it has been determined that the proposed project would not have any significant adverse effects on the physical environment after implementation of mitigation measures identified in the IS and subsequently modified (see mitigation measures BIO-1 and BIO-5, below, with redline/strike-out text) as presented in this MND. This conclusion is supported by the following findings:

1. The proposed project would have no impacts on land use and planning, mineral resources, population and housing, and public services.
2. The proposed project would have less-than-significant impacts on aesthetics, agriculture and forestry resources, energy, greenhouse gas emissions, recreation, transportation, and wildfire.
3. The proposed project would have potentially significant impacts on air quality emissions, biological resources, cultural resources, tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and utilities and service systems, but

feasible mitigation measures are proposed to avoid or reduce these effects to less-than-significant levels.

4. The proposed project would not have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory.
5. The proposed project would not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
6. The proposed project would not have possible environmental effects that are individually limited but cumulatively considerable and contribute to a significant cumulative impact. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
7. The environmental effects of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly.

MITIGATION MONITORING AND REPORTING PROGRAM

Section 21081.6(a)(1) of the California Public Resources Code (PRC) and Section 15097 of the 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 DWR to ensure that mitigation measures identified in the IS/MND are implemented as described in the final MND and that their implementation is documented.

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 IS/MND.

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 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 Project design or permitting

C: To be implemented during 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 proposed project and an MMRP completion report will be prepared by DWR staff upon 7implementation of all mitigation measures.

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Table 1. Mitigation Monitoring and Reporting Program for the

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
AIR-1	**Implement FRAQMD Construction Phase Mitigation Measures** The following FRAQMD Construction Phase Mitigation Measures, listed below, will be implemented to reduce construction-related emissions of criteria air pollutants: • Develop and submit a fugitive dust control plan to FRAQMD and implement the FRAQMD-approved plan. • The contractor will be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation. • Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable. • All grading operations will be suspended when average wind speeds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures. • Work areas will be watered or treated with dust suppressants as necessary to prevent fugitive dust violations. • An operational water truck will be available to apply water to control dust at least twice daily to prevent visible emissions violations and offsite dust impacts. • Onsite dirt piles or other stockpiled material should be covered when inactive, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas. • All transfer processes involving a free fall of soil or other particulate matter will be operated in such a manner as to minimize the free fall distance and fugitive dust emissions. • Apply approved chemical soil stabilizers according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas. • To prevent track-out, wheel washers will be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment will be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out. • Paved streets will be swept frequently (water sweeper recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site. •	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
AIR-1 (continued)	• Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the County Department of Public Works and/or Caltrans and to reduce vehicle dust emissions. • Reduce traffic speeds on all unpaved surfaces to 25 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage. • Reestablish ground cover on the construction site as soon as feasible, through seeding and watering.	P, C	DWR Contractor	DWR
AIR-2	**Reduce Construction-related Exhaust Emissions** DWR will require its contractor to prepare a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty (equal to or greater than 50 horsepower) off-road (portable and mobile) equipment that will be used an aggregate of 40 or more hours for the construction project (including owned, leased, and subcontractor vehicles). Using the inventory list, the contractor will prepare and provide a plan for approval by FRAQMD demonstrating that the heavy-duty off-road equipment to be used in the construction project will achieve a project wide fleet-average 20 percent NOx reduction compared to the most recent CARB fleet average at time of construction. The contractor will implement the FRAQMD-approved plan. A Construction Mitigation Calculator (MS Excel) will be downloaded from the Sacramento Metropolitan Air Quality Management District web site to perform the fleet average evaluation http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, voluntary offsite mitigation projects, provide funds for air district offsite mitigation projects, and/or other options as they become available. FRAQMD will be contacted to discuss alternative measures. The results of the Construction Mitigation Calculator will be submitted and approved by FRAQMD prior to beginning construction work. The project will provide a monthly summary of heavy-duty off-road equipment usage to FRAQMD throughout project construction.	P, C	DWR Contractor	DWR
AIR-3	**Purchase Off-site NOx Mitigation Fees** Any excess emissions of NOx above FRAQMD's established threshold will be mitigated through a contribution to the FRAQMD's Off-Site Mitigation Program to reduce emissions to less than significant. Accordingly, it is anticipated that DWR will need to purchase 0.54 ton of NOx, if alternative options for reducing emissions are not used, to reduce emissions to the FRAQMD established threshold. DWR will comply with the following measures to pay an off-site construction mitigation fee to reduce NOx emissions: • DWR will compile a list of all emission sources and consult with FRAQMD staff to implement this mitigation measure.	P, M	DWR	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
AIR-3 (continued)	• The project will need to track emissions generated from equipment and vehicles throughout the project's construction phases that are estimated to exceed the threshold (for example, if a construction phase exceeds the threshold, then track emissions from off-road, portable, and on-road equipment and vehicles). • DWR will pay a mitigation fee in the amount of $30,000 per ton of excess emissions of NOx caused by project construction above the FRAQMD-established threshold (as quantified by DWR in accordance with FRAQMD guidelines) and a 10% administrative fee to the FRAQMD mitigation fund, such as a Carl Moyer-type Program, to reduce the project impacts from construction NOx emissions to below the significance threshold each year. If mitigation fees change, then DWR will pay the current fee at the time of the mitigation payment. • DWR, or its designee, will make a down-payment prior to construction activities with the remainder due following the completion of construction activities. DWR will submit monthly usage summarizes to FRAQMD and will submit a final usage summary within 60 days after the completion of construction activities. The mitigation amount may change based on the emissions sources and equipment inventory submitted to FRAQMD before beginning project construction. However, the mitigation amount/fee will be provided for all NOx emissions in exceedance of thresholds after implementation of Mitigation Measures AIR-1 and AIR-2.	P, M	DWR	DWR
BIO-1	**Minimize Impacts on Special-status Fish and other Sensitive Biological Resources** DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish and other sensitive resources on and adjacent to the project site: • All project personnel working on the project site will attend a worker environmental awareness training program before beginning on-site work. The awareness training will be presented by a qualified biologist with knowledge of sensitive biological resources known or with potential to occur on the project site. The awareness training will address applicable Federal and State laws and regulations; sensitive habitats on and adjacent to the project site; biology, habitat needs, and distribution of special-status species on and adjacent to the project site; regulatory status of each resource and its associated protections; measures required to avoid and reduce impacts to these resources during project construction; potential penalties for non-compliance; and procedures to be followed if dead or injured wildlife are found during project activities. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all required measures. No untrained personnel will be allowed to work onsite.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-1 (continued)	• Use existing staging sites, maintenance toe roads, and levee crown roads to the extent practicable for staging and access to avoid affecting previously undisturbed areas. Limit the number of access routes and the size of staging and work areas to the minimum necessary to conduct the activity.Where feasible and practicable clearly mark work area limits (e.g., with flagging or fencing), including access roads, staging and equipment storage areas, stockpile areas, equipment fueling areas, and other areas where construction activities will occur. Work will occur only within the marked limits. • The amount of revetment and similar materials used for bank protection and other maintenance activities will be limited to the amount necessary to meet maintenance obligations and ensure proper flood protection system integrity and function. • Remove temporary fill, construction debris, and refuse, and properly dispose of these materials following completion of any maintenance activities. • Habitats, including aquatic, will be restored to pre-project conditions wherever feasible. • All in-water work will occur between June 15 to October 31 to minimize potential for anadromous special-status fish to be present during in-water construction activities. • In-water construction work will be conducted only in dry, dewatered areas behind sheet pile cofferdams and all within one season (anticipated to be 2025). All construction equipment used for in-water work will be cleaned and free of invasive species. The cofferdams will be constructed on both sides of the BSOG facility, prior to any in-water soil-disturbing activities. The Sacramento River cofferdam will be constructed to an elevation high enough to avoid flooding during the construction period. Sutter Maintenance Yard staff will control the stage elevations downstream of the BSOG facility during the entirety of construction to avoid flooding the cofferdam on the Butte Slough side. • Stream Habitat Restoration Manual (Flosi et al. 1998). Fish trapped inside the cofferdam will be rescued before the cofferdam is completely drained as removing or excluding fish during installation is difficult and not feasible. Qualified biologists will capture fish within the cofferdam areas and relocate as specified in the fish rescue plan. • A fish rescue plan will be developed and implemented by DWR after plan approval by CDFW and NMFS and prior to cofferdam installation. The plan will reference and implement adapted fish relocation measures defined in the CDFW California Salmonid • A qualified biologist will be onsite or on call during in-water construction activities. If a sensitive species is encountered during construction, activities will cease (where safely and mechanically possible) until appropriate corrective measures have been completed or it has been determined that the species will not be harmed.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-1 (continued)	• A dewatering plan will be prepared by DWR and submitted to CDFW and NMFS prior to commencing dewatering activities. The dewatering plan will be implemented by DWR during all dewatering activities, and pump intakes will be fitted with appropriately sized NMFS~~- and/or CDFW-~~approved fish screens (according to the NOAA Fisheries West Coast Region Anadromous Salmonid Design Manual [2022]) to prevent fish from becoming entrained. The dewatering plan will address fish rescue measures (consistent with CDFW/NMFS) and water quality/discharge measures consistent with objectives of the CVRWQCB.If erosion control fabrics are used, products with plastic monofilament or cross-joints in the netting that are bound/stitched (such as straw wattles, fiber rolls, or erosion control blankets), which could trap wildlife, will not be used. • Inspect under all vehicles and heavy equipment for the presence of wildlife before the start of each workday when equipment is staged overnight. All pipes, culverts, and similar structures that have been stored on-site for one or more nights will be inspected for wildlife before being buried, capped, or moved. • Cover all excavated, steep-walled holes or trenches with appropriate covers (thick metal sheets or plywood) at the end of each workday. Covers will be placed to ensure that trench edges are fully sealed. Alternatively, such trenches may be furnished with one or more escape ramps constructed of earth fill or wooden planks to provide escape ramps for wildlife./ Ensure that all project-related trash items, such as wrappers, cans, bottles, and food scraps, are collected in closed containers, removed from maintenance sites each day, and disposed of at an appropriate off-site location to minimize attracting wildlife to work areas.	P, C	DWR Contractor	DWR
BIO-2	**Minimize Underwater Sound Pressure from Pile Driving with Impact Hammer** DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from underwater sound pressure: If an impact hammer is needed to drive piles, noise levels will not exceed the following threshold levels established by USFWS and NMFS (for fish greater than 2 grams): • Peak pressure = 206 decibels. • Accumulated SEL = 187 decibels. To comply with the thresholds, DWR will employ the following measures: • Use of an impact hammer cushion block. • Hammers will be used only during daylight hours and will initially be used at low energy levels and reduced impact frequency. • Applied energy and frequency will be gradually increased until necessary full force and frequency are achieved.	C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-2 (continued)	If noise thresholds are not met using the above measures, DWR will consult with CDFW and NMFS and one or both of the following mitigation measures may be implemented as feasible: • A bubble curtain may be implemented, surrounding the pile to be driven. • Shortening the daily duration of pile-driving activities. A qualified biologist will be present to monitor pile driving and compliance with regulatory permit terms and conditions of permits. If any injury or mortality to fish is observed, CDFW and/or NMFS will be immediately notified, and in-water pile driving will cease temporarily until the issue is resolved to comply with the thresholds.	C	DWR Contractor	DWR
BIO-3	**Prepare and Implement a Water Quality Control Plan** DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status fish from water quality degradation, including accidental spills, turbidity, erosion, and sedimentation. The measures will be included in a Water Quality Control Plan that will be developed by the contractor prior to the start of construction and implemented throughout construction. A copy of the plan will be available at all times on the construction site and will address the following measures: • Spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous materials used for equipment operation, and emergency procedures for responding to spills. Measures will be updated as needed to reflect changes in on-site hazardous materials. In addition, spill control materials will be available on-site and available for deployment during all phases of work. • Best Management Practices (BMPs) for preventing or minimizing the discharge of sediments and other potential contaminants that have the potential to affect beneficial uses or lead to a violation of water quality objectives will be implemented by DWR and the construction contractor(s). The plan will identify and specify (but is not limited to) the use of an effective combination of appropriate temporary and/or between season erosion and sediment control BMPs for use on the project site, spill prevention and contingency measures, waste disposal, and emergency contacts and responsibilities. Erosion control will include measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. BMPs may include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms, sandbags, and revegetation. • A dewatering plan will be developed and implemented that is designed so that any potential discharges to surface water will meet the water quality objectives of the CVRWQCB. The dewatering plan will include measures to minimize turbidity of discharge water and details on the approach to season the channel before reestablishing flows so that flushing flows do not cause surging of sediments downstream.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-3 (continued)	• Erosion control measures for construction, long-term management, and stabilizing soils, if necessary, before the onset of winter. Additional BMPs for erosion control will include the careful use of grading management techniques, silt fences, silt or turbidity curtains, berms, sandbags, and revegetation. These erosion control BMPs will be implemented by DWR and its construction contractor(s) prior and during construction-related activities. • Inspection, monitoring, and reporting measures to ensure CVRWQCB water quality objectives are met during construction and long-term management. BMPs are expected to be fully effective. Notwithstanding, DWR or its construction contractor will evaluate BMP effectiveness during construction. If the quantity or quality of the BMPs needs to be addressed, DWR or its contractor will implement improvements within 24 hours after the initial discovery or before the onset //of an expected storm event. • Turbidity measurements will be taken daily upstream and downstream of the work areas, as well as at any other discharge points, during project activities with potential to degrade water quality, such as pile driving and discharge to surface waters. If measurements have a weekly average of 50 Nephelometric Turbidity Units (NTUs) above baseline (upstream), the following steps will be taken (EPA 2022): o Keeping site safety precautions in mind, immediately take steps to prevent further discharge, including stopping work if necessary. o Determine if dewatering and/or other controls for discharge are operating effectively and if they may be causing turbid conditions. o Make necessary adjustments, repairs, or replacements to dewatering or other discharging mechanisms to lower turbidity levels below the benchmark or to prevent/remove a visible turbidity plume or water sheen.	P, C	DWR Contractor	DWR
BIO-4	**Minimize Impacts on Special-status Plants** DWR will implement the following measures to identify areas on and adjacent to the project site that support special-status plants: • Prior to any project ground disturbance, a qualified botanist will be retained to perform focused surveys for special-status plants. These surveys will serve to document the presence/absence of these species in and adjacent to (within 100 feet, where appropriate) proposed impact areas, including new construction access routes. These surveys will be conducted in accordance with CDFW Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities (2018) or other current protocols. These guidelines require that special-status plant surveys be conducted at the proper time of year when target species are both evident and identifiable. Surveys will be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.	P	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-4 (continued)	• If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species will be avoided to the greatest extent possible and one the following will be implemented: o Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, will be protected by flagging, signage, orange construction fence, and/or silt fence as appropriate based on site conditions to limit the effects of project-related activities and material stockpiles on any special-status plant species. o If project-related activities would result in the loss of greater than 10% of a population or occupied habitat for a special-status plant species, a mitigation plan will be developed that describes a program to transplant, salvage, cultivate, and re-establish the species at suitable sites (if feasible). Alternatively, mitigation could be satisfied through off-site preservation or via payment to an in-lieu fee program, if available.If the mitigation plan is chosen, it would include means and methods to propagate affected special-status plants via vegetative or reproductive means (e.g., harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation would occur prior to construction. The receiving location would be evaluated and chosen based on similarity to conditions at the transplant source location, to the extent feasible. Site conditions to consider when choosing a receiving site would include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants would be monitored for at least one year following construction. o If the preservation option is chosen, preservation areas may include undisturbed areas of the site that will be preserved and managed in perpetuity, offsite mitigation lands, or a combination of both. The preserved habitat will be of equal or greater habitat value to the areas affected in terms of soil features, extent of disturbance, vegetation structure, and contain extant populations of the same or greater size as the area affected. o The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat will be replaced at a minimum 1:1 ratio (individuals or acreage of occupied habitat).	P	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-5	**Minimize Impacts on Northwestern Pond Turtle** DWR and its construction contractor(s) will implement the following measures to minimize impacts on western pond turtle: • Ground disturbance (e.g., grading, disking, road construction or similar activities that could disturb or crush northwestern pond turtles and their nests) will be avoided, if possible, within 200 feet of potentially suitable northwestern pond turtle nesting or aquatic habitat, as determined by a qualified biologist. This 200-foot buffer, or another buffer approved in consultation with CDFW, will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. • Project activities that could result in ground disturbance will not occur within the buffer to the extent feasible. If such activities must occur in buffers, a buffer of reduced width will be established (in consultation with CDFW) by a qualified biologist, marked, and avoided during maintenance activities in that location. All ground-disturbing project activities occurring within the buffer will be monitored by a qualified biologist who would be either on-call or on-site, as appropriate to reduce impacts. • If northwestern pond turtles are observed in the project area, DWR will stop work within approximately 200 feet of the turtle, and a qualified biologist will be notified immediately. If possible, the turtle will be allowed to leave on its own and the qualified biologist will remain in the area until the biologist deems his or her presence no longer necessary to ensure that the turtle is not harmed. Alternatively, the qualified biologist may capture and relocate the turtle, unharmed and with prior CDFW approval, to suitable downstream habitat at least 200 feet away. If the turtle does not voluntarily leave the project area and cannot be captured and relocated unharmed, project activities within approximately 200 feet of the turtle will not resume, and CDFW will be consulted to identify the next steps, if needed. • If Project proponent would like to relocate northwestern pond turtle away from the Project area, Project proponent shall prepare a Relocation Plan. The Plan shall include, but not be limited to: o a discussion of the species and habitat features; o a schedule for survey and monitoring species presence; o methods to capture, handle, and relocate individuals or habitat features out of the Project area; o names and qualifications of biologists who will handle the species, including the appropriate handling authorization; o specifications for Wildlife Exclusion fencing, if appropriate, which may be installed to exclude the wildlife species from the Project area; o details regarding the use of coverboards which will be employed accessory to the exclusion fencing;	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
Bio-5 (continued)	○ description and maps of where the salvaged individuals or habitat features will be relocated to; and ○ identification of a wildlife rehabilitation center or veterinary facility where injured individuals of the will be taken. ○ The Plan should also provide Project proponent's plan to respond to an atypical detection of individual(s), such as being detected under construction vehicles, being detected inside construction materials (pipes), being detected in an uncovered pit, etc. Project proponent shall move wildlife to the nearest suitable habitat outside of the Project area. Project proponent shall maintain a Wildlife Relocation Record that includes, at a minimum: the date of capture and of relocation; the method of capture, location of relocation in relation to the Project area; and the number, age-class and species captured and relocated. The Wildlife Relocation Record shall also quantify the number and species of Project- and relocation-related mortality.	P, C	DWR Contractor	DWR
BIO-6	**Minimize Impacts on Nesting Birds** DWR and its construction contractor(s) will implement the following measures to minimize impacts on nesting birds: If project activities that could affect suitable habitat for nesting birds cannot be conducted outside of the nesting season (January 1 through September 15, dependent on specific species), DWR will complete pre-activity surveys for nesting birds (including raptor and passerine nests and heron and egret rookeries). Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable nesting habitat that could be affected by project activities (e.g., construction area, staging areas, access routes) and will include a 500-foot buffer area (or larger area if required by established survey protocol) surrounding these areas. Where appropriate, pre-activity surveys will follow established survey protocols or guidelines. These protocols include: • Bald Eagle Nesting Territory Survey Form and Instructions (CDFG 2010) • Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015 (CDFW 2015) • Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000).	P, C	DWR Contractor	DWR

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<tr><th>Mitigation Number</th><th>Mitigation Measure</th><th>Implementation Timing</th><th>Implementation Responsibility</th><th>Responsible for Monitoring/ Reporting Action</th></tr>
<tr><td>Bio-6 (continued)</td><td>If no established survey protocol exists, the qualified biologist will complete surveys within 1 week of the start of on-site project activity, or within 2 weeks of restart of the activity after the activity has lapsed. If no nesting birds are detected during pre-activity surveys, no additional mitigation measures are required.

If nesting birds are identified by a qualified biologist on or adjacent to the project site, DWR will establish an avoidance buffer as indicated below in Table 3 4 for project activities that would potentially affect the nesting birds. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on nesting birds, based on the specific project activities to be conducted, species present, nest stage, and nest location.

Table 3-4. Buffer Distances for Protected Bird Species.
<table><tr><th>Bird Species</th><th>Buffer Distance</th></tr><tr><td>white-tailed kite</td><td>0.5 mile</td></tr><tr><td>bald eagle</td><td>0.5 mile</td></tr><tr><td>Swainson’s hawk</td><td>0.5 mile</td></tr><tr><td>western yellow-billed cuckoo</td><td>500 feet</td></tr><tr><td>yellow-breasted chat</td><td>100 feet</td></tr><tr><td>song sparrow (Modesto population)</td><td>100 feet</td></tr><tr><td>tricolored blackbird</td><td>300 feet</td></tr><tr><td>common nesting passerines</td><td>100 feet</td></tr><tr><td>common nesting raptors</td><td>300 feet</td></tr><tr><td>common heron or egret rookeries</td><td>200 feet</td></tr></table>Source: DWR 2017.

If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the nesting pair or their young exhibit agitated behavior. If project activities that may impact special-status nesting birds are required within the avoidance buffer indicated in Table 3 4, the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist’s opinion, threaten to cause nest disturbance or abandonment. If project activities are stopped, the qualified biologist will consult with CDFW (and USFWS if appropriate) to determine appropriate measures that DWR will implement to avoid adverse effects. Buffers will be maintained until there is no longer a threat of disturbance to the sensitive biological resource (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.</td><td>P, C</td><td>DWR
Contractor</td><td>DWR</td></tr>
</table>

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-7	**Minimize Impacts on Special Status Bats** DWR and its construction contractor(s) will implement the following measures to minimize impacts on special-status bats: • If project activities that could affect suitable habitat for occupied bat roosts cannot be conducted outside of the maternity season (April 1 through August 31, dependent on specific species; Johnston et al. 2004), DWR will complete pre-activity surveys for roosting bats. Surveys will be conducted by a qualified biologist. Surveys will be conducted within suitable roosting habitat that could be affected by project activities (e.g., construction area, staging areas, access routes) and will include a 500-foot buffer area surrounding these areas. • The qualified biologist will complete surveys within 1 week before the start of the activity, or within 2 weeks before restart of the activity after the activity has lapsed. If no roosting bats are detected during pre-activity surveys, no additional mitigation measures are required. • If roosting bats are identified by a qualified biologist in or adjacent to the project site, DWR will establish an avoidance buffer for project activities that would potentially affect the bats. Alternatively, a qualified biologist may determine that a buffer is not required to avoid adverse effects on roosting bats, based on the specific project activities to be conducted and location of the roost in relation to those activities. • If required, buffers will be marked in the field by a qualified biologist using temporary fencing, high-visibility flagging, or other means that are equally effective in clearly delineating the buffers. Project activities will not occur within the buffer, and the buffer will be expanded if the roosting bats exhibit agitated behavior. If project activities that may impact roosting bats are required within the avoidance buffer the activities will be monitored by a qualified biologist either continuously or periodically during work, as determined by the qualified biologist. The qualified biologist will be empowered to stop project activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status wildlife (e.g., nest abandonment). If project activities are stopped, the qualified biologist will consult with CDFW to determine appropriate measures that DWR will implement to minimize adverse effects. For example, tree removal would not occur during periods when roosting bats are most vulnerable (i.e., during maternity and wintering periods) and removal may occur in a staged process over several days to allow roosting individuals to relocate. Buffers will otherwise be maintained until there is no longer a threat of disturbance to the roosting bats (e.g., young have fledged, individuals have moved out of the area), as determined by a qualified biologist.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
BIO-8	**Minimize Impacts of Vegetation Removal** DWR and its construction contractor(s) will implement the following measures to minimize impacts of vegetation removal: • Limit clearing of vegetation and blading for temporary vehicle access to the minimum necessary; especially minimize the clearing of native riparian vegetation and native oaks to the extent practicable. • Where feasible and consistent with project requirements, avoid removal of native trees with a trunk greater than 4 inches in diameter at breast height. Work will be done in a manner that ensures, to the extent feasible, that living native riparian vegetation within the project footprint is avoided and left undisturbed, where this can reasonably be accomplished without compromising project construction and maintenance requirements. • Disturbed soil areas will be stabilized using appropriate erosion control BMPs during and at the completion of construction activities for all phases of work. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used. • A certified arborist will be present to supervise tree removal and trimming to preserve tree health and ensure that appropriate methods are used. Any riparian habitat that is removed along the Sacramento River and/or Butte Slough will be replaced, with replacement to occur onsite. Native willows, oaks, and/or other native plantings will be replanted on bank slopes in or near the project area. In areas where rip rap will be replaced or installed, native willows and/or other native trees and shrubs plantings will be incorporated into the voids/gaps. Lifts of riprap/soil mixes will be placed above the OHWM and where feasible (dependent upon slope and other factors) on the Butte Slough and Sacramento Riverbanks near the project site. Plantings will be incorporated into the rip rap/soil mix after construction is complete or during the final stages of construction. • A mitigation and monitoring plan will be developed and implemented to ensure that there is no net long-term loss of shaded riverine aquatic habitat and other riparian habitat. Proposed mitigation habitat will be created at or near the site. DWR will coordinate with the appropriate regulatory agencies regarding compensation numbers/amount, locations, and details. If DWR cannot create on-site mitigation, off-site mitigation may be used with agency approval, including at existing and approved mitigation/conservation banks or at other approved sites including DWR managed restoration and/or multi-benefit projects.	P, C	DWR Contractor	DWR
CR-1	**Protect the Archaeological Resource P-51-000233 Historic Component through Exclusion Fencing** To protect any possible damage to this component of P-51-000233, exclusion fencing will be placed 20 feet from the NWIC plotted boundary of the site prior to use of the area as a staging area. No vehicle traffic or placement of materials will occur past the exclusion fencing. This will protect any surface or near-surface portions of the resource that may exist within the Area of Potential Effect (APE).	C, M	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
CR-2	**Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Worker Environmental Awareness Program Training** Cultural resources awareness training, as part of an overall Workers Environmental Awareness Program (WEAP), will be conducted for all construction personnel by a cultural resources specialist who meets the SOI's Professional Qualifications Standards (36 CFR Part 61; 48 Federal Register 44716). The training will be conducted before any stages of physical project implementation and construction. Native American representatives from interested Native American Tribes will be encouraged to participate in the training. The WEAP training will include information on the potential kinds of pre-contact Native American and historic-era cultural materials that could be encountered, how to identify buried faunal and human remains, and how to identify anthropogenic soils (e.g., midden soils). The WEAP training will also include a summary of the relevant laws concerning cultural resources and human remains, along with a summary of the following protocols to follow if workers encounter cultural resources or human remains.	P, C	DWR	DWR
CR-3	**Address Previously Known Historical, Archaeological, and Tribal Cultural Resources through Monitoring of Ground-disturbing Activities** Because of the sensitivity for archaeological resources in native soils, project-related, ground-disturbing activities conducted in native soils will be monitored by either a SOI-qualified archaeologist or supervised by a Secretary of the Interior qualified archaeologist or Tribal monitor, if available. Construction activities to be monitored will be restricted to work in native soils and where soils are able to be viewed; for example, installation of pilings that will not expose soils need not be monitored. Monitors will have the ability to temporarily stop work to inspect possible archaeological finds. Daily monitoring logs by all monitors will be kept with information regarding the type of work monitored, location of monitoring, time of monitoring, and whether archaeological/Tribal resources were encountered. All monitoring logs will be submitted to DWR on a weekly or biweekly basis.	C	DWR	DWR
CR-4	**Address Previously Undiscovered Historical, Archaeological, and Tribal Cultural Resources** If buried or previously unidentified historic properties or archaeological resources are discovered during project construction, all work within a 100-foot-radius of the find will cease. DWR will retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment, or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation will be developed in coordination with interested Native American Tribes providing recommendations and with DWR and will be completed before project activities continue in the vicinity of the find.	C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
CR-5	**Avoid Potential Effects on Undiscovered Burials** DWR and its construction contractors will implement the following protocol to reduce or avoid potential impacts related to undiscovered burials. In accordance with the California Health and Safety Code, if human remains are found, all excavation work will be halted in the immediate area and the Colusa and Sutter counties Coroner(s) be notified to determine the nature of the remains. The county 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 pre-contact Native American (i.e., not modern, and earlier than Euro-American incursion in the area), they must contact the NAHC by telephone within 24 hours of making that determination (California Health and Safety Code, Section 7050.5[c]). Once notified by the Coroner, the NAHC will identify the person it believes is the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner, the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. This visit should be conducted with 24 hours of the MLD's notification by the NAHC (PRC Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (PRC Section 5097.94[k]). Should mediation fail, the landowner or landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC Section 5097.98[b]).	C	DWR Contractor	DWR
GEO-1	**Prepare and Implement a Stormwater Pollution Prevention Plan and BMPs to Reduce Erosion** DWR and its construction contractor(s) will implement the following measures to minimize impacts from erosion and sedimentation: Construction activities will be subject to SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES NO. CAS000002) (2009-0009-DWQ) (or to the water quality/erosion control measures included in the Mitigation Measure BIO-3: Prepare and Implement a Water Quality Control Plan) to meet construction-related stormwater permit requirements of the NPDES program. Any permits will be obtained by DWR or its contractor(s) before commencing ground-disturbing construction activity. The General Permit also requires preparing and implementing a SWPPP that identifies BMPs to prevent or minimize the introduction of contaminants into surface waters. Such BMPs could include, but would not be limited to, silt curtains, silt fencing, straw bale barriers, fiber rolls, storm drain inlet protection, hydraulic mulch, and a stabilized construction entrance. The SWPPP will include development of site-specific structural and operational BMPs to prevent and control impacts on runoff quality, measures to be implemented before each storm event, inspection, maintenance of BMPs, and monitoring of runoff quality by visual and/or analytical means.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
GEO-2	**Bank Stabilization Prior to Dewatering** Prior to dewatering activities, denuded bank/slope areas between the cofferdam and Butte Slough/Marty Road (within the Sacramento River inlet area), and within Butte Slough proper, will be included in the dewatering plan. The dewatering plan will require that (as with Mitigation Measure BIO 8) disturbed soil areas (e.g., denuded banks and slopes) are stabilized using appropriate erosion control BMPs before, during, and after the completion of construction activities for all construction phases. Such stabilization will include vegetated fill; it would likely not include rip-rap unless banks are determined to be excessively unstable prior to construction. If hydroseeding is used to cover disturbed areas, native grass/forb/herbaceous plant, sterile rye, or other non-invasive seed mixes will be used. Vegetation, once seeded, will be given sufficient time to root into bank tops and cutbanks. Moreover, DWR will acquire appropriate regulatory permits related to erosion and water quality.	P, C	DWR Contractor	DWR
HHM-1	**Conduct Hazardous Materials Training and Response** DWR and its construction contractor will ensure that construction workers are trained on the potential to encounter hazardous materials and proper notification procedures. The training will specify that if stained or odorous soils from an unknown source are encountered: 1) work in the vicinity must cease; 2) a qualified hazardous materials specialist must be consulted; and 3) DWR will also notify the appropriate Federal, State, and/or local agencies. A variety of steps may be taken at the discretion of DWR. Among those steps are the following: • Avoid the area containing the stained/odorous soils or infrastructure. • Perform Site Assessments to evaluate the nature, extent, and level of hazard to the public and construction workers if construction needs to occur in the exact location of the soils or infrastructure. • Clean up the area or coordinate with the owner of the affected parcel to perform cleanup activities. Should DWR elect to clean up activities on its own, all hazardous substances encountered will be removed and properly disposed of by a licensed contractor in accordance with Federal and State regulations.	P, C	DWR Contractor	DWR
HHM-2	**Implement BMPs for Wildland Fire Prevention** DWR and its construction contractors will clear dried vegetation or other materials that could serve as fuel for combustion from construction or building areas. To the extent feasible, the contractor will keep these areas clear of combustible materials to maintain a firebreak. Construction contractors will ensure that any construction equipment that normally includes a spark arrester will be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
HWQ-1	**Obtain Coverage and Comply with Requirements of the General Order for Limited Threat Discharges to Surface Water** Construction and operations involving dewatering would be subject to Central Valley RWQCB's Waste Discharge Requirement (WDR) R5-2016-0076-01 requirements for managing wastewater produced during dewatering activities. To obtain coverage under this General Order, which also serves as the NPDES Permit, the Discharger must submit a complete Notice of Intent and provide samples for analysis to determine the quality of the discharge (using tiers) and assign appropriate controls that would apply to the permit. DWR or its contractor(s) will submit a separate Notice of Intent under the General Order for applicable construction and/or operation activities.	P, C	DWR Contractor	DWR
NOI-1	**Implement Noise-reducing Construction Practices** DWR and its construction contractors will implement the follow noise reducing measures during the project's dewatering activities near noise-sensitive receptors that could be subject to substantial construction noise in excess of applicable standards or substantially greater than existing conditions. • Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors. • Construction scheduling and phasing will be designed so that impact equipment (e.g., pile drivers, pneumatic hammers) are used during daytime hours only. • Housing of stationary equipment (e.g., generators) incorporating sound-attenuating enclosures if equipment would operate within a clear line-of-sight of offsite sensitive receptors. Sound attenuating enclosures will meet the following applicable criteria: o be installed as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s). o will consist of durable, flexible composite material featuring a noise barrier layer bound to sound-absorptive material on one side; and o will consist of rugged, impervious, material with a surface weight of at least one pound per square foot, such that a minimum of 10 dBA reduction is achieved on the receiving side of the sound barrier. • Construction equipment will be properly maintained per manufacturer specifications and fitted with the practicable noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded. Construction equipment will be inspected before first use and at least once during construction for compliance with these noise reduction measures.	P, C	DWR Contractor	DWR

Mitigation Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Responsible for Monitoring/ Reporting Action
NOI-1 (continued)	• Equipment that is quieter than standard equipment will be used in the vicinity of sensitive noise receptors when practical. For example, electrically powered equipment will be used instead of internal combustion equipment where use of such equipment is a readily available substitute that accomplishes program tasks in the same manner as internal combustion equipment. • Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.	P, C	DWR Contractor	DWR
UTL-1	**Verify Utility Locations, Coordinate with Affected Utility Owners/Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage** DWR and its construction contractors will implement the measures listed below before construction begins to avoid and minimize potential damage to utilities, infrastructure, and service disruptions during construction. • Coordinate with applicable utility and service providers to implement orderly relocation of utilities that need to be removed or relocated. • Provide notification of any potential interruptions in service to the appropriate agencies and affected landowners. • Verify through field surveys and the use of the Underground Service Alert services the locations of buried utilities in the project area, including natural gas, petroleum, and sewer pipelines. Any buried utility lines would be clearly marked in the area of construction (e.g., in the field) and on the construction specifications in advance of any earthmoving activities. • Before the start of construction, prepare and implement a response plan that addresses potential accidental damage to a utility line. The plan would identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan would include worker education training in response to such situations. • Stage utility relocations during project construction to minimize service interruptions. • Communicate construction activities with first responders to avoid response delays due to construction detours. The construction contractor will follow standard procedures for further identifying underground utilities in the project area to confirm the site conditions. If underground utilities are identified by the utility providers, the contractor will coordinate any necessary BMPs that will need to be implemented. Based on current site data and available information, no effects to public utilities are anticipated during construction.	P, C	DWR Contractor	DWR

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.